

GREAT INTERNATIONAL FISHERIES EXHIBITION.

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UNITED STATES OF AMERICA.

I.

CATALOGUE

OF THE

COLLECTION ILLUSTRATING THE FISHING VESSELS AND BOATS,  
AND THEIR EQUIPMENT; THE ECONOMIC CONDITION  
OF FISHERMEN; ANGLERS' OUTFITS, ETC.

BY

CAPTAIN J. W. COLLINS,

ASSISTANT, U. S. FISH COMMISSION.

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## A.—INTRODUCTION.

### STATISTICS AND HISTORY OF FISHING VESSELS.

According to the census of 1880 there were employed in the fisheries of the United States, in that year, 6,605 vessels, of an aggregate tonnage of 208,297.82 tons, valued at \$9,357,282. The number of fishermen employed was 101,684, which includes those engaged in boat fishing as well as those sailing on vessels. The most important fisheries in which these are engaged are those for cod, mackerel, halibut, oysters, menhaden, herring, and the whale. There are several other fisheries of more or less consequence, but of less importance than those named above. The bulk of the fishing fleet sails from New England, from which section the whale fishery and the greater part of the ocean food fisheries are prosecuted.

The fishing fleet of a nation is an important factor in the development of its commerce as well as in its naval success. The building of fishing boats and vessels develops a taste for naval architecture which often may result in decided benefit to the country, as well as advantage to the individual. And these boats and vessels, besides accomplishing the more special objects for which they were constructed, become training ships upon which large numbers of seamen receive their technical education which fits them not only for fishermen, but also to fill positions of responsibility in other naval pursuits. It is, I believe, a well established historical fact that those nations which have enjoyed remarkable commercial prosperity and naval supremacy can trace their success in these particulars directly to their fishing industries, the pursuit of which has developed an adventurous and enterprising naval spirit in the people.

The colonization of North America was due almost wholly to the interest felt in the fisheries of the Western Atlantic, and to this cause alone may we look for the motive that induced people to settle in localities which afforded small attractions of any other kind. As a result of the tendencies of the early settlers to engage in the fisheries, a fleet of fishing vessels was employed as soon as the country was occupied.

According to the old records snows and ketches were employed in the bank cod fisheries when the business was first established, and at an early date sloops were also engaged in fishing. In the records of Massachusetts Colony, 1680, the statement is made that—

“There are about one hundred or one hundred and twenty ships, sloops, and other vessels that trade to and from hence, yearly, of our own or English build, most of them belonging to this colony. Wee have eight or ten ships [probably snows] of one hundred tons or more, and about forty or fifty fishing ketches of betwixt twenty and forty tons.

Six or eight English ships do usually come hither yearly belonging to the Kingdom of England, bringing commodities of all sorts from thence.”

The so-called ketches were probably employed to a greater extent than any others. These vessels were full and heavy built, with a peculiar rig that was at first invented for a bomb vessel (the mainmast standing about amidships to give room for ordnance forward), but afterwards came into great favor for yachts and fishing crafts. The snows were generally larger than the ketches, square-rigged on two masts, and having a small jiggermast at the stern. A distinguishing feature of the sloops of the early colonial times was that many if not most of them carried square topsails. These were, of course, better adapted for fishing near the land than for making extended cruises to the banks.

The first marked improvement in the American fishing vessels was the invention of the schooner rig early in the eighteenth century. The difficulties attending the adoption of a new rig in former times is evidenced by illustrations of war ships of the eighteenth century, and previously, on which lateen sails were carried on the mizzen. Illustrations of French men-of-war in 1764, however, show that the portion of the sail forward of the mast was no longer carried, probably owing to the difficulty of lowering and shifting the yard whenever the ship changed her tack. The yard was nevertheless kept its full length, simply, it would appear, because no one could invent a gaff, or similar device, to take its place. We may, therefore, look upon the invention of the schooner rig, which has now become so popular in America, as a matter of special importance in the history of our fishing fleet. The particular incident which gave to this rig the name of schooner is thus described:

“Captain Robinson built and rigged a *ketch*, as they were then called, masted and rigged it in a new and peculiar manner; when launched the peculiar motion she made as she glided into the water from the stocks caused one of the by-standers to exclaim, ‘Oh, how she *scoons*.’ Robinson instantly dashed a bottle of rum against her bow and exclaimed, ‘A schooner let her be!’ And thus the schooner originated.”

This event happened in Gloucester in 1713, according to the historical account, and as early as 1716 mention is made of the employment of a “schooner” in the fisheries off Cape Sable, Nova Scotia, and it is possible this may have been the original one built by Captain Robinson.

The schooners employed in the Grand Bank cod-fisheries from New England—chiefly from the port of Marblehead, Mass.—previous to the War of Independence, were full built, round-bodied craft, specially noted for having short and high quarter-decks, from which peculiarity they derived the appellation of “heel-tappers,” at a later date, when a different type of fishing vessel came into general use. Previous to 1775 Marblehead had a fleet of more than one hundred and fifty fishing schooners, while it is stated that as early as 1701 Gloucester had a fleet of seventy vessels employed in the Grand Bank cod-fisheries. Many of

the largest of the New England fleet made winter voyages to Spain—chiefly to Bilboa—where they carried the products of their summer's fishing and returned home laden with European goods. In this way the spirit of adventure was stimulated and increased, and many of the New England fishermen became very skillful seamen.

The period between 1775 and 1815, during which time occurred the war of the Revolution, the embargo act, and the war of 1812-'15, was a very unfavorable one for the American fisheries. The larger class of fishing vessels, those which had been employed on the Grand Bank and other distant fishing grounds, were compelled to lie idle, while, in most cases, the hardy men who had composed their crews were employed in the Army or Navy. The fishermen, impoverished by the long struggle for independence, were unable, after the peace of 1783, to build and equip large vessels, therefore they provided themselves with smaller craft, in which they fished on the grounds in Massachusetts Bay and adjacent waters. This was the period when the "Chebacco boat" came into general use. These peculiar boats derive their specific name from Chebacco, now a part of the town of Essex, Mass., where they originated. At first they were generally sharp aft, with a "pink" stern, usually only partially decked—being what were called "standing-room boats"—with two masts and two sails. Later they were built larger, rarely, however, so large as 20 tons, and decked, while many were made with square stern and nicknamed "Dogboddies." About 1820 the fisheries began to gain in prosperity, the size of the sharp-sterned craft increased, a bowsprit with a jib was added, and a new style of fishing vessel, the "pinkey," was the result. Though in the meantime some square-sterned vessels were employed, the pinkey remained in most general use until about 1840, when the low quarter-deck, but still full-bowed schooner, was extensively introduced.

The second great event in the history of the American fishing fleet was the change from blunt to clipper schooners. It is claimed by some authorities—seemingly with good reason—that the changes made in the models of our fishing vessels was the source from which sprung the famous American clipper ships which at one period made our merchant marine so justly celebrated, both for its vessels and the superior seamanship of their officers and crews.

The requirements of the mackerel fishery and of the oyster trade made swift sailing vessels a necessity, and about 1845 ambitious builders began to make some changes. It was not, however, until 1847 that the first really sharp vessel—the *Romp*—was built, and it is a matter of record that men were at first afraid to go on her, though when once tried she was found to be an excellent sea boat. She has since made the passage around Cape Horn to California.

It is not practicable in this place to trace the development and changes which have taken place since 1850 in the American fishing schooner, though the subject is one of sufficient interest and seemingly

of sufficient importance to warrant its full discussion had it not received attention in another place.\* Suffice it to say that after passing through various changes the clipper fishing schooner of New England is to-day second to none in beauty, speed, equipment, spread of canvas, and ability to carry sail in ordinary weather. Unfortunately, however, in the effort to attain a high rate of speed and great initial stability, so that much sail can be carried with a comparatively small amount of ballast, a rather shallow, extremely sharp vessel has been produced, with great breadth of beam, upon which she mainly depends for stability. This form, though it has certain manifest advantages, is nevertheless a dangerous one, and consequently, though we now have much larger vessels than formerly, we find that the ratio of loss by foundering at sea has increased of late years with frightful rapidity. A fruitful source of disaster is doubtless the liability of the present type of schooner to capsize or be tripped by a heavy sea, and its inability to right again, owing to the lack of a low center of gravity and an unusual length and weight of spars. While great and manifest improvements have unquestionably been made in the American fishing schooner, the writer is of the opinion—an opinion gained by practical experience as well as by study—that in departing from the relatively deeper craft of a few years ago a serious error has been committed which will not be remedied until a change is made in that direction. A study of the collection of builders' models showing the evolution of the American fishing schooner will enable one to gain a better idea of this subject than can be conveyed in the limited space at our command.

The fishing fleet possessed by a country plays a more important part in its commercial and naval success than is popularly supposed. The boy or young man who first obtains the rudiments of naval construction while endeavoring to build for himself a boat or larger craft, in which to ply his vocation, may in this manner develop latent mechanical powers which he may possess, and the result of his early training may be the producing of a ship-builder.

The third remarkable event in the history of the American fishing fleet was the employment of steamers, though steam has not yet taken so prominent a position in our ocean fisheries as one might naturally expect in an age when it has become nearly universal. The extreme swiftness of our sailing vessels, the fact that a large percentage of our ocean food-fishes are cured at sea and marketed in a salted condition, the comparative cheapness of sailing craft, and also because they can be kept at sea at far less expense, are causes which, so far, have operated to prevent the employment of steamers in any of the sea fisheries which are carried on at long distances from the land. Attempts have been made to introduce steamers into the winter haddock and the summer mackerel fisheries, but the results obtained were not satisfactory,

\*A description of the fishing vessels and boats of the United States, yet unpublished.

and the regular employment of such vessels in those or kindred branches of the fisheries has apparently been indefinitely postponed.

Screw steamers were introduced for the capture of menhaden about 1871. In a description, by Boardman and Atkins, of the methods employed in the menhaden fishery about Booth Bay, Me., in 1874, it is stated that: "They [steamers] were introduced on the coast of Maine three years ago." Steamers were found remarkably well adapted for this fishery, where quick dispatch is a necessity, and the fish are taken from the great purse-seines and thrown in bulk in the vessel's hold, where they lie until they are transferred to the factory—on the arrival of the steamer in port—to be converted into fertilizers and oil. In the census year of 1880 there were 84 steamers employed in the menhaden fisheries, their aggregate tonnage amounting to 6,543.29 tons. The smallest of the fleet, and the first built for this fishery, the Seven Brothers, is 27.32 tons, while the largest, the George W. Humphries (a "double-gang steamer"), is 214.55 tons, with 250 horse-power.

Screw steamers are used to some extent in the fisheries of the great lakes. Some of these are employed chiefly in carrying to market the product of the traps and pounds, and are generally called "pound steamers." The most of them, however, fish with long strings of gill-nets and are called "gill-net steamers." There are certain local differences in these vessels, but generally speaking they resemble an ordinary steam tug, being, however, somewhat wider and rather flatter on the floor. They range in size from 10 to about 45 tons.

A few years ago steamers were introduced into the oyster fisheries, and in 1881 twelve of these vessels were employed in dredging oysters in the waters of Long Island Sound, and several others were then in course of construction.

The first attempt to use steam power for oyster dredging of which we have any knowledge was made at Norwalk, Conn., when a boiler and engine were put on board the sloop *Early Bird* in 1874 for the purpose only of turning the drums with which the dredge lines were hauled. Later this vessel was further improved by the addition of a propeller, and this was found to add so materially to her effectiveness that since that time several screw steamers have been built expressly for this work. They are generally of small size, ranging from 20 to 63 tons, from 50 to 83 feet in length, with a beam of 12 to 20 feet.

In 1880 there were two small screw steamers, of the tug pattern, employed in the clam fisheries of the United States, one of these, however, spending a portion of her time in the "sardine" fisheries, in which, also, another small tug found employment. In the latter industry the work of the steamers consisted chiefly in towing fishing boats to and from the factories or packing establishments.

Small, light-draught, side-wheel steamers are also used to some extent for "laying out" seines in the broad shallow waters of the South, especially about Albemarle Sound.

The collection of rigged models represents the most important types of fishing vessels now employed in the United States, as well as others which are historically interesting from having been used in the early history of the country.

The series of sketches and large photographs serve to illustrate the construction, equipment, and work of the vessels, more particularly the clipper schooner of the present day, which is represented under the many varying conditions of wind, weather, and surroundings that are liable to occur in pursuing the several more important branches of our sea fisheries.

### STATISTICS AND HISTORY OF FISHING BOATS.

The statistics prepared for the tenth census show that, in 1880, there were employed in the fisheries of the United States 44,804 boats, valued at \$2,465,393. This fleet of boats is more evenly distributed than are the vessels, and though there are relatively more on the northeastern coast than elsewhere, fishing boats are nevertheless found in greater or less numbers in all sections of the country where quantities of fish may be taken.

The fishermen of the United States, until within a comparatively short time, have shown a decided preference for sharp-sterned boats, a preference which I believe is very general among the fishermen of all countries. And even at the present time this type of fishing boats is, perhaps, in most general use in American waters. At the same time, however, various forms and rigs of square-sterned boats have been adopted by the fishermen within the present century, and most of these have met with local favor at least, while others have become so celebrated for speed that their fame has extended far and wide. It is a somewhat remarkable fact that the most popular forms of small yachts on the Atlantic coast have been modeled and rigged like fishing boats, and it is by no means an unknown event for fishing boats to engage in regattas and carry off the honors of the occasion. The cat-rigged fishing boats in the vicinity of Newport, Rhode Island, and Martha's Vineyard, Massachusetts, and the small sloops of Southern New England and of Maine furnish the favorite types for yachtsmen to copy. Both of these forms have gained a wide celebrity for speed both in the United States and in other countries. In England the cat boat of this type is known as the "Una," boat, this special form having taken its name from the American boat "Una" which, a few years ago, created a great sensation in British yachting circles by her wonderful performances.

The cat rig, the sloop, and the schooner are the favorite rigs among the native American fishermen. The cutter rig has been introduced by the Irish fishermen sailing from Boston, Mass., while along some parts of the coast of the Gulf of Mexico, and in California, the fishermen,

many of whom are natives of Southern Europe, have brought with them their native prejudices in favor of the lateen rig. The lug rig has never been a favorite one in the United States.

There are many varieties of flat-bottomed boats used in the fisheries of the United States, the most important of these being the American dory. For various reasons, this type of boat, though somewhat unprepossessing to look at, has come into great favor for sea fishing.

The dory is found more convenient for stowage on the deck of a vessel than any other boat, since several can be "nested" together; it is light and convenient to handle, "burdensome," can be built at small cost, and is one of the safest boats used in the fisheries. At least three dories have crossed the Atlantic, one of which—the Little Western—was only 13½ feet long on the bottom.

The dory originated in Newburyport, Mass., about the beginning of the present century. At first boats of this build, but of larger size than those employed in the fisheries, were used as lighters for discharging cargoes of sugar and molasses from vessels arriving from the South or the West Indies. Dories were used in the fisheries comparatively little until 1850, but with the introduction of the trawl-line fisheries these boats came rapidly into favor, and of late years have been very generally adopted by the fishermen of the British Provinces of North America and also by the French, who resort to the Grand Banks of Newfoundland.

The sharpie, used in the oyster and other fisheries, is a very serviceable form of boat in localities where the waters are generally shallow. Provided with center-board and sails, they are frequently swift sailers in smooth water, and on certain parts of the Atlantic coast boats of this type are in high favor as small yachts.

The "pound boat" of the Great Lakes is a variation of the sharpie pattern, but is made of extra width in order that it may be adapted to its work. As a matter of fact, a fisherman's boat is usually as good an illustration of the adaptation of means to ends as can be found. The Eskimo of the far north, where wood is not obtainable, builds his kayak or bidarka of the skins of such animals as he can capture. The tribes living on the northwest coast of America, in regions where forests of large trees grow, construct for themselves boats dug out of the solid wood, while other Indians make boats of the bark of trees, birch bark being the favorite material among many North American tribes. Among white men we find even a greater diversity. And in a country having such an extensive area as the United States, with all the varying conditions of climate, weather, and local surroundings, having within its limits fishermen from almost every country under the sun, it is not at all surprising that a remarkable variety of form and rig should exist in fishing boats. It is not, however, possible to discuss this subject here, even in the briefest manner, the time and space at our com-

mand not permitting of anything more than to make a bare allusion to the matter.

The collection of models and full-sized specimens of fishing boats, rigged or otherwise, portable boats, canoes, kyaks, dug-outs, &c., represent the more interesting forms of small craft used for fishing in the United States. Sketches and large photographs illustrate the construction and work of many of these boats, canoes, &c.

#### APPARATUS ACCESSORY TO RIGGING FISHING VESSELS.

Very marked improvements have been made in the fittings and appliances of fishing vessels since 1830. Previous to that time the vessels had no stoves; the cabins were roughly finished, and cooking was done in a small fire-place. The vessels were steered with tillers, as a rule, none of the many varieties of patent wheels used on fishing vessels having been invented at that date, while the patent windlass, now considered indispensable, was unknown to fishermen, who were obliged to perform the heavy work of heaving up their anchors on the banks with the old-fashioned windlasses, worked by handspikes.

#### CANVAS.

In the early days the sails were usually made of dark colored canvas (probably of hemp), which in dry weather was generally baggy, and we are told by old fishermen that few vessels at the beginning of the present century were unprovided with scout-horns with which to wet their sails when sailing close hauled. At the present time cotton canvas is exclusively used on American fishing vessels, and the fishermen of the United States are much prejudiced in its favor. Its comparative cheapness, its whiteness, and the fact that it will set very flat are merits which tend to bring it into high repute, more especially on the clipper fishing vessels, on which dark colored or baggy canvas would not be tolerated. About 40 per cent. of the canvas used on the Gloucester fishing fleet is what is known as the "medium"—a quality of duck about half way between the hard and soft grades.

The following will give an idea of the weight of canvas carried by the fishing schooners of New England:

Canvas used for three lower sails, namely, mainsail, foresail, and jib, all of which are usually made of the same kind of duck: Nos. 1 and 2 for vessels of 70 to 90 tons; No. 2 for vessels of 60 to 70 tons; Nos. 3 and 4 for vessels of 50 tons; No. 5 for vessels of 40 tons; No. 6 for vessels of 20 tons.

Canvas used for light sails: Nos. 6 and 7, for flying jibs for vessels 65 to 90 tons; Nos. 9 and 10 used for staysails and gaff-topsails for schooners 60 to 80 tons; 8-ounce duck used for balloon jib for schooner of 90 tons, the same size for staysails on smaller vessels; 6½-ounce twill for balloon jib for schooners of 70 to 80 tons.

## CORDAGE.

As to the cordage used, the standing rigging is generally of hemp and wire, though the latter is not so much in favor on fishing vessels as on those engaged in other pursuits. Manila is universally used for running rigging, and very generally for cables to ride by on the fishing banks. Thirty to fifty years ago hemp cables were generally carried, but manila has almost, if not entirely, superseded hemp for this purpose. Much care is taken to fit the rigging of the clipper schooners in a neat and workmanlike manner, and in this respect they can compare very favorably with the best rigged yachts.

## WINDLASSES.

At the present day all of the first-class American fishing schooners are provided with patent windlasses, of which there are several varieties, which, however, usually work on the same general principle. The New England fishermen were rather conservative about adopting this improvement when it was first brought to their notice some forty years ago. They feared that the iron work might break, and that they would consequently meet with much difficulty in getting their anchor. The story is told that the first Gloucester vessel to carry a patent windlass to George's Bank was watched with much interest, and on the first favorable occasion the crews of other vessels went on board of her on the bank to witness the working of the "new-fangled idea," and to satisfy themselves as to its practical utility. The improved windlasses met with great favor as soon as their usefulness was demonstrated, and all the vessels were rapidly supplied with them.

## STEERERS.

As previously stated, the fishing vessels during the first three or four decades of the present century were steered almost exclusively with tillers. At the present time few are steered in that way, more particularly of the larger class, some form of the many different varieties of patent steering wheels being used.

## NAUTICAL INSTRUMENTS.

A very marked change has taken place within the past forty years in the matter of providing fishing vessels with a good supply of nautical instruments. Formerly few vessels carried anything more than the ordinary compasses and a chart of the locality over which they were supposed to cruise. The majority were unprovided with quadrants, and dead reckoning was almost entirely depended on, while even this was not assisted, as a rule, by any form of log, the fishermen estimating the distance run simply by noting the motion of their vessel through the water. Barometers were practically unknown. At the

present time the most improved and valuable forms of compasses are carried; no first-class vessel is without a good barometer (the aneroid form generally being preferred); the most approved forms of patent logs, and excellent marine clocks are carried, while few, if any, vessels are unprovided with either a quadrant or a sextant, as well as a spy-glass or marine glasses. Most of the halibut schooners and some of those engaged in the cod fishery on the distant banks carry chronometers. Much of this change is due to the extremely sharp competition that now exists in the several branches of the fisheries, and the consequent need for skillful navigation both to find fish on small and isolated "spots" and to make rapid and safe passages to and from the home ports. Since the method of trawl-line fishing has now become so general, and the winter fisheries are prosecuted much more than formerly, it is necessary that barometers should be carried, in order that a better idea may be gained of weather changes than would otherwise be possible.

#### BOOKS.

The most approved forms of nautical books, such as navigators, nautical almanacs, coast pilots, &c., are carried on the fishing vessels.

#### CHARTS.

All of the first-class fishing vessels are well provided with charts of the regions over which they sail. Eldridge's charts are seemingly preferred, probably because the fishing grounds are laid down on them more distinctly than on either the Admiralty charts or those issued by the United States Coast and Geodetic Survey or by the Hydrographic Office, though the Government issues are doubtless the most accurate.

#### FOG HORNS.

There is probably nothing more needed by American fishermen than a powerful and efficient fog horn. Obligated to lie at anchor on the fishing banks in the direct track of commerce, especially swift steamers, and where dense fogs prevail nearly all the time in spring and summer, they are in constant danger of being run down and sunk—a danger that can be averted only by having a powerful horn that may be operated by hand. The trawl-line fisheries, too, involve the fishermen in much personal risk that can be obviated only by the use of a horn of more than ordinary power. During the prevalence of the thickest fogs the fishermen must put off from their vessels to set and haul their trawl-lines, generally going distances varying from  $1\frac{1}{2}$  to 2 miles. The style of horns commonly in use cannot, of course, be heard more than a small portion of that distance, except when there is little or no wind. Therefore, in localities where the currents are uncertain as to their course, and variable in strength, where the winds are liable to change suddenly

and where the fogs are so dense and so long-continued, it is not surprising that many fishermen go astray in their boats and are exposed to untold suffering, perhaps death, owing to the fact that they are unable to hear the fog signals made on board of the schooner they have left, and which they vainly strive to find. The local papers in the fishing towns frequently record the loss of men in this manner, and the escape of others from death, simply by a hair's breadth, after enduring the most unheard of suffering from exposure, hunger, and thirst. Various devices have been resorted to to remedy this evil, such, for instance, as carrying cannon to fire in foggy weather, but heretofore these means have failed to prevent the frequent recurrence of disaster. The chief objection to cannon is, that their discharge involves a certain amount of danger as well as expense; therefore, they are not usually fired until it is deemed absolutely necessary—that is, often not unless it is thought a dory has gone astray, and then it is frequently ineffective because the lost men have got too far from the vessel to hear the sound. Another thing, the sound of a cannon is so short that its direction, even if the report is heard, is very difficult to determine. What, therefore, is needed is an implement that can give out a nearly continuous heavy blast, or a succession of short, heavy blasts, powerful enough to be heard at a considerable distance, and repeated at such short intervals that no difficulty may be experienced in determining its location.

#### PRESERVATIVE FLUIDS AND PAINTS.

The continued prevalence of heavy fogs on the fishing grounds off the Atlantic coast renders it difficult to prevent sails from mildewing. As a result the fishermen have used preservatives to a greater or less extent, especially on the sails of vessels engaged in the bank fisheries. Many of the Gloucester fleet have their sails so prepared as a preventive against mildew and rot.

Copper paint, of various brands, is extensively used on the bottoms of fishing vessels to prevent the planking from being injured by boring worms, and also to prevent fouling. There is probably not a single fishing vessel of any size that is not painted with copper paint on its bottom.

#### CHAFING GEAR.

Since the introduction of larger and more neatly rigged vessels than those which were formerly employed in the fisheries, more attention is now paid to the use of various kinds of chafing gear to prevent the rigging from being injured. The ordinary equipment of this material is represented in the collection exhibited. The strad is probably original with the New England fishermen, and is remarkably well adapted for application to a cable to prevent chafing in the hawse-pipe and across the stem and head-stays.

## BLOCKS, ETC.

Many important improvements have been made in blocks, whereby greater power and compactness are obtained. The most noticeable of these improvements is the substitution of galvanized iron for the old-fashioned rope strap, the invention of patent roller bushings, and the attachment of buffers of various patterns for relieving the strain when jibing, &c.

## HOOPS AND HANKS.

Various devices have been invented for the improvement of hoops and hanks, but, in rather remarkable contrast to the advance made in other directions, few, if any, of these seem to be of special practical importance. As a matter of fact, the plain oak hoops and hanks that were in use many years ago are used to-day on fishing vessels. The only exceptions to this are that galvanized-iron hoops are used on the masts of small boats to some extent, and iron hanks are, of course, attached to sails set on wire stays.

One of the best improvements, so far as fishing vessels are concerned, has been made in devising a riding sail hoop which can be easily and quickly attached to or detached from a sail, and the use of which obviates the necessity that formerly existed for using rope hoops, lacings, &c.

## HOOKS, CLEWS, ETC.

In the construction and equipment of fishing vessels, the manufacture of their sails, &c., the most approved forms of apparatus are used. In such things as hooks, clews, thimbles, grommets, chocks, boat-hooks, leaders, purrels, cleats, belaying-pins, anchors, and the various other materials which enter into the construction or outfit of fishing vessels or boats, more or less important improvements have been made—one of which is, in many cases, the substitution of galvanized for black iron, the general result of which has been an increase in the strength and efficiency of our fishing craft. Though many of these improvements are of special interest and more of them deserve mention, it is not possible, owing to the great variety of these objects and the lack of space, to speak of them in detail. Nothing more can be done here than to simply call attention to the fact that in the class of objects alluded to such perfection has been attained as to materially aid in making our fishing fleet specially well adapted for the work it has to do.

## DRAGS, OR FLOATING SEA ANCHORS.

The practice of carrying drags or floating anchors is unfortunately too much neglected on our fishing vessels. The object of this form of apparatus is to prevent foundering of sea-going vessels when lying to in heavy gales, especially when sails have been blown away, or when from

other causes a vessel has become unmanageable, or is lying in a dangerous position. Unless a vessel is provided in such an emergency with some sort of drag to be put out at the bow, so as to prevent her from falling into the trough of the sea, she is liable to meet with serious disaster, amounting in many cases to an entire loss of the ship and crew. It is believed by many, whose experience renders them capable of judging correctly, that a large percentage of the loss by foundering which occurs to the fishing fleet of New England might be obviated by the use of properly constructed drags. As is well known, heretofore seamen have generally been compelled in such emergencies to rely on some sort of floating anchor improvised from spare material on ship-board—such as spars, casks, &c.—the rigging of which is generally attended with much danger and delay, at a time, too, when the utmost dispatch is desirable, if not imperative. And when completed these rudely constructed affairs are rarely, if ever, found to answer well the purpose for which they were designed, shipwreck and loss of life often being the result of their faulty construction. Unfortunately, too, there is created a prejudice in the seaman's mind against using such contrivances, and unless provided with apparatus specially designed for this purpose, he must take the fearful alternative of chance to insure his safe return to port.

To obviate these difficulties various forms of drags or floating anchors have been designed. In those exhibited, one of the chief improvements attained (always, of course, supposing that any apparatus of this kind is properly shaped) is adjustability. As few, if any, vessels have sufficient spare room to stow away any drag which is not adjustable, and, as heretofore shipmasters (especially fishermen) have found it inconvenient to carry the cumbersome devices of this kind which have been made, the advantages of having an adjustable drag are evident. Such a one can be always kept on board ready for any emergency. It can be stowed in the smallest compass, and, when need be, it can be prepared for use in a few minutes.

#### FISHERMEN AND THEIR APPAREL.

In 1880 there were employed in the fisheries of the United States 101,684 men. Of these a large percentage were engaged in the whale fishery and in the various branches of the off-shore ocean food fisheries. These may be called the sailor-fishermen, and, as a class, they are hardy, brave, and skillful. New England has 37,043 men engaged in the fisheries, nearly all of the class above mentioned. The South Atlantic States employ 52,418 men, chiefly coast and bay fishermen. The Middle States have 14,981 men; and the Pacific States and Territories 16,803. Five thousand and fifty fishermen find employment in the great lake fisheries, and 5,131 men are engaged in the fisheries of the Gulf of Mexico.

The harvest of the seas has drawn to the United States representatives of nearly all countries, more particularly the maritime countries of Europe. The crews of the New England fishing vessels are made up, to a greater or less extent, of foreign-born men. Among these natives of the British North American provinces predominate. It is not uncommon, however, for a single crew to be composed of men from five or six different countries. As a rule, these men—provincials, Scandinavians, Danes, Germans, Portuguese, Irish, &c.—make excellent fishermen, and often rise to command.

Few negroes are employed in the New England food fisheries. Occasionally a colored cook finds a situation on a fishing schooner, but it rarely happens that a negro can find employment in any other capacity on the vessels north of Cape Cod. On the other hand, the whaling vessels of New England recruit a considerable portion of their crews from the negroes of the Canary Islands and elsewhere, from the Indians of the Pacific islands—chiefly Kanakas of the Sandwich Islands; from the Gay Head tribe of Indians, and perhaps from various other sources where colored men are obtained in somewhat less numbers.

South of New York the fishermen are almost wholly American born. In the Southern Atlantic States a large percentage of the fishermen are negroes. On the west coast, Italians, Greeks, and Chinese predominate—of course excepting Alaska, where the native Aleuts are almost the only fishermen. A few vessels, manned chiefly by New England fishermen, engage in the cod fisheries from San Francisco, Cal., making extended cruises to Chotsk Sea and the Shumagin Islands on the Alaskan coast. The typical New England sailor-fisherman ranks ahead of all others in skill, daring, and enterprise. From the ranks of his class have been drawn some of the most intelligent and successful masters in our merchant marine, while it is worthy of mention that skippers of fishing schooners left their little vessels during the war of the Rebellion to join the Navy, in which service they filled honorable and responsible positions.

The clothing ordinarily worn by American fishermen has little to distinguish it from the apparel worn by any other class of sea-faring men. There are none of the peculiar characteristics in dress which are so noticeable in European countries, where fishermen can usually be easily selected from other men simply by their costumes. When on shore and off duty a New England fisherman might be mistaken for a merchant, a mechanic, a lawyer, or indeed, as a representative of any other class of landmen, if judgment was to be based on the style of his dress—his “shore togs,” as he would term them, differing in no particular from those worn by men engaged in other pursuits. The jumper, which is quite generally worn as a substitute for a light jacket or coat, is a garment peculiar to the fishermen, or at least worn more extensively by them than by any other class, though it is also worn to some

extent, I am informed, by the farmers of New England and possibly of other sections of the country.

The rubber and oil clothing manufactured in New England for fishermen's wear is not excelled in the world, and "the Cape Ann make" has justly obtained a world-wide reputation for superior excellence. The peculiar cut for the oil cloth garments which originated in Gloucester, Mass., has received the unqualified approval of all seamen familiar with it, and has been copied extensively both in the United States and in foreign countries. No class of seamen are so comfortably clothed as are the New England fishermen, though less regard is paid to apparel by those engaged in fishing in milder latitudes.

### FOOD, MEDICINE, AND SHELTER.

Probably no class of seamen are so well provided for in the matter of food as are the crews of New England fishing vessels. Of course, in making this statement exceptions may be made of the officers of steamers and sailing ships, though it is by no means the case that the latter are always better provided for than the fishermen. As a matter of fact it is extremely probable that the average fisherman is better fed than the average officer in the merchant marine. The cook on a fishing schooner is, with the single exception of the captain, the best paid man on board, and often is given a "lay" that makes his remuneration quite equal to that of the skipper. He is therefore expected to be a skillful cook and a generally capable and reliable man; and to him is usually intrusted the responsible duty of naming the quantity of the provisions which he selects and takes on board for any given cruise.

All the members of a schooner's crew, from the captain to the smallest boy (if any boys are carried), eat at the same table, and fare precisely alike. Almost without exception the cook decides what he shall prepare for each meal, and if he be well qualified for his work the dishes are sufficiently numerous and varied to suit any but the most fastidious appetite.

Salt or corned meats are carried, though most vessels on leaving port take more or less fresh meat, and some which are engaged in market fishing have more fresh meat than any other. Hard bread is rarely or never used, except to make puddings; the "soft tack" made on the fishing-vessels often equals in excellence the best bread that can be obtained on shore. Canned milk, eggs, fruit, and other delicacies are often carried.

All of the first-class fishing-vessels are provided with a medicine-chest. The one exhibited is about a fair average.

The collection of photographs of fishermen's dwellings represents the style of houses generally occupied by this class. Whether in town or along the coast the cottages are of wood, substantially built, and are generally furnished in a comfortable manner.

### FISHERMEN'S LOG-BOOKS.

While the bounty law was in force it was part of the duty of a fishing skipper to keep a log of the movements of the vessel, the amount of fish taken, the grounds visited, &c. These were, however, generally very unsatisfactory, so far as giving any information is concerned.

Of late years some of the more intelligent fishermen of New England have kept log-books or journals of their trips at the request of Prof. Spencer F. Baird, United States Fish Commissioner, who wished to obtain extensive notes of this kind for assistance in his study of the American fisheries. Many of these logs contain a vast deal of interesting information which throws much light on the movements of fishes, the methods of fishing, &c.

### FISHERMEN'S WIDOWS AND ORPHANS AID SOCIETIES.

In most, if not all, of the smaller fishing ports of the United States there have been no regularly organized societies for the aid of the families of fishermen lost at sea. The men sailing from those ports have not, as a rule, engaged very extensively in the winter fisheries, and consequently the loss of life has been comparatively small. There has not, therefore, seemingly been the same urgent need of relief societies in the small communities (where the few needy families of lost fishermen could be cared for to a greater or less extent by their more fortunate neighbors) as there has been in the large fishing port of Gloucester, Mass., from which the fisheries are pursued at all seasons, and where the sacrifice of life has often been tremendous within the past thirty to forty years. The result of such fearful loss of life as often occurs, when, as sometimes happens, 100 men or more go down in a single gale, is to leave many families deprived of their natural protectors—the hardy and daring fishermen who man the fleets of New England. As a matter of course the widows are frequently left with large families of young children, and entirely without the means of subsistence, while the care that must necessarily be given to those dependent on them deprives them of the opportunity to engage in any employment. In other cases when the widows of lost fishermen can and would gladly work they are often unable to find employment in the towns where they reside, and the struggle for life often becomes a very disheartening one. When the losses from Gloucester were of comparatively rare occurrence the necessity for aid societies was not so apparent as at the present time when it is not an unusual thing for more than 200 men to be lost in a single year. The suffering which this terrible loss has caused on specially fatal occasions has led to the formation of several aid societies, some of them of brief duration, being organized only for the emergency which called them into existence, while others have continued since

their organization, carrying on their good work with greater or less activity according to the demands made upon them.

The most permanent of these are the Gloucester Fishermen's and Seamen's Widows and Orphans Aid Society, and the Gloucester Female Charitable Association.

The Gloucester Fishermen's and Seamen's Widows and Orphans Aid Society was first organized in March, 1862, and since that time the yearly collections have been as follows: 1862, \$18,544; 1863, \$155; 1864, \$7,500; 1865, \$4,601; 1866, \$4,913; 1867, \$3,546; 1868, \$4,556; 1869, \$4,897; 1870, \$4,420; 1871, \$4,020; 1872, \$4,220; 1873, \$5,485; 1874, \$5,192; 1875, \$5,120; 1876, \$4,605; 1877, \$4,860; 1878, \$3,252; 1879, \$18,559; 1880, \$3,550; 1881, \$3,900.

Total receipts to 1881 .....	\$115, 895
Funds held by society (invested) at close of the season, 1881..	20, 500

Total expenditure in nineteen years.....	95, 395
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The amount raised in 1862 was by public subscription. The following year the society tried to raise money from the fishermen by issuing to them for the sum of \$1 each certificates which entitled their families to receive benefit in case the one paying for the certificate should be lost. This scheme did not work well. The fishermen were superstitious about buying the certificates, and consequently only about 150 of them were sold. The following year a percentage was charged, and the same system, with slight modifications, has continued till the present time.

One-half of 1 per cent. is now deducted from the earnings of each fisherman that sails in the Gloucester vessels, and it is from this source that the society now derives its income, with the exception of contributions, which are often of considerable magnitude. The total amount collected from the fishermen by the firms is turned in at the end of each season.

The large collections made in 1879 were received chiefly from outside sources. The various relief societies that sprang up in that calamitous time collected about \$30,000, most of which has since that year been disbursed among the needy, the balance being invested and kept as a reserve fund wherewith to meet any future exigency that may arise.

An attempt was made in 1865 to induce the fishermen to become life members by the payment of \$10 each, but this project did not meet with any greater favor than did the scheme for selling certificates.

The following extract from the preface to the record-book of the society gives a detailed history of its inception, the causes which led to its organization, and subsequent changes in its methods of working:

"In January, 1861, and in February, 1862, in consequence of severe gales at sea, a great calamity fell upon the town of Gloucester. In January four vessels were lost, and in February (24th and 25th) sixteen more

were lost, most of them with their entire crews. It involved a loss of twenty vessels and one hundred and forty men, and in property about \$100,000, leaving seventy-five widows and one hundred and sixty fatherless children needing help. It cast a gloom on the whole community, and a public meeting of the citizens was called at the town hall on the evening of March 20, 1862, to devise some means to obtain help for those who were so suddenly made destitute. At this meeting a committee of seventeen citizens was appointed to take the whole subject in charge, and they had circulars printed stating the facts in the case and asking help. These circulars were sent to the various cities and towns in the State, as well as to other large cities and towns, and a subcommittee was appointed to solicit subscriptions. The call for aid was satisfactorily and most nobly responded to; a large sum of money was received (see record-book of old society and treasurer's account), and the committee have from that time until the present (April, 1865) attended to the distribution of the funds that were received.

“Considering the very hazardous nature of the fishing business of the town, it was thought by the committee that the old organization should be dissolved, and a new society be incorporated similar in character to the old, and formed on a permanent basis. Therefore, a notice, under date of March 8, 1865, was published in the newspapers of the town, calling upon the citizens to meet at the [office of the] Gloucester Mutual Fishing Insurance Company to take into consideration the expediency of permanently organizing a society for the relief of the widows and orphans of fishermen and seamen, and to perfect such organization if deemed necessary.” (See newspapers of the day.)

Agreeably to the notice a meeting was held. J. W. Lowe was chosen chairman and Joseph O. Proctor, secretary. B. H. Corliss, in behalf of a committee previously appointed for the purpose of drafting a constitution, reported a preamble and constitution (which is attached), which was adopted by the meeting, each article having been acted upon separately; and after appointing a committee, consisting of B. H. Corliss, Sylvester Cunningham, Joseph O. Proctor, and Fitz E. Riggs, to report a list of officers for the society, the meeting adjourned to the following (Tuesday) evening, at 7½ o'clock. On Tuesday evening, March 9, the citizens again met, as per adjournment, and the committee reported a board of fifteen directors to the meeting, viz: George Garland, Epes W. Merchant, Joseph O. Proctor, B. H. Corliss, Addison Gilbert, William O. Pew, Charles Parkhurst, Peter Sinclair, Gorham P. Leon, James W. Patillo, Fitz E. Riggs, Charles H. Pew, William Parsons 2d, William T. Merchant, Sylvester Cunningham. These were all elected by ballot. It was then voted that 500 copies of the constitution be printed; and the meeting adjourned *sine die*, after voting to raise funds by collecting 0.25 per cent. of the proceeds of the fishing voyages, and to collect outside the fishing interest \$1,000, if possible.

“Thursday, March 16, 1865.—At a meeting of the directors this day

the following officers were chosen by written ballot for the present year: Benjamin H. Corliss, president; George Garland, vice-president; Joseph O. Proctor, treasurer; Addison Gilbert, secretary."

The "Gloucester Female Charitable Association" was incorporated January 22, 1872. It now has a membership of thirty-four ladies, who are assessed \$1 each per annum. This society has at the present time a fund of \$3,500, \$1,500 of this being a bequest, of which only the interest can be used, while the remainder is subject to the action of the society.

This organization is not for the exclusive purpose of relieving the needy relatives of fishermen and seamen, but "for the deserving poor of Gloucester." It is scarcely necessary to say that nearly all of the "deserving poor of Gloucester" are such as have been left destitute by the loss of their natural protectors.

## B.—FISHING CRAFT.

### VESSELS.

RIGGED MODELS OF VARIOUS TYPES OF VESSELS IN THE FISHERIES,  
PAST AND PRESENT.

#### 1. FISHING STEAMERS.

##### MENHADEN FISHING STEAMER.

Model, scale  $\frac{1}{2}$  inch to foot. Single-screw propeller; sharp bow; low, flat floor; shallow keel; lean run; round stem; moderate sheer; sloop-rigged, carrying mainsail and jib (jib triced up on the stay, mainsail brailed up to gaff and mast). Pilot-house and captain's cabin on deck forward; large main-hatch amidships; engine-house, &c., aft. Carries two seine-boats at quarter davits. Boston, Mass., 1883. 76,012. U. S. Fish Commission. This model represents the steamer *Jemima Boomer*, of Tiverton, R. I., one of the finest vessels employed in the menhaden fisheries. She carries a large cargo, and it is claimed that she will make a speed of 9 to 10 knots, even when deeply loaded. About 70 of these steamers are employed in the menhaden fishery, and their catches vary from 10,000 to 60,000 barrels of fish each season. This fishery is carried on near the land and in comparatively smooth water. *Dimensions of original*: Length over all, 110 feet; beam, 17 feet; depth,  $7\frac{1}{2}$  feet; draught of water, bow 3 feet, aft  $7\frac{1}{2}$  feet; mast, above deck, 54 feet; gaff, 21 feet; mast, 38 feet aft of stem.

##### GILL-NET STEAMER.

Model, scale  $\frac{1}{2}$  inch to foot. Propeller; one mast, rigged with stationary gaff for hoisting or for sail; sharp bow and bilge; round stern; engine and wheel houses. 55,812. U. S. Fish Commission. This model represents the class of small steamers employed in the gill-net fisheries of the Great Lakes. They vary in size from 10 to 40 tons. The nets are set over the stern and drawn in over the bow. The fish are stowed in bins and ice-boxes in forward hold. *Dimensions of original*.—Hull: Length, 61 feet; beam,  $11\frac{1}{2}$  feet. Smoke-stack, 12 feet above rail; diameter of screw,  $4\frac{1}{2}$  feet. Spars: Mast, 34 feet; gaff,  $15\frac{1}{2}$  feet.

#### 2. FISHING KETCHES.

##### FISHING KETCH.

Model, scale  $\frac{1}{2}$  inch to foot. This model represents a ketch such as were employed in the American fisheries during the early

## FISHING KETCH—Continued.

history of the country and previous to the invention of the schooner, which came into use in the early part of the eighteenth century. 57,014. Capt. H. C. Chester. Full, bluff bow; curved stem, with projecting billet-head; low, full bilge; short, full run; full, rounding stern, having a projection above deck extending aft of rudder-head, like the "pink" (so called) of the pinkey; curved stern-post; slight sheer. The rig consists of two masts and an adjustable bowsprit. The mainmast is placed in the center of the vessel, and the mizzen half-way between mainmast and stern. The sails are a jib and two staysails forward, topsail, topgallant-sail, and spencer on mainmast, and topsail and spanker on mizzen-mast. *Dimensions of full-sized ketch.*—Hull: Length over all, 55 feet; beam, 15 feet; draught, 8 feet. Spars: Length, bowsprit (outside stem), 20 feet; mainmast (above deck), 30 feet; main-topmast, 19½ feet; main-topgallant mast, 14 feet; mizzen-mast (above deck), 24 feet; mizzen-top-mast, 18 feet; spanker-boom, 16 feet; spanker-gaff, 12 feet.

## 3. FISHING SCHOONERS.

## STANDING-ROOM CHEBACCO BOAT "LION."

Model, scale ½ inch to foot. This model represents a pink (or sharp) stern, standing-room chebacco boat of about 10 tons, the smallest class used in the period between 1780 and 1820. She has full, round bow; narrow beam; sharp stern; three standing rooms, where the men stood to fish; two hatchways; no bowsprit; two masts, the foremast well forward. Gloucester, Mass. 39,198. Designed by Capt. Stephen J. Martin. The class of small vessels represented by this model were extensively used by the New England fishermen in the latter part of the eighteenth century, and were often built by the fishermen who sailed them. *Dimensions of original.*—Hull: Length over all, 34 feet; beam, 9½ feet; depth of hold, 4½ feet. Spars: Foremast (above deck), 23 feet; mainmast, 23½ feet; foreboom, 12 feet; mainboom, 18½ feet.

## "DOGBODY" OR SQUARE-STERN CHEBACCO BOAT "CHEBACCO."

Model, scale ½ inch to foot. This model represents a square stern, decked, chebacco boat of about 17 tons; this, together with pinkey boats of the same rig, and which were also decked, being the best class of these crafts employed in the fisheries during the early part of the present century. It has very full, rounding bow; straight side; square stern; low, round bilge; short run; raised "cuddy" deck forward; high stem; no bowsprit; two masts; two sails, foresail and mainsail; two fishkids;

“**DOGBOODY**” OR SQUARE-STERN CHEBACCO BOAT “**CHEBACCO**”—Cont'd.  
 cables, anchors, and fishing rails. Gloucester, Mass., 1883. 57,587. U. S. Fish Commission. These peculiar fishing vessels, which were extensively used in the shore cod and mackerel fisheries during the last century and the beginning of this, derived their specific name from the place where they were built—a part of the present town of Essex, Mass., then known as Chebacco. At the present time they have entirely disappeared from the fishing fleet. *Dimensions of original*.—Hull: Length over all, 36 feet; beam,  $11\frac{1}{2}$  feet; draught, 6 feet. Spars: Foremast (above deck), 28 feet; mainmast (above deck), 30 feet; foreboom, 16 feet; foregaff, 14 feet; mainboom, 20 feet; maingaff, 13 feet.

#### PINKEY “PORPOISE.”

Model, scale  $\frac{1}{2}$  inch to foot. This model represents a pinkey of about 35 to 40 tons, such as were built in the period between 1820 and 1840. Full, rounding bow; stem very much curved; straight side; low, round bilge; short, full run; sharp stern, surmounted by a “pink”; straight, slanting stern-post; narrow rudder, with square heel; old style windlass, cables, anchors; raised “cuddy” deck forward; chimney-funnel; boat; two fishkicks; two masts, bowsprit, top-mast, and three sails (mainsail, foresail, and jib). Gloucester, Mass., 1883. 57,586. U. S. Fish Commission. The class of vessels represented by this model succeeded the chebacco boats, from which they differed only in being, as a rule, larger, and carrying a bowsprit and jib. Pinkeys were extensively used in the general sea fisheries, being employed on the distant banks and in the waters of the Gulf of Saint Lawrence, as well as off the coast of the United States. Few have been built since 1840, and vessels of this class are now rarely seen in the fishing fleet. *Dimensions of original*.—Hull: Length on deck, knight-heads to stern-post, 45 feet; beam, 14 feet; draught,  $8\frac{1}{2}$  feet. Spars: Bowsprit (outside knight-heads), 14 feet; foremast (above deck), 34 feet; mainmast (above deck), 38 feet; main-topmast,  $13\frac{1}{2}$  feet; foreboom, 19 feet; mainboom, 30 feet.

#### OYSTER BUCKEYE.

Model, scale 1 inch to foot. Schooner-rigged, with mainsail, foresail, jib, maingaff-topsail, and staysail (the latter not set); sharp bow and stern; fine entrance and counter lines; moderate length of run; flat floors. Usually carries center-board. Fitted with two oyster rake-dredges, winches, &c. 55,807. U. S. Fish Commission. Vessels of this description are largely used in the oyster fisheries of Chesapeake Bay. They vary in size from 10

## OYSTER BUCKEYE—Continued.

to 20 tons; are good sea-boats and fast sailers. *Dimensions of original.*—Length over all, 36 feet; keel, 33 feet; beam,  $7\frac{1}{2}$  feet; depth of hold, 4 feet; mainmast from partners, 25 feet; main-topmast,  $10\frac{1}{2}$  feet; foremast, 25 feet; bowsprit,  $9\frac{1}{2}$  feet; main-gaff, 10 feet; mainboom, 18 feet; foregaff, 9 feet; foreboom, 18 feet.

## OYSTER PUNGY.

Model, scale 1 inch to foot. Schooner-rigged, with all sails (main-sail, foresail, jib, staysail, and gaff-topsail) set; sharp aft; moderately sharp, rounding bow; low bilge; rather flat floor. Fitted with oyster-rakes, winches, &c. Baltimore, Md., 1880. 42,757. T. B. Ferguson. The style of small schooners represented by this model is employed to some extent in the oyster fisheries of the Chesapeake Bay and its tributaries. *Dimensions of original.*—Hull: Length over all, 48 feet; keel, 42 feet; beam, 12 feet. Spars: Bowsprit (outside),  $13\frac{1}{2}$  feet; foremast (above deck),  $38\frac{1}{2}$  feet; mainmast,  $38\frac{1}{2}$  feet; main-topmast,  $7\frac{1}{2}$  feet; mainboom, 25 feet; outboard, 7 feet.

## OLD-STYLE GRAND BANK COD-FISHING SCHOONER "OPEN SEA."

Model, scale  $\frac{1}{2}$  inch to foot. This is the model of the schooner Open Sea, of Marblehead, built about 1820, and represents a vessel of about 75 to 80 tons, old measurement (55 to 60 tons new measurement), such as were employed in the fisheries in the period between 1750 and 1840. Full, round bow, curved stem, and gammon-knee cutwater; long, straight side; long floor; low, full, round bilge; short, full run; large, square stern; high quarter-deck, extending nearly to mainmast; old-style windlass (worked with hand-spikes), cables, anchors; 4 fish-kids (2 on each side) on main deck; scaffold crutch for foreboom; steps on each side of quarter-deck; two pumps; square-stern yawl-boat, turned bottom up and lashed on top of davits. Gloucester, Mass., 1883. 57,585. U. S. Fish Commission. The class of vessels represented by this model were extensively employed in the Grand Bank cod-fishery during the last century, and to a less extent during the first quarter of this. Many of them had higher and shorter quarter-decks than this model, and were known as heel-tappers. In all cases the crew fished with hand-lines from the deck. *Dimensions of original.*—Hull: Length over all, 65 feet; beam, 18 feet; draught, 8 feet. Spars: Bowsprit (outside knight-heads),  $15\frac{1}{2}$  feet; foremast (above deck),  $43\frac{1}{2}$  feet; mainmast (above deck),  $45\frac{1}{2}$  feet; main-topmast,  $21\frac{1}{2}$  feet; foreboom, 22 feet; foregaff, 21 feet; mainboom, 38 feet; maingaff, 24 feet.

## FISHING SCHOONER.

Model, scale  $\frac{3}{8}$  inch to foot. Moderately sharp, rounding bow; broad beam; deep bilge; square stern. Spars, standing and running rigging complete. No sails bent. Gloucester, Mass., 1876. 25,731. Capt. H. C. Chester. Type of vessel used in New England fisheries; period, 1850 to 1860. *Dimensions of original*.—Hull: Length over all,  $66\frac{1}{2}$  feet; beam,  $21\frac{1}{2}$  feet. Spars: Bowsprit,  $16\frac{2}{3}$  feet; jib-boom,  $13\frac{1}{3}$  feet; foremast (above deck), 62 feet; mainmast (above deck), 63 feet; main-topmast, 31 feet; mainboom, 46 feet.

## OYSTER SCHOONER "J. L. CARROLL."

Model, scale 1 inch to foot. Moderately sharp, rounding bow, long cut-water, and very slanting stem; broad beam; high bilge, with much dead rise; long run; square stern; decked; cabin aft. Equipped with oyster-dredges, winches, &c. Spars, standing and running rigging, and sails complete. Baltimore, Md., 1876. 26,536. T. B. Ferguson. This model represents the class of vessels most extensively employed in the oyster fisheries of the Chesapeake and its tributaries. They vary in size from about 15 to 45 tons, are all schooner-rigged, with main-topmast, but rarely carry flying-jib. They are good sailers and "handy." *Dimensions of original*.—Hull: Length over all,  $47\frac{1}{4}$  feet; keel, 36 feet; beam, 15 feet. Spars: Bowsprit (outside knight-heads), 16 feet; foremast (above deck),  $44\frac{1}{2}$  feet; mainmast (above deck), 45 feet; main-topmast, 18 feet; mainboom, 26 feet; outboard, 9 feet.

## SCHOONER-SMACK "STORM KING."

Model, about  $\frac{3}{4}$  inch to foot. Sharp bow; flush deck; long, clean run; square stern. Well amidships for keeping fish, lobsters, &c., alive, the bottom of this portion of the vessel being perforated for the purpose of allowing a free circulation of water in the well. Rigged complete, with sails (mainsail, foresail, and jib) set. Boston, Mass., 1876. 26,584. Johnson & Young. This model represents the class of small schooners employed in transporting lobsters from the fishing grounds to the various markets. They vary in size from 20 to 50 tons. *Dimensions of original*.—Hull: Length over all,  $53\frac{1}{3}$  feet; beam,  $15\frac{2}{3}$  feet; depth of hold,  $7\frac{1}{3}$  feet; draught of water,  $7\frac{1}{2}$  feet. Spars: Bowsprit (outside),  $14\frac{2}{3}$  feet; foremast (above deck), 47 feet; mainmast (above deck),  $47\frac{1}{2}$  feet; main-topmast, 16 feet; foreboom,  $14\frac{2}{3}$  feet; mainboom,  $38\frac{3}{4}$  feet.

## GEORGE'S BANK COD-FISHING SCHOONER "JAMES A. GARFIELD."

Model, scale  $\frac{1}{2}$  inch to foot. This model represents a clipper schooner of about 70 tons register, in ordinary rig, such as

## GEORGE'S BANK COD-FISHING SCHOONER "JAS. A. GARFIELD"—Cont'd.

many of this class carry all the year, though in winter some vessels have no main-topmast. All sails (mainsail, foresail, jib, main-staysail, and gaff-topsail) are set, and the riding-sail lashed to davit-plank, as is usually the case when these vessels are making a passage to or from the banks. Gloucester, Mass., 1883. 56,938. U. S. Fish Commission. This class of vessels employed in George's Bank cod-fishing, fitted with gurry-pens on deck, fishing-rails, stern dory, &c. *Dimensions of original*.—Hull: Length over all, 84 feet; beam,  $21\frac{1}{2}$  feet; depth of hold, 8 feet. Spars: Bowsprit (outside knight-heads), 19 feet; foremast (above deck), 60 feet; mainmast,  $60\frac{1}{2}$  feet; main-topmast, 33 feet; foreboom,  $23\frac{1}{2}$  feet; mainboom, 60 feet.

## GRAND BANK FISHING SCHOONER "SPENCER F. BAIRD."

Model, scale  $\frac{1}{2}$  inch to foot. Model represents a clipper schooner of 80 to 85 tons, with mainsail, foresail, jib, flying-jib, staysail, and gaff-topsail set; riding-sail lashed on davit-plank, and dories inverted and lashed on checker-planks, as they usually are when the vessel is making a passage to or from the banks. Gloucester, Mass., 1883. 56,939. U. S. Fish Commission. The equipment, as well as the style of schooners commonly employed in the Grand Bank cod and halibut trawl-fisheries, represented by this model. *Dimensions of original*.—Hull: Length over all, 86 feet; beam,  $22\frac{1}{2}$  feet; depth of hold,  $8\frac{1}{4}$  feet. Spars: Bowsprit (outside knight-heads), 19 feet; jibboom (outside cap),  $12\frac{2}{3}$  feet; foremast (above deck), 64 feet; mainmast (above deck), 65 feet; main-topmast, 36 feet; mainboom, 62 feet; foreboom, 25 feet.

## MARKET SCHOONER "MARY ODELL."

Model, scale  $\frac{1}{2}$  inch to foot. Long, sharp bow; broad beam; slightly hollow floor; long, sharp run; elliptical stern; rigged complete with all sails (mainsail, foresail, jib, flying-jib, staysail, and gaff-topsail) set. Gloucester, Mass., 1880. 39,337. U. S. Fish Commission. This model represents a class of vessels employed in the mackerel fishery in summer, and in the cod and haddock fisheries in winter, carrying their fish, as a rule, to market in a fresh condition. These schooners vary from 35 to 75 tons, and are specially designed for speed and ability to carry a large amount of canvas. *Dimensions of original*.—Hull: Length over all, 61 feet; beam, 18 feet; draught, 9 feet. Spars: Bowsprit (outside), 15 feet; jibboom (outside cap), 10 feet; foremast, 52 feet; mainmast,  $52\frac{1}{2}$  feet; main-topmast,  $25\frac{1}{2}$  feet; foreboom,  $19\frac{1}{2}$  feet; mainboom, 47 feet.

## MACKEREL-FISHING SCHOONER "WILLIAM M. GAFFNEY."

Model, scale  $\frac{1}{2}$  inch to foot. This model represents a clipper schooner of about 75 tons, with all sails (mainsail, foresail, jib, flying-jib, jib-topsail, or balloon jib, main staysail, fore and main gaff-top-sails) set; the rig is that of a double-topmast schooner; long, sharpbow; broad beam; long run; elliptical stern. Gloucester, Mass., 1880. 39,487. U. S. Fish Commission. The equipment, rig, and other characteristics of the extreme clipper schooners employed in the mackerel purse-seine fishery are represented by this model. *Dimensions of original.*—Hull: Length over all, 82 feet; beam, 21 feet; depth of hold,  $7\frac{3}{4}$  feet. Spars: Boysprit (outside knight-heads), 18 feet; jibboom (outside cap), 12 feet; foremast and fore-topmast (above deck), 84 feet; mainmast and main-topmast (above deck), 85 feet; mainboom, 56 feet.

## FISHING SCHOONER "GERTIE EVELYN," OF GLOUCESTER, MASS.

Sectional model, port side, scale 1 inch to foot. This model shows the exterior and interior of the port side of a clipper fishing schooner, such as are now employed in the general deep-sea fisheries of New England. It is specially designed to show the arrangement of the interior, such as the fore-castle, cook's pantry and store-room, ice-houses for the refrigeration of fish, bait, &c., the stowage of ballast, cabin, gear-room, &c. The ice-house is built in the style which has been most commonly adopted on vessels employed in the fresh-halibut fishery or the winter haddock fishery, and with the exception that on some of the vessels the ice-house is divided into two sections—the "forward" and "after" ice-houses—by a bulkhead just abaft the mainmast, few if any differ from this. Comparatively few American schooners carry any other than stone ballast, and such is shown, though some have partly iron ballast, which is stowed each side of the keelson, and in exceptional cases a vessel may be wholly ballasted with iron, especially those of smaller size. The fore-castle, which is the sleeping apartment for a portion of the crew and for the cook, and the place where the cooking is done, and where the entire crew, including the captain, eat their meals, is finished in pine, painted and grained. Lockers run around both sides, and serve the double purpose of seats for the men and stowage for vegetables. The cooking-stove sits on a platform, raised about 4 to 6 inches above the floor, at the after end of the fore-castle on the starboard side. There are three lengths of sleeping berths (five berths only of which are usually occupied) on the port side, and two lengths on the starboard side, though it rarely happens that they are all filled. Besides these there are two more berths on the starboard side, aft of the "dish-closet" (which is at the

## FISHING SCHOONER "GERTIE EVELYN," GLOUCESTER, MASS.—Cont'd.

side about abreast of the foremast), that are used by the cook for the storage of small stores and other material which he uses. At the after end of the forecastle, on the port side, is a small upright closet with shelves where the cook keeps a supply of eatables, which the fishermen have access to at all hours of the day and night; this is called the "grub-locker." Near this is the door leading into the forehold, where is the cook's pantry on the port side, and the coal-pen on the starboard side, where also is stowed a supply of wood, flour, beef, pork, &c. Beneath the floor of the pantry, at least in part, are the water-casks, each holding about 250 gallons, these being supplemented by a greater or less number of barrels filled with water, which are also stowed in the forehold. In the pantry the cook prepares the food for cooking, and this apartment is often painted in a neat and tasty manner. The ice-house is separated from the pantry by a double bulkhead of matched boards with tarred paper between. The platform of the ice-house is usually made of spruce or pine planks 2 inches in thickness; these being laid on cross-pieces of 3 x 4 joists, which are fitted in their proper places, well secured, and also supported in the middle before the ballast is put on board. The platform is held securely in place by the stanchions which form the frame-work of the pens or sections into which the ice-house is divided. Each pen is separated from the next by a single partition of one-inch boards. A portion of the front of each side pen is tightly closed up from the floor to the deck, while the remainder is adjustable, a number of "pen-boards" being cut of suitable lengths so that by sliding in grooves in the upright stanchions they may be put in or removed as occasion demands. The pens on the sides are called "wing-pens," while those in the center aisle are known as "slaughter-house pens," the one, however, which is directly under either the main or after hatch having the name of "slaughter-house." The cabin is finished with hard wood, usually black walnut and ash; it has four berths, the forward one of which on the starboard side is occupied by the captain, while the others are taken by such members of the crew as may secure them by lot, since there are no under officers to claim them by right. Beneath the cabin floor, in which there is a small trap-door, a supply of coal for the cabin stove is carried. Aft of the cabin, in the extreme stern, is a rough, unfinished apartment, where such materials as spare fishing-gear, light sails, cordage, blocks, &c., are stowed. The larger mass of fishing-gear, which is very bulky, is stowed in the ice-house when the vessel is making passages. The particular schooner which

## FISHING SCHOONER "GERTIE EVELYN," GLOUCESTER, MASS.—Cont'd.

this model represents was built by Mr. John Bishop, of Gloucester, Mass., and launched in February, 1883. She has been employed in the winter haddock fishery, carrying her catch fresh to market, a distance varying from 150 to 300 miles. She is about 82 tons register (135 tons builder's measure), and has made, in the few months she has been running, a good record for speed and sea-worthiness. She is from 4 to 6 inches deeper than the average American fishing schooner of the same size, has fine lines, with long, sharp bow, which is slightly concave beneath the water line; moderately full bilge; broad beam; long, finely-cut run; rather full, elliptical stern, which has considerable overhang. The relative dimensions of spars, sails, and rigging for this class of vessel is shown on the full-rigged models. Gloucester, Mass., 1883. U. S. Fish Commission. 76,011. *Dimensions of original*: Length over all, 87 feet; keel, 82 feet; (total length of model, including stub bowsprit, 96 inches). Beam (extreme),  $22\frac{1}{2}$  feet. Depth of hold,  $8\frac{1}{3}$  feet. Draught, aft  $9\frac{1}{2}$  feet, forward  $5\frac{1}{4}$  feet. Depth of keel, 22 inches. Extreme length of forecastle, 22 feet; of pantry or forehold,  $7\frac{1}{2}$  feet; ice-house,  $28\frac{1}{4}$  feet; cabin (on floor), 10 feet; house (outside),  $11\frac{3}{4}$  feet. Height: Forecastle and cabin, about 6 feet under beams; forehold, 6 feet; ice-house, extreme 6 feet, average 5 feet.

*Names of the several sections of the model.*

1. Upper forepeak berth.
2. Lower forepeak berth, generally used only for the stowage of lanterns, oil-cans, &c.
3. Table. This is divided into two sections, the after one of which turns back, folding around and fastening to the foremast when not in use.
4. Forecastle floor.
5. Locker.
6. Foremast.
7. Pawl bit.
8. Heel of bowsprit.
9. Windlass.
10. Traveler. The lower jib-sheet block is fastened to an iron ring which runs on this traveler.
11. Upper middle berth, port side. The berth corresponding to this on the starboard side is always occupied by the cook.
12. Lower middle berth, port side.
13. Upper after berth. The berth corresponding to this on starboard side not so wide, and used only for storage of small stores, &c., as is the one next below it.

FISHING SCHOONER "GERTIE EVELYN," GLOUCESTER, MASS.—Cont'd.

14. Lower after berth, sometimes called "slaughter-house" berth, because of its exposure to cold drafts of air in the winter from the forehold and companion-way.
15. "Grub-closet."
16. Entrance to forehold.
17. Steps.
18. Water-cask.
19. Pantry floor.
20. Flour barrel.
21. Beef barrel.
22. Cook's bread-board.
23. Shelves for boxes, firkins, &c.
24. Ice-house bulkhead.
25. Ice-house floor.
26. Shifting planks. These are rough planks, running fore and aft between the stanchions, to prevent the ballast from shifting to either side in case the vessel should be knocked on her beam ends.
27. Ballast. The kind of ballast usually carried and the method of storage is seen beneath the glass. The ballast extends the entire length of the ice-house.
28. Forward slaughter-house.
29. After slaughter-house.
30. Forward wing-pen, port side.
32. Wing-pen, port side, next to forward one.
33. Third wing-pen, port side.
34. Fourth wing-pen, port side.
35. Wing-pen, port side, next to after one.
36. After wing-pen, port side. This is often filled with salt, which is carried for the double purpose of curing any codfish which may be taken, and also for salting the fishing-gear when not in use.
37. After midship-pen.
38. "Hospital"-pen. This is the pen amidships which incloses the mainmast and pumps, and is so called because it is difficult to ice halibut properly in it; sometimes called the mainmast-pen.
39. Slaughter-house pen.
40. Mainmast.
41. Pumps.
42. Forecastle companion-way.
43. Fore hatch.
44. Main hatch.
45. Quarter-deck break.
46. After hatch.
47. House.
48. Skylight.
49. Funnel-cap.

## FISHING SCHOONER "GERTIE EVELYN," GLOUCESTER, MASS.—Cont'd.

50. Cabin companion-way.
51. Steps.
52. Locker-seats.
53. Binnacle.
54. Stove.
55. After berth, port side.
56. Forward berth, port side. As a rule two men sleep in this berth. This is in all respects like the captain's berth, which is directly opposite.
57. Coal-locker.
58. Room for spare gear, &c.
59. Rudder.
60. Rudder-head.
61. Taffrail.
62. Knight-heads.
63. Keel.
64. Keelson.
65. Cutwater.
66. Stern.
67. Stern-post.

## THREE-MASTED FISHING SCHOONER.

Model, scale  $\frac{1}{2}$  inch to foot. A full-rigged, clipper, three-masted schooner, with all sails set as when sailing in moderate winds; dories stowed on deck as is customary when making passages to or from the fishing grounds. Liver-butts (into which the codfish livers are put for the purpose of obtaining the oil) are stowed in chocks forward of the house. This vessel has fine lines, with moderately sharp bow; low and rather full bilge; long, clean run; slightly overhanging, elliptical stern; broad beam; long quarter-deck; and fine sheer. This schooner carries twelve sails, namely (beginning forward), jib-topsail, flying jib, jib, fore-staysail, foresail, fore gaff-topsail, main staysail, mainsail, main gaff-topsail, mizzen staysail, spanker, and mizzen gaff-topsail. In addition to these a three-cornered riding sail is carried, but this is used only when the vessel is on the bank; the riding sail is then bent to the mizzen-mast. This schooner carries twenty "single" dories, each of these being 13 feet long on the bottom. One man goes in each boat and fishes with handlines. In addition to the dories, which are always stowed on deck when not in use, a yawl boat is carried at the stern. This model represents a class of vessels recently introduced into the cod and mackerel fisheries of the United States, which are larger than those ordinarily employed. The Lizzie W. Matheson, of Provincetown, is 193 tons register, and has a capacity for 5,000 quintals or 560,000 pounds of codfish.

## THREE-MASTED FISHING SCHOONER—Continued.

These schooners, being intended for the general coasting trade in winter, such as carrying oysters, fruit, &c., are built as a rule quite as much for carrying capacity as for speed, while in the construction of the typical fishing schooner the attainment of a high rate of speed is one of the most important considerations. *Dimensions of original.*—Hull: Length over all, 109 feet; keel, 96 feet; beam, 26 feet; depth of hold, 10 feet; draught of water, aft 11 feet, forward 8 feet; depth of keel (outside garboard), 20 inches. Spars: Length, foremast, above deck,  $70\frac{1}{4}$  feet; mainmast, 72 feet; mizzen-mast,  $73\frac{1}{4}$  feet; fore-topmast, 40 feet; main-topmast, 40 feet; mizzen-topmast, 40 feet; bowsprit (outside knight-heads),  $22\frac{1}{2}$  feet; jib-boom (outside cap), 19 feet; fore and main booms each,  $23\frac{2}{3}$  feet; fore and main gaffs each,  $23\frac{1}{2}$  feet; spanker-boom,  $53\frac{1}{4}$  feet; spanker-gaff,  $29\frac{3}{4}$  feet. Dimensions of yawl boat: Length over all,  $17\frac{1}{2}$  feet; beam, 5 feet; depth, 3 feet from gunwale to keel. Gloucester, Mass., 1883. Exhibited by Thomas A. Irving, of Gloucester.

## BUILDERS' MODELS, SHOWING THE EVOLUTION OF THE NEW ENGLAND FISHING SCHOONER.

## 4. FISHING SCHOONERS.

## PINK-STERN FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Full, rounding, high bow; low, rounding bilge; much drag-line and sheer; heavy draught of water; sharp stern with a raised "pink." *Dimensions of vessel:* Length over all, 52 feet; beam, 16 feet; depth of hold, 7 feet; draught of water, 8 feet aft and 5 feet forward. Essex, Mass., 1837. U. S. Fish Commission. 54,453. This is a model representing the pinkey July, built at Essex in the month of July, 1837. Pinkeys were used in the fisheries of the New England coast from 1815 to 1840, and a few old ones still survive at Gloucester and fishing ports in Eastern Maine. They are celebrated for their seaworthiness, and are good sailers.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Full, round bow; narrow beam; long, straight side; long, rounding, kettle bottom; very short run; square stern. *Dimensions of vessel:* Length over all, 60 feet; beam, 16 feet; draught of water aft, 8 feet 6 inches. Essex, Mass., 1835 to 1845. Gift of Jeremiah Burnham, builder. 54,449. This model was made about 1835, and was one of the first vessel models ever made at Essex. Previous to that period vessels were built by the eye without models. This class of vessels was fitted with gammon-knees, and the foot of the rudder was cut square.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Full, rounding bow; low bilge; long floor; rather full run; long, straight side; straight stern. *Dimensions of vessel*: Length over all, 78 feet; beam, 23 feet; draught of water aft, 10 feet. Essex, Mass., 1845. U. S. Fish Commission. 54,421. This is the model of the schooner Storm King, of Beverly, Mass., built at Essex in 1845. It is a style of vessel employed at that date in the Grand Bank cod-fishery, and is the form that followed the old-fashioned "heel-tapper."

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Full, rounding bow; narrow beam; long, straight side on top; low, deep bilge; medium length floor; full run of medium length; square stern. *Dimensions of vessel*: Length over all, 64 feet; beam, 16 feet; draught of water aft, 8 feet. Essex, Mass., 1845. U. S. Fish Commission. 54,427. The model represents the style of vessels employed in the Bank cod-fisheries from Beverly, Mass., in 1845. They had moderately sharp bows for the period, and were well designed for riding at anchor, and for sea-worthiness, though they were slow sailers.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Full, round bow; straight side; long, rounding bilge; short, full run; square stern. *Dimensions of vessel*: Length, 60 feet over all; beam, 17 feet; draught of water aft, 9 feet. Essex, Mass. Type, 1845 to 1850. U. S. Fish Commission. 54,457. This is the model of the schooner Susan Center, of Gloucester, built in 1847, and is the type of the round bow, square stern, and low quarter-deck vessels employed in the cod and mackerel fisheries from 1845 to 1850.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Full, rounding bow; medium bilge; short, but moderately lean run; rather broad beam; square stern. *Dimensions of vessel*: Length over all, 65 feet; beam, 18 feet; draught of water aft, 9 feet. Essex, Mass., 1845 to 1855. U. S. Fish Commission. 54,455. This model represents a class of vessels extensively employed in the cod and mackerel fisheries from 1845 to 1855. They were first termed clipper-built, but at a later date were known as half-sharp. They were built sharp to attain greater speed when employed in the mackerel fishery.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Rounding bow, with much flare; long, straight side; low, rounding bilge; long, but full run;

## FISHING SCHOONER—Continued.

comparatively shoal forward; much drag-line; square stern. *Dimensions of vessel*: Length over all, 68 feet; extreme beam, 18 feet; draught of water aft, 8 feet. Essex, Mass. 1850. U. S. Fish Commission. 54,426. This model represents the style of vessel employed in the Grand Bank cod-fisheries from Beverly, Mass., in 1850. It was the type of vessel that succeeded the full-bow schooner, and was one of the first attempts at a sharp bow. At that period it was believed to be unsafe to build a vessel sharp forward with a flaring bow; they were round and full on the rail-line to prevent diving when at anchor or sailing by the wind.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Full, rounding, and flaring bow on top, sharpening rapidly toward the water's edge; long, straight sides; comparatively narrow beam; square stern; low bilge; short floor; long, but rather full run. *Dimensions of vessel*: Length, 66 feet over all; extreme beam, 18 feet; draught of water aft, 9 feet 6 inches. Essex, Mass. Type of 1845 to 1860. U. S. Fish Commission. 54,450. This is the model of the schooner Elisha Holmes, of Cape Cod, built at Essex in 1849 to engage in the cod and mackerel fisheries. It is the form of a class of vessels very much in use in the period from 1845 to 1860, and represents one type of the so-called sharp-shooters of that day. During the transition stage from full-bowed to sharp vessels, it was the opinion of many experts that it would be unsafe to build a vessel very sharp on the rail. It was thought that, with a full rounding bow on top and much flare below, a vessel would be prevented from plunging as deep in the water as she otherwise might do. Later developments have shown that this theory is a wrong one, and that a vessel with a flaring bow is not as good as one with straighter top timbers.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp bow; straight side; low, deep bilge; heavy draught of water; moderately sharp run; slight drag-line; more than average depth forward; square stern. *Dimensions of vessel*: Length over all, 68 feet; beam, 17 feet; draught of water aft, 9 feet. Essex, Mass., 1859. Gift of Willard R. Burnham, builder. 54,459. This is the model of the schooner We're Here, of Beverly, Mass., built at Essex in 1859, and employed in the Grand Bank cod-fishery. This style of vessel is especially adapted for the Grand Bank cod-fishery, being designed for safety and carrying capacity rather than speed.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Rather short, but moderately sharp, and slightly-flaring bow; low, full bilge; medium length of run; square stern with slight overhang. *Dimensions of vessel*: Length over all, 68 feet; beam, 19 feet 6 inches; draught of water aft, 9 feet. Essex, Mass. Type of 1855 to 1860. Gift of Charles O. Story, builder. 54,473. This is the model of the schooner Lookout, of Gloucester, built in 1857. Twenty or more fishing vessels were built from the same model prior to 1865, among them the E. K. Kane, Fish Hawk, Laughing Water, and Arizona. The last two vessels are still employed in the Gloucester fisheries. The vessels built from this model were very much liked as George's-men from 1855 to 1860. They were full-bodied and chunky vessels as compared with those built at the present time.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp, round, flaring bow; low bilge; rather short floor; long, lean run; square stern. *Dimensions of vessel*: Length over all, 69 feet; beam, 18 feet; draught of water aft, 8 feet 6 inches. Essex, Mass., 1855. U. S. Fish Commission. 54,422. This is the type of the sharp-bow vessels built in 1855, and employed in the mackerel and Grand Bank cod fisheries.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp bow; high bilge; long floor verging into a long, lean run; square stern. *Dimensions of vessel*: Length over all, 62 feet; beam, 19 feet; draught of water aft, 8 feet. Essex, Mass., 1850. U. S. Fish Commission. 54,466. This model was built from about 1850, and represents the style of vessels employed as market boats, making short trips and selling their catch in fresh condition. The necessities incident to the market fishery required swifter vessels than any other fishery; this model, therefore, is the type of the fast-sailers of 1850. As a rule, they had very deep keels and a good deal of drag-line. Their draught of water forward was less than half the draught aft.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp, round, ing bow; high bilge; wide beam amidship, narrowing slightly toward the stern, which is elliptical; long, lean run; deep keel. *Dimensions of vessel*: Length over all, 58 feet; beam, 17 feet; draught of water aft, 8 feet. Essex, Mass., 1856. Gift of Joseph Story, builder. 54,435. This is the model of the schooner Ripple, built at Essex in 1853, and was the first vessel built

## FISHING SCHOONER—Continued.

with an elliptical stern. The Ripple was engaged in the market fishery, and is somewhat different from the market vessel of 1850 in having a heavier draught of water and greater beam in comparison with her height.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp, rounding bow; short floor; long, lean run; more than average sheer; square stern, with very much overhang. *Dimensions of vessel*: Length over all, 73 feet; beam, 20 feet 6 inches; depth of hold, 6 feet 10 inches; draught of water aft, 9 feet 6 inches; length of keel, 56 feet 9 inches. Essex, Mass., 1859. U. S. Fish Commission. 54,471. This is the model of the schooner Break O'Day, of Gloucester, built at Essex in 1859. She was one of the first vessels built at that place with overhanging stern; was employed for a few years in the cod and mackerel fisheries; was captured at New Orleans while engaged in the fruit trade, and afterward used in blockade running.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp bow; high bilge; long, lean run; wide beam; elliptical, slightly overhanging stern. *Dimensions of vessel*: Length over all, 74 feet; beam, 21 feet; depth of hold, 7 feet; draught of water aft, 9 feet 6 inches. Essex, Mass., 1860. Gift of Jeremiah Burnham, builder. 54,470. This is the model of the schooner Flying Fish, of Gloucester, built at Essex in 1860. She was a fast sailer, and was employed for several years in the mackerel hook-fishery. She was afterwards engaged in the Antarctic fur-seal and sea-elephant fishery from New London, Conn.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Clipper-built, with sharp bow; long floor; long run, but not so lean as clipper vessels of more recent build; elliptical stern; broad beam; comparatively light draught of water. *Dimensions of vessel*: Length over all, 94 feet; beam, 23 feet; draught of water aft, 9 feet. Essex, Mass., 1857. Gift of Charles O. Story, builder. 54,448. This is the model of the schooners George Fogg and Etta G. Fogg, of Wellfleet, Mass., built at Essex in 1857. They were employed in the mackerel-fishery in the summer and oyster trade in the winter, and were the extreme clipper build of 1857, and far in advance of most of the vessels of that period. The oyster trade demanded fast sailers and vessels of shoal draught to permit their entering the bays and rivers to the oyster grounds,

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp bow; full body; long run; elliptical, slightly overhanging stern. *Dimensions of vessel*: Length over all, 89 feet; beam, 22 feet 6 inches; depth of hold, 8 feet 3 inches; draught of water aft, 10 feet. Essex, Mass., 1863. U. S. Fish Commission. 54,474. This is the model of the schooner Galena, of Gloucester, built in 1863, employed for several years in the general fisheries, and sold to California; also model of the schooner Prince of Wales, of Gloucester, built in 1864, employed as a fishing vessel for several years, and sold to Surinam, South America. It is the style of large vessels still used in the general fisheries.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Long, sharp bow; broad beam; long floor verging into a long, lean run; elliptical stern. *Dimensions of vessel*: Length over all, 68 feet; beam, 18 feet; draught of water aft, 7 feet 6 inches. Essex, Mass., 1864. Gift of Joseph Story, builder. 54,440. This model was built from about 1864. It represents the extreme type of sharp vessels at that date, and in all essential particulars may still be rated as a fair model of the clipper schooner of to-day. The peculiarity of these vessels and of the more extreme clipper models of the present time is, that their run and floor are so molded as to form part of each other.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp bow; full body; long run; elliptical, slightly overhanging stern. *Dimensions of vessel*: Length over all, 72 feet; beam, 20 feet 9 inches; depth of hold, 7 feet 3 inches; length of keel, 62 feet; draught of water aft, 9 feet. Essex, Mass., 1867 to 1877. 54,456. This model represents the moderately sharp type of sea-going fishing vessels built from 1867 to 1877. More than thirty schooners have been made on this model; among them the Howard, built in 1874, and still engaged in fishing from Gloucester, the Carrie Louise, Cunard, Edward Grover, Aberdeen, and Nathaniel Webster. The Howard has been employed in the mackerel hook and seine fisheries, and the Bank cod and halibut fisheries, and was the only vessel of the Gloucester fleet that rode out the gale of December 10, 1876. The other vessels have been engaged in the various branches of the sea-fisheries, including the Greenland halibut-fishery.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp, high, rounding bow, somewhat fuller than the average; low, deep bilge;

## FISHING SCHOONER—Continued.

medium length of run; much sheer; elliptical, and slightly overhanging stern. *Dimensions of vessel*: Length over all, 81 feet; beam, 24 feet; depth of hold, 8 feet; draught of water aft, 10 feet 6 inches. Essex, Mass., 1876. Gift of David Burnham, builder. 54,447. This is the model of the schooner Webster Sauborn, of Gloucester, 100 tons register, built at Essex in 1876, and lost at Newfoundland in the summer of 1882. She was employed in the Grand Bank cod and halibut fisheries. This type of vessel is specially designed for carrying capacity and seaworthiness and not for fast sailing. Many of the moderately fast schooners are better sailers than the extreme clippers, especially in rough weather.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Extreme clipper build, with long, straight bow; broad beam; high bilge; long, sharp run; broad, elliptical stern, with large overhang. *Dimensions of vessel*: Length over all, 56 feet; beam, 17 feet; draught of water aft, 7 feet; length of keel, 44 feet. Gloucester, Mass., 1880. Gift of John Bishop, builder. 54,454. This is the model of the schooners John M. Smart, of Portsmouth, N. H., and the Emma S. Osier, of Gloucester, Mass., employed in the market fishery. Vessels of this class are generally of small size, and employed on short trips, marketing their catch in fresh condition. They have very deep keels, and are designed for swift sailing, especially by the wind.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Extreme clipper type, with long, flaring bow; light draught forward; hollow floor; full sheer; elliptical, overhanging stern. *Dimensions of vessel*: Length over all, 106 feet; beam, 24 feet; draught of water aft, about 10 feet. Rockport, Mass., 1880. Gift of Capt. G. M. McClain. 54,419. This model was designed by Captain McClain, for a mackerel schooner of about 180 tons, carpenter's measurement. It is specially designed for speed and for use only during the summer season, and would not be suitable for winter fishing.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Extreme clipper build; long, sharp bow, with slightly concave water-lines; slightly hollow floor; long run; elliptical, overhanging stern; full sheer. *Dimensions of vessel*: Length over all, 87 feet; beam, 22 feet; depth of hold, 8 feet. Gloucester, Mass., 1879. Gift of Daniel

## FISHING SCHOONER—Continued.

Poland, jr., builder. 54,444. This is the model of the schooner *Ivanhoe*, of Gloucester, built in 1879, and represents the extreme clipper type of vessels employed in the mackerel, winter haddock, and the halibut fisheries.

## FISHING SCHOONER.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Extreme clipper build, with long, sharp bow; broad beam; long, concave run; large sheer; circular stern, with large overhang. *Dimensions of vessel*: length over all, 100 feet; beam, 26 feet; depth, 9 feet 6 inches. Bath, Me., 1880. Gift of C. B. Harrington, builder. 54,462. This model represents the extreme clipper type of large schooners employed chiefly in the mackerel fishery.

## MARKET-FISHING SCHOONER "NIMBUS."

Builder's model, scale  $\frac{1}{2}$  inch to foot. Painted; mounted in medallion; fully rigged, with spars, sails (mainsail, foresail, jib, main staysail, and main gaff-topsail) set, blocks and rigging on port side. Clipper model; long, sharp bow, slightly concave at water-line; long floor, merging into a long, clean, and finely cut run; elliptical, slightly overhanging stern; broad beam. Gloucester, Mass. 57,052. U. S. Fish Commission. This model represents the extreme clipper type of schooner employed in the market and George's Bank cod fisheries. The rig is that of a George's-man. The market-boats often carry jib-boom and fore-topmast in summer, with sails to correspond. *Dimensions of original*—Hull: Length over all, 74 feet; beam, 20 feet; draught aft, 8 feet. Spars: Bowsprit, 19 feet (outside); foremast (above deck), 60 $\frac{1}{2}$  feet; mainmast (above deck), 61 $\frac{1}{2}$  feet; main-topmast, 32 feet; mainboom, 54 feet; maingaff, 25 feet; foreboom, 23 feet; foregaff, 22 $\frac{1}{2}$  feet.

## IDEAL FISHING SCHOONER "NEW ERA."

Builder's model, scale  $\frac{1}{2}$  inch to foot. Starboard side of schooner; painted; mounted in medallion, and rigged with spars, sails, &c., complete. Clipper; long, sharp bow; deep body; more than average dead-rise; long, clean run; full, elliptical, overhanging stern, slanting upward from the lower center to the corner; fine sheer; long quarter-deck. Gloucester, Mass., 1883. 57,051. Designed by Capt. J. W. Collins. U. S. Fish Commission. This model represents a schooner of about 90 to 100 tons register, designed especially for the winter fisheries. A vessel built from it would be about two feet deeper than the typical American fishing schooner of the same length, and about one foot less beam. It would have less

## IDEAL FISHING SCHOONER "NEW ERA"—Continued.

difference in draught between the bow and stern, that is, less drag-line. The rig differs from that of the American schooner in having a stem staysail and jib, instead of the large jib now universally used, and also in having shorter lower masts. In summer the rig might be changed by the addition of a fore-topmast and jib-boom, with sails to correspond. It is believed that a vessel constructed on such a model would be safer in heavy gales, and much swifter, taking the chances as they come, than schooners of the ordinary type, which have much less body under water. The ballast can, of course, be placed lower, and thereby the leverage increased and the chances of capsizing diminished. *Dimensions of full size vessel.*—Hull: Length over all, 85 feet; keel, 69 feet; beam,  $21\frac{1}{2}$  feet; depth of hold, 10 feet; draught, aft  $10\frac{1}{2}$  feet, forward 8 feet. Spars: Bowsprit (outside), 20 feet; foremast (full length), 69 feet; mainmast,  $70\frac{1}{2}$  feet; main-topmast, 36 feet; mainboom, 58 feet (23 feet outside slings); foreboom,  $25\frac{1}{2}$  feet.

## THREE-MASTED GRAND BANK COD-FISHING SCHOONER "LIZZIE W. MATHESON," OF PROVINCETOWN, MASS.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Moderately sharp bow; straight side; good sheer; low, rounding bilge; long floor, with little dead-rise; rather short run; square, slightly overhanging stern. 193 tons register. Capacity for 5,000 quintals, or 560,000 pounds of codfish. *Dimensions of original:* Length over all, 105 feet; keel, 88 feet; beam, 24 feet; depth of hold, about 9 feet; draught of water aft, in ballast trim,  $9\frac{3}{4}$  feet. Essex, Mass. Built by James & McKenzie. Model exhibited by Messrs. H. & S. Cook, Provincetown, Mass., the owners of the vessel.

## BOATS.

MODELS OF ALL IMPORTANT TYPES OF BOATS AND FULL-SIZED BOATS USED IN THE FISHERIES OF THE UNITED STATES, INCLUDING PORTABLE AND FOLDING BOATS, DUG-OUTS, SKIN BOATS, BARK CANOES, ETC.

## 5. SLOOP, CUTTER, AND CAT-RIGGED, SQUARE-STERN BOATS.

## MENHADEN CARRY-AWAY SLOOP.

Model, scale  $\frac{1}{2}$  inch to foot. Clipper-build; long; sharp bow; broad beam; light draught; center-board; wide, rather flat floor; fine run; square stern; decked, with large covered hatchway amidships (14 feet long, 8 feet wide); cabin aft. Greenport, N. Y., 1883. 57,029. U. S. Fish Commission. This model represents

## MENHADEN CARRY-AWAY SLOOP—Continued.

the class of small yacht-like sloops employed in carrying menhaden from the "sail gangs" on the fishing ground to the factories of Long Island Sound. *Dimensions of original.*—Hull: Length (over all),  $43\frac{1}{2}$  feet; beam, 14 feet; draught of water aft (without center-board),  $3\frac{1}{2}$  feet. Spars: Mainmast (above deck),  $45\frac{1}{2}$  feet; bowsprit (outside), 15 feet; topmast,  $22\frac{1}{2}$  feet; mainboom, 44 feet; gaff, 21 feet. Skiff-boat attached (flat bottom, sharp pattern),  $11\frac{3}{4}$  feet long, 4 feet wide.

## NOANK LOBSTER-BOAT.

Model, scale 1 inch to foot. Sloop-rigged; sharp bow; broad beam; wide, heart-shaped stern; fine lines; center-board; washboards; partly decked forward and aft. Open wells, for fish, with perforated bottom each side of center-board. Spars, standing and running rigging complete. No sails bent. Noank, Conn., 1876. 26,809. Presented by Capt. H. C. Chester. These boats are used chiefly in the lobster-fisheries of Long Island Sound, especially in the vicinity of Noank and New London, Conn. The well is for the purpose of keeping the lobsters alive. *Dimensions of original.*—Hull: Length (over all),  $24\frac{1}{2}$  feet; beam,  $10\frac{1}{2}$  feet; width of stem,  $7\frac{1}{2}$  feet; height (keel to top of rail amidships),  $4\frac{3}{4}$  feet. Spars: Bowsprit (outside stem), 9 feet; mast (above deck),  $26\frac{1}{2}$  feet.

## MUSCONGUS BAY LOBSTER-BOAT.

Model, scale 1 inch to foot. Clipper sloop; open boat; long, sharp bow; broad beam; moderately sharp floor; fine run; overhanging, square stern; center-board; short deck forward, under it a cuddy for crew's sleeping-quarters and also for storage of lobsters in cold weather; washboards on each side aft of cuddy, inclosing open space for standing room, and for stowage of barrels, &c., when cod or mackerel fishing. Friendship, Me. 55,795. U. S. Fish Commission. This model represents a class of sloop-rigged boats in general use at Muscongus Bay, Maine. They are employed in the general fisheries of the coast, but have been found exceedingly well adapted for the lobster-fishery, for which they are specially designed. They are remarkably good sailers, fine sea-boats, and perfectly manageable with jib. *Dimensions of original.*—Hull: Length, 26 feet; beam, 8 feet; mast,  $25\frac{1}{2}$  feet (above deck); bowsprit, 6 feet (outside); mainboom,  $25\frac{3}{4}$  feet; gaff, 15 feet.

## MATINICUS FISHING BOAT.

Model, scale 1 inch to foot. Sloop-rigged; open; set work; very sharp, yacht-like bow; straight stem above water-line, much

## MATINICUS FISHING BOAT—Continued.

curved below; keel; high bilge; fine, clean run; elliptical stern, like clipper-schooner; some overhang; washboards; center-board; one pair rowlocks aft; two thwarts; seat around stern cockpit; ballast platformed down; fish-kid in center of boat; bulkheaded; sprit, mainsail, and jib; one pair of oars; little punt attached. Friendship, Me., 1883. 57,032. U. S. Fish Commission. Used in general fisheries on coast of Maine, especially at Matinicus Island, where they originated. They are exceedingly swift sailers, and well adapted for the work in which they are employed. *Dimensions of original*.—Hull: Length (over all), 21 feet; beam,  $6\frac{1}{4}$  feet; depth,  $3\frac{1}{2}$  feet; draught, 3 feet. Spars: Bowsprit (outboard),  $5\frac{1}{2}$  feet; mast,  $20\frac{1}{2}$  feet (total); sprit, 16 feet.

## IRISH FISHING CUTTER, OF BOSTON.

Model, scale 1 inch to foot. Sharp bow; high floor; clean run; moderate sheer; deep keel; stem straight above water-line, curved below; much drag-line; deep, square, heart-shaped stern; raking stern-post; rudder hung outside; decked forward a little less than half the length, rest open; cockpit aft; middle portion bulkheaded off for fish, and generally provided with temporary covering of boards; four thwarts; cutter-rigged, with running bowsprit; three sails, main-sail, stay-foresail, and jib. *Dimensions of original*.—Length over all, 36 feet; keel, 29 feet; beam,  $9\frac{1}{4}$  feet; (height of model: stem,  $7\frac{3}{4}$  inches; amidships, 7 inches; aft, 9 inches); draught of water, bow 2 feet 9 inches, aft 5 feet 8 inches; mast (above deck), 34 feet 9 inches; bowsprit (outside), 10 feet 6 inches; main-boom, 32 feet 6 inches; gaff, 21 feet 3 inches. Boston, Mass., 1883. 76,013. Collected by J. W. Collins. Boats of the class represented by this model are used quite extensively by the Irish fishermen sailing from Boston, Mass. This particular type was first introduced into the United States about 1846. It is essentially the same as the boats used on the coast of Ireland, at Galway, and known as the "Galway hooker." The model has been much improved by the Boston builders, and some of these boats have become very celebrated for speed, so much so that they have been purchased by wealthy gentlemen and converted into yachts. They are reputed to be excellent sea-boats, and almost any time, even in midwinter, they may be seen in Massachusetts Bay shooting or hauling their lines and nets.

## MARTHA'S VINEYARD CAT-BOAT.

Model, scale 1 inch to foot. Long, sharp bow; broad beam; wide, heart-shaped stern; center-board; decked forward, to form

### MARTHA'S VINEYARD CAT-BOAT—Continued.

cabin; cockpit aft; washboards; one sail. *Dimensions of original*: Length over all,  $19\frac{3}{4}$  feet; beam,  $7\frac{1}{2}$  feet; height amidships, 3 feet; mast (above deck),  $19\frac{1}{2}$  feet; boom, 22 feet; gaff, 11 feet. Nantucket, Mass., 1875. 25,026. William H. Chase, jr. The boats represented by this model are used in carrying out fishing parties, and for the general fisheries at Martha's Vineyard and vicinity. They are also made use of as yachts along an extensive stretch of the Atlantic sea-coast. They are swift sailers in smooth water, stiff, and well adapted for service at many points where the water is shallow.

### PROVIDENCE RIVER CAT-RIGGED FISHING BOAT.

Model, scale 1 inch to foot. Open; lap-streak; cat-rigged, with one sail; sharp bow; broad beam; square stern; floored in cockpit and forward compartment; between these is a fish-well pierced with holes in bottom. Built by T. D. Stoddard. Newport, R. I., 1876. 29,537. Gift of J. M. K. Southwick. These boats are used in lobster and hook-and-line fisheries; they vary in length on the keel, from 14 to  $19\frac{1}{2}$  feet, and cost from \$225 to \$425 each. *Dimensions of original*.—Hull: Length over all,  $20\frac{1}{4}$  feet; keel,  $17\frac{1}{2}$  feet; beam, 8 feet. Spars: Mast,  $22\frac{3}{4}$  feet.

### CAT-RIGGED WATER-BOAT "AGUA PURA."

Model, scale 1 inch to foot. Sharp bow; broad beam; round stern; comparatively light draught; decked, with cockpit for steersman aft; pump and hose; hatchway to water-tank nearly amidships; hatchway to forehold on port side forward; keel; one large sail. Gloucester, Mass., 1883. 56,937. U. S. Fish Commission. This model represents the sail-boats which supply the fishing vessels with fresh water at Gloucester, Mass. *Dimensions*.—Hull: Length over all, 37 feet; beam, 12 feet. Spars: Length of mast above deck, 39 feet; mainboom, 37 feet; gaff, 16 feet.

### NEW JERSEY SNEAK-BOX.

Model, scale 1 inch to foot. Ducking punt; single sprit-sail; center-board; adjustable cover for cockpit and washboard; canvas screen forward. *Dimensions of original*: Length,  $15\frac{1}{2}$  feet; beam, 5 feet; height,  $1\frac{1}{4}$  feet; mast,  $7\frac{1}{2}$  feet. Tuckerton, N. J., 1876. 26,623. J. D. Gifford. Boats of this type are used chiefly for hunting ducks, &c., in the shallow waters along the New Jersey coast. They are from 12 to 15 feet long. The shelving, or side-boards on the stern of the boat are used to hold the decoys while the hunter rows to and from the shooting-ground.

## EGG HARBOR MELON-SEED OR SPORTING BOAT.

Model, scale 2 inches to the foot. Cat-boat rig, with one sail; wide and shallow; moderately sharp bow; square stern; decked with exception of cockpit amidships, for which there is an adjustable cover. *Dimensions of original*: Length,  $13\frac{3}{8}$  feet; beam,  $4\frac{1}{4}$  feet; height amidships,  $1\frac{1}{8}$  feet; mast,  $8\frac{3}{8}$  feet. Egg Harbor, 1876. 25,658. Presented by P. Brasher. These boats are used for hunting in the shallow waters of the marshes and bays bordering the New Jersey coast.

## 6. SCHOONER-RIGGED, SQUARE-STERNE D BOATS.

## TWO-MASTED CAT-BOAT "LITTLE MAUD."

Model, scale 1 inch to foot. Sharp bow; broad beam; open, square stern; fine run; washboards; partly decked fore and aft; deep keel; two masts; two sprit-sails. Boston, Mass., 1876. 26,585. Johnson & Young. This model represents a class of boats extensively used in the general shore fisheries, especially in the lobster-fishery in Northern New England. They are usually good sailers and sea-boats and easily managed; they vary in size from 18 to 25 feet in length. *Dimensions of original*.—Hull: Length over all, 19 feet; beam,  $6\frac{1}{2}$  feet; width of stern,  $3\frac{3}{4}$  feet. Spars: Foremast above deck,  $13\frac{1}{2}$  feet; mainmast,  $12\frac{3}{4}$  feet.

## MONHEGAN FISHING BOAT.

Model, scale 1 inch to foot. Schooner-rigged; two sprit-sails (main-sail and foresail) and jib; open; washboards; center-board; two thwarts; seat around stern cockpit; platform over ballast; fish-kid amidships separated from forward and after standing-rooms by bulkheads; two masts. This boat has a sharp, yacht-like bow; high bilge; fine, clean run; elliptical stern, with considerable overhang; small keel; stem nearly straight above water-line, sharply curved below. Fitted with one pair of oars and row-locks and one fishing-line; anchor hanging to bowsprit. Friendship, Me., 1883. 57,031. U. S. Fish Commission. Used in general fisheries off the coast of Maine, more especially at Monhegan Island and Boothbay. They are rapid sailers and good sea-boats. *Dimensions of original*.—Hull: Length over all,  $20\frac{1}{2}$  feet; beam, 6 feet; draught,  $2\frac{3}{4}$  feet. Spars: Mainmast (above thwart),  $13\frac{1}{2}$  feet; foremast above thwart, 19 feet; bowsprit (outside), 5 feet; mainboom, 9 feet.

## TWO-SAIL FISHING BOAT OF MAINE.

Builder's model, scale 1 inch to foot. Very sharp bow; broad beam; sharp, concave bilge; narrow and deep, square stern. Phippsburg, Me., 1879. Gift of Charles H. McIntire. 54,484. This

## TWO-SAIL FISHING BOAT OF MAINE—Continued.

model represents the two-masted, square-stern, center-board fishing boats of the coast of Maine. They are good sailers and very seaworthy.

## 7. SQUARE-STERN ROW-BOATS.

## NANTUCKET HARBOR-BOAT.

Model, scale 1 inch to foot. Open; long, sharp bow; narrow beam; square stern. *Dimensions of original*: Length, 12 feet; beam,  $2\frac{1}{4}$  feet; depth, 1 foot. Nantucket, Mass., 1875. 25,028. William H. Chase, jr. Used for pleasure fishing, &c.

## POTOMAC RIVER SHAD SEINE-BOAT.

Model, scale  $\frac{1}{2}$  inch to foot. Open, long, narrow row-boat; sharp bow; curved stem; keel; wide and full square stern; round bilge; slight sheer. Braced longitudinally with "hog-rod" to prevent keelson springing up amidships. Carries 1,200 to 1,500 fathoms of seine, which is 30 feet deep on channel end, 12 feet deep on shore end, and of  $2\frac{1}{2}$  to 3 inch mesh. Rowed by 24 oars double-banked and 2 single-banked forward. *Dimensions of original*: Length, 72 feet; beam, 12 feet; height amidships,  $5\frac{3}{4}$  feet. Washington, D. C., 1883. 55,877. U. S. Fish Commission. Used in the shad-fisheries of the Potomac River.

## 8. SHARP-STERN ROUND-BOTTOM BOATS.

## QUODDY BOAT.

Builder's model, scale  $\frac{1}{2}$  inch to foot. Sharp at both ends; wide beam; high bilge. Eastport, Me., 1880. Gift of Albert Hallet. 54,478. The Quoddy boat is sloop-rigged, and is largely employed in the herring and other shore fisheries in Passamaquoddy Bay and vicinity. It is celebrated for speed and seaworthiness.

## MENHADEN CARRY-AWAY BOAT.

Builder's model, scale 1 inch to foot. Sharp at both ends; wide and shallow. *Dimensions of boat*: Length, 35 feet 6 inches; beam, 14 feet; depth, 3 feet 9 inches. Greenport, N. Y., 1865. Gift of Charles A. Jackson. 54,341. This is a model of a menhaden carry-away boat, style of 1865. Twelve such boats were made from this particular model. These boats were sharp at both ends, like the Block Island fishing boat, from which they originated, but were made much shallower to enable them to carry a large load on light draught of water. They were rigged with one mast and a single large sail, were generally open boats, and were quite remarkable for their stiffness and speed.

## MENHADEN CARRY-AWAY BOAT—Continued.

They have been superseded by small, clipper, deck sloops, that are more suitable for the business, since the crews can remain on board.

## NO MAN'S LAND FISHING BOAT.

Builder's model, scale 1 inch to foot. Sharp at both ends; broad beam. *Dimensions of boat*: Length, 17 feet; beam amidships, 6 feet. New Bedford, Mass., 1882. Gift of James Beetle, builder. 54,477. The boats built from this model are employed in the shore fisheries about Vineyard Sound and No Man's Land. They are rigged with two masts and carry two sails.

## ITALIAN FISHING BOAT.

Model, scale 1 inch to foot. Felucca rig; decked; ends alike; rounding bow and stern; broad beam; low bilge; decked; one mast; lateen-sail. San Francisco, Cal., 1876. 22,213. Livingston Stone. Used by Italian fishermen of California in bay and outside fishing. *Dimensions of original*.—Hull: Length, 20 feet; beam,  $7\frac{1}{4}$  feet; height, amidships  $3\frac{1}{4}$  feet, ends  $4\frac{1}{4}$  feet. Spars: Bowsprit,  $2\frac{1}{2}$  feet; mast,  $13\frac{1}{4}$  feet above deck; yard,  $24\frac{1}{2}$  feet; sail,  $18\frac{1}{2}$  feet on foot, 14 feet hoist, 23 feet on yard.

## ITALIAN FISHING BOAT.

Model. Felucca rig; ends alike; moderately sharp bow and stern; straight stem and stern-post; broad beam; flat floor; lateen-sail; covered hatchway amidships; cockpit for steersman aft. *Dimensions of original*: Length over all,  $21\frac{1}{2}$  feet; keel, 21 feet; beam,  $7\frac{1}{4}$  feet. San Francisco, Cal., 1876. 22,214. Livingston Stone. These boats are used by Italian fishermen at San Francisco for fishing in the bay and ocean.

## COLUMBIA RIVER SALMON-BOAT.

Model, scale 1 inch to foot. Sharp at both ends; washboards along the sides; covered for 2 to 3 feet forward and aft; four thwarts; one mast, which steps well forward; three oars. *Dimensions of original*: Length over all,  $25\frac{3}{4}$  feet; beam,  $6\frac{3}{4}$  feet; height, amidships  $2\frac{1}{2}$  feet, ends 3 feet; oars, 12 feet long; mast,  $16\frac{1}{2}$  feet. San Francisco, Cal., 1876. 22,216. Collected by Livingston Stone.

## QUODDY BOAT.

Model, scale  $\frac{1}{2}$  inch to foot. Sharp forward and aft; broad beam; deep, curved stem; straight stern-post; one sail. *Dimensions of original*: Length over all, 35 feet; beam, 12 feet; mast,  $39\frac{1}{2}$

## QUODDY BOAT—Continued.

feet. Eastport, Me., 1873. 12,099. Captain Hallet. Used in general fisheries of Eastern Maine, but chiefly employed in the herring-fishery. These boats vary from 20 to 35 feet in length; they are excellent sea-boats, stiff, and good sailers.

## REACH-BOAT OF MAINE.

Model, scale 1 inch to foot. Open; lapstreak; sharp at both ends; broad beam; keel; one sprit-sail; one pair oars; two thwarts; curved stem; straight stern-post. *Dimensions of original*: Length, 15 feet; beam,  $4\frac{3}{4}$  feet; mast above thwart,  $11\frac{1}{2}$  feet. Jonesport, Me., 1883. 57,561. U. S. Fish Commission. This model represents the original reach-boat, extensively employed in the general fisheries of Eastern Maine. The average length of these boats is as above, though they are often built more than 20 feet long.

## DOUBLE-ENDER OR PEA-POD.

Model, scale 1 inch to foot. Open; lapstreak; sharp forward and aft; rounding stem and stern-post; both ends alike; rounding bilge; keel; rudder; two thwarts; two oars; one sail. Jonesport, Me., 1883. 56,864. U. S. Fish Commission. This model (built at Jonesport, Me.) represents a class of boats used in the general fisheries of the coast of Maine, but chiefly employed in the lobster-fisheries in certain localities, the shape of the boat making it unnecessary for the fishermen to turn it around, since it can be rowed one way as well as the other. *Dimensions of original*.—Hull: Length over all, 15 feet; beam,  $4\frac{1}{2}$  feet; depth,  $1\frac{1}{2}$  feet. Spars: Mast, 14 feet; boom, 14 feet; gaff, 6 feet.

## NO MAN'S LAND FISHING BOAT.

Model, scale  $1\frac{1}{2}$  inches to foot. Open; lapstreak; sharp forward and aft; broad and deep; curved stem; straight stern-post; two masts; two sprit-sails (foresail and mainsail). Vineyard Haven, Mass., 1876. 25,898. Presented by Capt. William H. Cleveland. The style of boat represented by this model is used in the general shore-fisheries (including those for cod and lobsters) from No Man's Land and vicinity. *Dimensions of original*.—Hull: Length over all,  $22\frac{2}{3}$  feet; beam,  $8\frac{2}{3}$  feet; height amidships,  $4\frac{1}{2}$  feet. Spars: Foremast above thwart, 15 feet; mainmast above thwart,  $13\frac{1}{2}$  feet.

## NEW ENGLAND SURF-BOAT.

Model, scale 2 inches to foot. Open row-boat; lapstreak; sharp forward and aft; curved stem; straight stern-post. *Dimensions of original*: Length over all, 22 feet; beam,  $6\frac{1}{4}$  feet; height

## NEW ENGLAND SURF-BOAT—Continued.

amidships, 3 feet; oars, 14½ feet long. Boston, Mass., 1876. 24,999. Built by Cragin & Sheldon. This represents a class of boats extensively used by the Light-House Board, and, to a less extent, by the Life-Saving Service of Northern New England. Boats of this type (but generally provided with sails) are very much in use in the coast fisheries in the locality mentioned. They are excellent sea-boats and easily propelled by oars or sails.

## PURSE-SEINE BOAT.

Model, scale 1 inch to foot. Open; sharp at both ends; round bottom; keel; curved stem and stern-post; fitted with rowlocks, pursing-gear, towing-link, &c.; also purse-seine and oars. *Dimensions of original*: Length, 36 feet; beam, 8 feet; height, amidships 2¾ feet, ends 4½ feet. Gloucester, Mass., 1876. 25,826. Higgins & Gifford. This model represents the class of boats exclusively used in the mackerel purse-seine fisheries of New England. These boats vary in length from 32 to 40 feet, the larger sizes (those from 35 to 38 feet long) having come into use since 1875, while boats 40 feet long were first built in 1882. They are a modification of the whale-boat.

## PURSE-SEINE BOAT.

Model, scale 2 inches to foot. Open boat; sharp forward and aft, the stern somewhat fuller than the bow; curved stem and stern post; round, smooth bilge; set work; six thwarts; nickel-plated rowlocks, pursing-gear, oar-rests, towing-link, &c.; full set of oars. *Dimensions of original*: Length, 36 feet; beam, 7 feet 7½ inches. Gloucester, Mass., 1883. 57,574. U. S. Fish Commission. This model represents the style of boat used by the American mackerel fishermen for the purpose of setting and hauling purse-seines. It also shows the fittings manufactured for seine-boats by Wilcox, Crittenden & Co., Middletown, Conn., namely, cleats, stem-cap, snatch-blocks for pursing seine, steering-oarlock with stern socket, davit-iron, tow-link and hook, belaying-pin, oar-holders, davit-guard and step-plate, breast-brace and eye-plate or oar-holder swivels, all of which are shown in this collection by full-size examples on screens.

## ADIRONDACK BOAT.

Model, scale 1 inch to foot. Light wood. Combination of row-boat and canoe; sharp ends; round bottom. Fitted with one scull, one paddle, and a portage yoke. *Dimensions of original*: Length over all, 15 feet; beam, 3½ feet; height, amidships 1 foot, stern 2½ feet; weight, 75 to 80 pounds. Boston, Mass.,

## ADIRONDACK BOAT—Continued.

1876. 25,681. Frederick D. Graves. This type of boat is used for hunting and fishing in the Adirondack region. "For the use of sportsmen, this boat is claimed to excel on account of its *extreme lightness* and *durability*, one man being able by means of a yoke to carry the boat to any distance without fatigue. It is also adapted for family purposes, the *patent rowlock* enabling the most inexperienced rower of either sex to propel the boat with ease and perfect safety, and without any possible chance of losing the oars."—(Graves.)

## ADIRONDACK BOAT.

Model, scale  $1\frac{1}{2}$  inches to foot. Open; double-scutt, lapstreak wherry; light deck at both ends; round bottom. *Dimensions of original*: Length over all, 22 feet; beam,  $3\frac{5}{8}$  feet; height amidships, 1 foot. Alexandria Bay, New York, 1876. 25,053. Cornwall & Weston. Used in Adirondack Mountains.

## 9. FLAT-BOTTOM BOATS.

## SHORE DORY.

Model, scale 4 inches to foot. Open; flat bottom; lapstreak; slightly rounded, flaring sides; sharp bow; narrow, V-shaped stern; center-board; washboards along sides; decked forward; three thwarts; kidboards; oars; thole-pins; two sails—main-sail and jib; mast-hole in each of two forward thwarts; rudder. *Dimensions of original*: Length over all, 21 feet; beam, 5 feet; depth amidships,  $21\frac{3}{4}$  inches; length of mast, 14 feet. Gloucester, Mass., 1883. 57,573. U. S. Fish Commission. The boats which this model represents are used by the shore fishermen of New England, especially at Cape Ann, the custom of the men being to fish not far from the coast and to usually return home after a day's or night's fishing. They are good sailers and excellent sea-boats.

## BANK DORY.

Model, scale 4 inches to foot. Open; flat bottom; flaring sides; sharp bow; V-shaped stern; fitted with oars, thole-pins, painter stern-becket, thwarts, and kidboards. *Dimensions of full-size dory*: Length over all,  $19\frac{1}{4}$  feet; beam,  $5\frac{3}{4}$  feet; depth amidships, 21 inches. Gloucester, Mass., 1883. 57,572. U. S. Fish Commission. This model represents the style of dories used in the bank cod and halibut trawl-line fisheries.

## FULL-SIZED BANK HALIBUT DORY.

Flat bottom, open boat, with sharp, wedge-shaped bow; straight, flaring sides; narrow, V-shaped stern. Strong sheer on top, and bottom curved slightly upwards at each end. Fitted with

## FULL-SIZED BANK HALIBUT DORY—Continued.

mast and sprit-sail, two pairs 9-foot ash oars, Davis's standard (brass) row-locks, adjustable thwarts and kid boards, "hurdy-gurdy" or line winch, 2 trawl anchors, 1 coil buoy line, 1 skate trawl, 1 dory scoop, 1 bucket containing jug and woolen nippers, 2 buoys with staffs and "black balls," painter, stern becket, dory plug, &c. Length, over all  $19\frac{1}{8}$  feet, on bottom 15 feet, (the length of the bottom is the measurement usually spoken of; a dory of the above size would be called a "15-foot dory"); extreme width 5 feet, width of bottom amidships  $2\frac{2}{3}$  feet. Gloucester, Mass., 1883. U. S. Fish Commission. Boats of this type and size are exclusively used in the halibut and cod trawl-line fisheries on the outer banks, and have also in the United States very largely superseded all other kinds, even in the in-shore fisheries, where the latter are prosecuted chiefly by vessels which engage in trawl-line fishing, carrying their boats on deck.

## FULL-SIZED BANK COD AND HADDOCK DORY.

Flat bottom, open boat; sharp bow; flaring sides; narrow, V-shaped stern; strong sheer on top; bottom curved slightly upwards at each end. Fitted with two pairs of 9-foot ash oars, Davis's standard (brass) rowlocks, adjustable thwarts, and kid boards, 2 keg buoys with staffs and "black balls," 2 trawl-line anchors, 1 bailing scoop, 1 coil buoy line, 1 tub containing trawl-line, 1 bucket, water jug, woolen nippers, painter, stern becket, dory plug, &c. Length, over all  $19\frac{1}{8}$  feet, on the bottom 15 feet; (boats of this size are known as "15-foot dories," and, with few exceptions, are the only kind used in the off-shore trawl-line fisheries for cod, haddock, and halibut, where two men are required for the management of the boat, and for handling the gear); extreme width 5 feet, width of bottom amidships  $2\frac{2}{3}$  feet. Gloucester, Mass., 1883. U. S. Fish Commission. Used in the off-shore haddock and cod trawl-line fisheries. As a rule, a schooner carries six dories of this class, though a few take as many as seven, while small vessels, fishing nearer the land, may not have more than from two to four dories each. Each dory of this size is manned by two persons, though the smaller boats, those of  $12\frac{1}{2}$  to  $13\frac{1}{2}$  feet length on the bottom, carry only one man. The smaller dories are used comparatively little in the trawl-line fisheries, but are employed quite extensively in the hand-line cod-fisheries on the outer banks.

## NEW ENGLAND DORY.

Model, scale 1 inch to foot. Open; flat bottom; sharp bow; narrow, V-shaped stern. *Dimensions of original*: Length, over all

## NEW ENGLAND DORY—Continued.

19 $\frac{3}{4}$  feet, bottom 15 feet; beam, 5 $\frac{1}{2}$  feet; width of bottom amidships, 2 $\frac{1}{2}$  feet. Coast of Maine, 1873. 12,678. U. S. Fish Commission. Used in shore and bank cod and halibut fisheries.

## NEW ENGLAND DORY.

Model, scale 1 inch to foot. Open; flat bottom; flaring sides; V-shaped stern. *Dimensions of original*: Length, over all 19 $\frac{3}{4}$  feet, bottom 15 feet; beam, 5 $\frac{1}{2}$  feet; bottom amidships, 2 $\frac{1}{2}$  feet wide. Coast of New England, 1874. 13,493. U. S. Fish Commission. This model represents the type of boats extensively employed in the commercial fisheries of the Atlantic coast.

## NEW ENGLAND DORY.

Model, scale 1 inch to foot. Flat bottom; sharp bow; narrow, V-shaped stern; flaring sides. *Dimensions of original*: Length, on top 18 $\frac{1}{2}$  feet, on bottom 15 feet; beam, 5 feet; depth amidships, 2 feet. Ferryville, Me., 1876. 55,792. Starling & Stevens. Used in the general fisheries of New England.

## NANTUCKET CLAMMER'S DORY.

Model, scale 1 inch to foot. Open; sharp bow; narrow, V-shaped stern; flat bottom; flaring sides; fitted with one pair of sculls, clam-rake, and tub. *Dimensions of original*: Length over all, 16 $\frac{1}{2}$  feet; beam (gunwale to gunwale), 4 feet; width of bottom amidships, 2 $\frac{1}{2}$  feet. Nantucket, Mass., 1876. 25,657. W. H. Chase, 2d. Used by clam-gatherers at Nantucket and vicinity.

## CONNECTICUT SHARPY.

Model, scale 1 inch to foot. Open; flat bottom; center-board; sharp bow; wide, square stern; single mast; leg-of-mutton sail; 2 oars. *Dimensions of original*: Length, 14 $\frac{1}{2}$  feet; beam, 4 $\frac{3}{4}$  feet; height, amidships 1 $\frac{3}{4}$  feet, stem 1 $\frac{3}{4}$  feet, stern 2 feet; mast, 13 feet. Noank, Conn., 1875. 24,752. Capt. H. C. Chester. Boats of this class are employed in the general shore fisheries of Southern Connecticut. A large boat of the same model, but usually rigged with two sails, is used in the oyster business.

## LOOKOUT BOAT.

Model, scale  $\frac{1}{2}$  inch to foot. Open; flat bottom; sharp forward; broad, square stern; 2 pairs sculls. Washington, D. C., 1883. 55,878. U. S. Fish Commission. Used as tender to shad-seine boat, No. 55,877.

## LAKE ERIE POUND BOAT.

Model, scale 1 inch to foot. Flat bottom; sharp model; center-board; straight sides; square stern; open; washboards; rigged

## LAKE ERIE POUND BOAT—Continued.

complete with spars, &c. Two sails—three-cornered above the gaffs, like gaff-topsails. Chicago, Ill., 1876. 26,790. J. W. Milner. These boats are used in the pound fisheries of the Great Lakes, and their peculiar construction enables them to carry large quantities of fish in shallow water and to lift the bowl of the pounds without upsetting. *Dimensions of original*.—Hull: Length (stem to stern),  $24\frac{3}{4}$  feet; beam,  $9\frac{1}{2}$  feet; width of stern, 7 feet; depth amidships, 3 feet. Spars: Foremast,  $23\frac{1}{4}$  feet; mainmast,  $21\frac{1}{2}$  feet.

## POTOMAC FISH-LIGHTER.

Model, scale  $\frac{3}{8}$  inch to the foot. Flat bottom, flat-iron shaped; decked with long, wide hatchway, covered with four hatches; cuddy aft; rudder; towing-bit forward. *Dimensions of original*: Length over all, 52 feet; beam,  $14\frac{2}{3}$  feet; depth of hold,  $5\frac{1}{3}$  feet. Washington, D. C., 1883. 56,950. Presented by George Woltz. These boats vary in length from 45 to 60 feet, and are used for transporting fish from the lower Potomac to market. A boat is anchored near each fishing station on the river and the daily catch of fish is put on board. At a certain time of day the boats are picked up by a steam-tug, which tows ten to fifteen of them to Washington. They are invariably covered with coal-tar.

## FISHING-BOAT.

Model. Open; flat bottom; sharp ends; no run; little sheer; partially decked over fore and aft; carries lateen sail on  $29\frac{1}{4}$ -inch yard. Length, 28 inches; height, amidships  $2\frac{1}{4}$  inches, ends  $3\frac{1}{4}$  inches, mast 15 inches, to top of sail  $3\frac{3}{4}$  inches, total 21 inches; beam,  $5\frac{1}{4}$  inches; floor,  $3\frac{1}{4}$  inches. San Francisco, Cal., 1876. 22,217. Collected by Livingston Stone. This is used by the Chinese fishermen of San Francisco Harbor—principally by shrimp-catchers.

## CHINESE SHRIMP-BOAT.

Model, scale 1 inch to foot. Flat bottom; decked; square ends; strong sheer; single mast; one square sail; long hatchway, with high combings; adjustable rudder. Equipped with 4 oars, 3 boat-hooks, and one three-pronged anchor. San Francisco, Cal., 1883. 55,775. U. S. Fish Commission. Used in shrimp-fishing in San Francisco Bay, and generally in California. *Dimensions of original*.—Hull: Length,  $31\frac{1}{2}$  feet; beam, 11 feet; width of floor, 6 feet; height, amidships  $3\frac{1}{2}$  feet, stem  $7\frac{1}{2}$  feet, stern  $8\frac{1}{2}$  feet. Mast, 26 feet long.

## AU SABLE FISHING BOAT.

Model, scale 2 inches to foot. Made of white pine; bottom nearly flat for 8 feet in center; sheer of 5 inches at bow, 7 inches at stern; well, 6 feet from bow, extends 2 feet; will carry 2 men and 200 pounds of baggage steadily; setting-pole used exclusively; cost \$15. *Dimensions of original:* Length over all, 18½ feet; beam, 3½ feet; width of bottom, 2½ feet; depth amidships, 1½ feet. Bay City, Mich., 1876. 25,899. Gift of D. A. Fitzhugh, jr. Used for trout and grayling fishing in rapid streams.

## 10. PORTABLE BOATS.

## COLVIN PORTABLE CANVAS BOAT.

Model, scale 2 inches to foot. Patented October 6, 1874. Albany, N. Y. 22,218. R. A. Scott & Co. "This boat consists of a canvas exterior, made thoroughly water-proof by a preparation which preserves the strength of the canvas and prevents decay and oxidation. It is shaped like a canoe, sharp at both ends, and cuts the water handsomely. Along the sides and bottom are leather thongs, by which the boughs and limbs cut for frame can be lashed securely to the canvas, with the assistance of the four leather framing-blocks or sockets (two for each end), which connect the stem and stern posts (or prow pieces) with the keelson; and it can be readily put together anywhere in the woods, no tools being required for the purpose, excepting an ax or hatchet. The whole of it can be packed away in a space 24 inches long, 6 inches wide, and 3 inches thick. The size now made (No. 3), although but 12 feet long, will carry six men, or four men with their necessary baggage, and weighs but 12 pounds when rolled up. It has been tested in a heavy sea with a frame of green boughs cut only two hours before, and carried a weight of 700 pounds safely and easily."

## OSGOOD'S PORTABLE FOLDING CANVAS BOAT.

Manufactured by Osgood & Chapin, Battle Creek, Mich. 42,841.

The following sizes are manufactured: Length, 12 feet; width, 33 inches; depth, 12 inches; weight, 45 pounds; length of oars, 6½ feet; price, \$35. Length, 15 feet; width, 36 inches; depth, 13 inches; weight, 70 pounds; length of oars, 6½ feet; price, \$45.

*Size of chest.*—For 12-foot boat: 38 inches long, 17 inches wide, 18 inches deep. For 15-foot boat: 40 inches long, 20 inches wide, 22 inches deep.

"The 12-foot boat is designed for two men; will carry 600 pounds, and draw 4 inches of water. The 15-foot boat is designed for four men; is rigged with two pairs of oars, will carry 850

## OSDOOD'S PORTABLE FOLDING CANVAS BOAT—Continued.

pounds, and draw four inches of water. The jointed stretcher is used in place of the sectional bottom-board, with two side-boards, one each side of stretcher. The boat set up this way only weighs 20 pounds, and makes a very convenient boat for trout-fishing, duck-hunting, or exploring in ponds or streams where the paddle will do as well as the oars. A box of water-proofing fluid, with directions, sent with each boat. The canvas is woven in order for this special use, and is stronger than the usual thickness of birch-bark or cedar canoes. The water-proofing leaves the canvas soft, preserves the fiber, prevents mildew, and renders it impervious to water. The ribs are red elm, the bottom-board and oars basswood, which is filled with patent wood filling, preventing the water from penetrating the wood. The rowlocks and square staples are of malleable iron. This boat can be propelled rapidly; it is very staunch; will not tip over by rocking, or by climbing into it from bathing; and can be made ready for the water in two minutes, and requires no tools or ingenuity to set it up."

## FENNER'S PORTABLE BOAT.

Model, scale 3 inches to foot. Wooden extension frame, over which a canvas cover is laced, lashed, and stopped at ends; flat bottom; square ends. Thwarts act as braces to keep frame in place. *Dimensions of original*: Length, 10 feet; beam,  $3\frac{1}{2}$  feet; width of bottom,  $2\frac{3}{4}$  feet. Mystic River, Conn., 1876. 25,879. C. A. Fenner. Used by sportsmen.

## HEGEMAN PORTABLE FOLDING BOAT.

Length, 10 feet; width, 3 feet. Ballston Spa, N. Y. 29,506. Hegeman Portable Folding-Boat Company. Directions for setting up the boat: 1. Unfold the frame. 2. Place the knees and seats in position before fastening the bottom-end section at the end of the boat. 3. Fasten the bottom-end section to the ends of the boat by the thumb-screws. 4. Place on the canvas with the cords and tie in a single loop (or bow-knot).

## STRANAHAN FOLDING CANVAS BOAT.

Length, 10 feet. "These boats are a combination of lightness, strength, and durability, such woods being selected as give these qualities in the highest degree, and all made upon honor from first to last. The water-proof gum which we use renders the duck water-tight and water-proof, and at the same time preserves the strength of the fiber and protects the cloth from mildew and mold, being of uniform pliability in both intense hot and cold weather. . . . Each

## STRANAHAN FOLDING CANVAS BOAT—Continued.

boat has an adjustable stretcher attached to the stern, which provides for stretching the cloth as taut as a drum-head. The real capacity of the boat is greater than given in the table, but they will carry the weights given with perfect ease. . . . The 10-foot boat has eleven ribs; the 12-foot, fifteen; the 15-foot, nineteen. This brings the ribs so close together that (combined with the bilge or stiffening slats which are placed at equal distances between the gunwales and bottom) all bagging of the cover is obviated. The bow and stern pieces, gunwales, bilge slats, and ribs are made of second-growth red elm; the bottom strips, stools, oars, and paddles are of second-growth linden (basswood). The gunwales are  $1\frac{7}{8}$  inches wide by  $\frac{1}{4}$  inch thick, the ribs and side slats  $1\frac{1}{8}$  by  $\frac{1}{4}$  inches; bottom slats 1 by  $\frac{5}{8}$  inch. The frame has three strips the size of the ribs, running lengthwise of the bottom, outside of the ribs, being fastened together with wrought nails firmly clinched. The frame is cut in the center at the two ribs nearest together, . . . . the pieces cut alternating on each rib, the fastening at each gunwale and at two points on the bottom, with wrought-iron latches fastened with thumb-screws. We also make them in three sections, at an additional cost of \$3. The canvas is secured to the frame by leather straps buttoned to the inside of the gunwales over round-headed screws. The frames are neatly painted and trimmed, each strip primed before they are put together, making every part impervious to the water. The oars and paddles are copper-tipped and finished with varnish. In shipping, the canvas is entirely removed, folded compactly, and secured to the inside of the frame with the stools and oars, making one complete package, so that nothing can be misplaced or lost, and no danger or damage to the canvas. We claim the following advantages for our boat: It is the lightest complete boat made of its size, length and breadth considered. The duck is made in one piece and therefore the only seams below water-line are those at the ends, which are as strong as any other part of the cloth. It will stand as heavy a sea as any wooden boat of the same size. They are pointed at both ends, and straight and flat on the bottom. There are two sets of rowlocks in each boat, one to use when one or three persons are using it, the other when there are two, thus maintaining a 'trim' position in the water. The construction of the boat is such that the cloth is kept out to its place and a good shape maintained, which cannot be done with the majority of canvas boats. They being flat on the bottom makes them very steady for shooting or casting while standing, a very desirable point, as every practical

## STRANAHAN FOLDING CANVAS BOAT—Continued.

sportsman knows. They also make a desirable family pleasure boat, and a sail can be attached if desired. The boat can be folded and made ready for transportation in a few minutes, and unfolded and put together ready for use, in the same length of time, no tools being required. Any of the modern rowing gears can be applied and used. Prices given in the table are for boats with oars and stools. . . . Paddles furnished with boats if desired at 75 cents apiece extra. We also furnish shoulder straps for carrying the boat when desired. By means of these straps one man can carry the boat, when folded, almost any distance with perfect ease, both hands being free. Price of straps and fixtures \$1 extra. These boats when folded occupy one-half their size in length, being in two sections, the full width being maintained. The three sections when folded occupy one-third their size in length, the full width being maintained. We manufacture three sizes, of the following dimensions and weights, with oars and stools:

“10-foot boat, price \$20; width at bottom, 18 inches; capacity, 400 pounds; width at top, 32 inches; oars, one pair; depth at center, 11 inches; number stools, two; depth at ends, 15 inches; 6-foot oars; weight, 35 pounds.

“12-foot boat, price \$25; width at bottom, 26 inches; capacity, 600 pounds; width at top, 38 inches; oars, one pair; depth at center, 13 inches; number stools, three; depth at ends, 17 inches; 6½-foot oars; weight, 50 pounds.

“15-foot boat, price \$35; width at bottom, 28 inches; capacity, 800 pounds; width at top, 40 inches; oars, two pairs; depth at center, 14 inches; number stools, four; depth at ends, 18 inches; 6½-foot oars; weight, 65 pounds.

“For boats in three sections add \$3 to price.”—(*Holmes.*)

Chagrin Falls, Ohio, 1883. 37,630. Exhibited by Frank Holmes. Used for hunting and fishing.

## 11. SPORTSMEN'S BOATS.

## SHOOTING BOX.

Model. A rectangular, box-shaped punt, with a projecting platform on all sides. Connected with this platform, by hinges, are double folding platforms, or what may be termed wings. These may be closed over the platform next the boat, or spread out to their fullest extent on the water's surface by the occupant of the shooting-box. *Dimensions of original:* Length of box, 7 feet; width, 2½ feet; width of platform next to box, 2 feet; extreme length with wings extended, 20 feet; extreme width, 14 feet.

New Jersey, 1880. U. S. Fish Commission. Shooting-boxes of 2444—Bull. 27—45

## SHOOTING BOX—Continued.

this description are extensively used by hunters of sea fowl in the shallow inlets and streams near to or bordering the Atlantic coast of the United States, more particularly in New Jersey. Having reached the desired locality (two or more men generally go in a boat, taking the shooting-box along) the shooting-box is moored, the hunter takes his place in it, the wings are extended, and the decoys are placed in their proper positions around the box. Everything being arranged, the occupant of the box lies down flat on his back, with one gun in his hand and perhaps others beside him, and is ready to fire at any sea fowl that may fly near. The little box is about on a level with the water, upon which the wings rest.

## 12. BARK CANOES.

## CANOE.

Model. Light wooden frame, covered with birch-bark lashed over gunwale; seams and joints paid with rosin. Round bottom; pointed ends. Length, 13 inches; beam,  $3\frac{1}{2}$  inches. Height, ends  $3\frac{1}{2}$  inches, amidships, 3 inches. Bristol Bay, Alaska, 1882. 55,906. Collected by Charles L. McKay.

## 13. SKIN BOATS AND CANOES.

## SKIN BOAT.

Circular; made by stretching buffalo hide over a frame-work made of the boughs of trees. Diameter,  $5\frac{1}{8}$  feet; depth, about 18 inches. Fort Buford, Dakota. 9,785. Dr. W. Matthews, U. S. A. Used by Hidatza (Gros Ventres) Indians for crossing streams, &c.

## ALEUT CANOE OR "BIDARRA."

Model. Light wooden frame lashed with sinews and covered with skin, the covering lashed with thongs of skin over the gunwales to rib-bands on the inside; flat-bottom; sharp ends, projecting at top; single mast, supported by stays and shrouds of seal skin; one square sail of coarse matting fastened to yard with sinews; braces of seal-skin; 2 oars; 4 paddles. *Dimensions*: Length, over all 46 inches, bottom 30 inches; beam,  $13\frac{1}{2}$  inches; bottom, 6 inches wide; height, amidships  $5\frac{3}{4}$  inches, bow 6 inches, stern  $9\frac{1}{2}$  inches; mast, 27 inches; yard, 25 inches; sail, 24 by 24 inches; oars,  $21\frac{1}{2}$  inches; paddles,  $12\frac{1}{2}$  to 14 inches. Saint Michael's, Alaska, 1883. 38,882. Collected by E. W. Nelson.

## BIDARKA AND ALEUT FISHERMAN.

A full-size skin canoe, called a "bidarka" by the natives of Alaska, with the figure of an Aleut fisherman sitting in it with his spear poised in his right hand as in the act of throwing it. Alaska. U. S. Fish Commission.

## GREENLAND KYAK.

A full-size skin canoe, called a "kyak" by the natives of Greenland, fitted with paddles, spears, &c., complete.

## 14. DUG-OUT CANOES AND BOATS.

## CANOE.

Model. Rough dug-out; gunwale curls inboard; round bottom, square ends that rise to point. Length over all,  $14\frac{1}{4}$  inches. Height, amidships 3 inches, beam 9 inches, ends  $7\frac{1}{2}$  inches. Hoopah Indians, Trinity River, Cal., 1876. 21,359. Collected by S. Powers.

## CANOE.

Model. Dug-out; sharp bow; square stern; round bottom; 4 oars, 13 inches long. Length, 34 inches. Height, amidships 3 inches, stem 4 inches, stern  $4\frac{1}{4}$  inches. Beam,  $6\frac{1}{4}$  inches. 55,820.

## LARGE CANOE.

Model. Wood; round bottom; long, high projecting ends. Length,  $31\frac{1}{2}$  inches. Height, amidships  $2\frac{1}{2}$  inches, stem 6 inches, stern  $5\frac{1}{2}$  inches. Beam,  $6\frac{1}{4}$  inches. Mast, 19 inches high. 5 paddles. Northwest coast of America, 1862. 639. George Gibbs. Used by Indians in whaling and sea-fisheries.

## FISHING CANOE.

Model of fishing canoe. Design of carving and painting, totem of the crane ("Tatl"). Length,  $49\frac{1}{4}$  inches. Haidah Indians, northwest coast United States of America, 1883. 72,685. James G. Swan.

## FISHING CANOE.

Model of fishing canoe. Totem, gull ("Skina"). Length,  $29\frac{3}{4}$  inches. Haidah Indians, northwest coast United States of America, 1883. 72,686. James G. Swan.

## TRAVELING CANOE.

Model of traveling canoe. Design, owl ("Goot gooneu"). Length,  $37\frac{1}{2}$  inches. Haidah Indians, northwest coast United States of America, 1883. 72,687. James G. Swan.

## FISHING CANOE.

Model of fishing canoe. Design the wolf ("Koorts"). Length,  $33\frac{1}{2}$  inches. Haidah Indians, northwest coast United States of America, 1883. 72,688. James G. Swan.

## FISHING CANOE.

Model of fishing canoe. Totem, albatross ("Sangar"). Length, 35 inches. Haidah Indians, northwest coast United States of America, 1883. 72,689. James G. Swan.

## FISHING CANOE.

Model of fishing canoe with the totem of the large round clam ("Skung"). Length, 34 inches. Haidah Indians, northwest coast United States of America, 1883. 72,690. James G. Swan.

## FISHING CANOE.

Model of fishing canoe. Totem, wolf-fish (*Anarrichthys felis*) ("Stahun"). Length, 28 inches. Haidah Indians, northwest coast United States of America, 1883. 72,691. James G. Swan.

## CHINESE FISHING BOAT.

Model, scale 1 inch to foot. Unpainted wood; roughly made; narrow, flat bottom; slightly rounding bilge; straight sides; square ends; narrow beam; strong sheer. Dug out of solid log, the ends being nailed on. Divided into four compartments by bulkheads; washboards on the sides. Fitted with two long sweeps and poling-stick. The sweeps are held to the single thole-pin by a becket. *Dimensions of original*: Length, 20 feet; beam, 3½ feet; depth amidships, 2¼ feet. U. S. Fish Commission. 72,744. Used by Chinese fishermen on the coasts of California and Oregon.

## CHESAPEAKE OYSTER-BOAT.

Model, scale 1 inch to foot. Dug-out; open; washboard; widest forward of amidships. Carries a pair of oyster-tongs and a pair of oars. Baltimore, Md., 1875. 25,003. T. B. Ferguson. These boats are used in the oyster-fisheries of Chesapeake Bay and River. *Dimensions of original*.—Hull: Length, 27½ feet; height amidships, 3¼ feet; beam, 5¼ feet. Oars, 9 feet; tongs, 17 feet long with heads 2 feet wide. Spars: Foremast, 20¼ feet; mainmast, 16¼ feet.

## CHESAPEAKE BAY OYSTER-BOAT.

Model, scale 1 inch to the foot. Dug-out; long and narrow; rounding bottom; 2 masts, very much raked; 2 leg-of-mutton sails and jib; carries a pair of oyster-tongs. Baltimore, Md., 1880. 39,151. Presented by T. B. Ferguson. This model represents a class of boats used more or less extensively in the oyster-fisheries of Chesapeake Bay and its tributaries. These boats are formed from the trunks of trees. *Dimensions of original*.—Hull: Length, over all 27½ feet, keel 25 feet; beam, 4 feet. Spars: Foremast, 26¼ feet; mainmast, 20½ feet; bowsprit, outside stem, 2½ feet.

### SKETCHES AND PHOTOGRAPHS OF VESSELS AND BOATS.\*

SERIES OF INDIA-INK AND CRAYON SKETCHES, AND LARGE PHOTOGRAPHS, 30 BY 40 INCHES, AND A LARGE SERIES OF PHOTOGRAPHS, 8 BY 10 INCHES, SHOWING FISHING BOATS AND VESSELS IN DIFFERENT SITUATIONS.

#### 15. GENERAL VIEWS OF FISHING FLEETS, AT SEA AND IN PORT.

##### WHARF AND FISHING FLEET.

General view of the fishing fleet and wharf at Commercial wharf, Boston, Mass., from a line even with the dock. Boston, Mass., 1882. (Photo. No. 1805.) U. S. Fish Commission. Commercial Wharf, Boston, is the great depot in New England where fresh sea fish—cod, haddock, and others of the *Gadidæ*, as well as mackerel, herring, &c.—are landed and shipped by rail to various parts of the United States and Canada. In former years it used to have a monopoly of the fresh halibut trade, but now that branch of the fishery finds its principal market at Gloucester, which is the only New England port that has a large fleet engaged in this business.

##### FISHING SCHOONERS AND BOATS AT THE WHARF.

View of Milliken's Dock, Eastport, at low tide, with fishing vessels and boats lying at the wharves. Eastport, Me., 1882. (Photo. No. 1926.) U. S. Fish Commission.

##### FISHING FLEET AT PORTLAND.

View of D. L. Fernald's and C. A. Dyer's wharves, with fleet of vessels loading and unloading. Portland, Me., 1882. (Photo. No. 1864.) U. S. Fish Commission.

##### WHARVES AND FISHING VESSELS.

View along the water-front, looking southwest from wharf of John Pew & Sons. Gloucester, Mass., 1882. (Photo. No. 2094.) U. S. Fish Commission.

##### FISH WHARF.

Wharf of D. C. & H. Babson. Gloucester, Mass., 1882. (Photo. No. 2096.) U. S. Fish Commission.

##### WHARVES AND WHALING FLEET.

View of New Bedford wharves and whaling vessels. New Bedford, Mass., 1882. (Photo. No. 2143.) U. S. Fish Commission.

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\* These photographs have all been made by T. W. Smillie, of the Smithsonian Institution, Washington, D. C. The sketches have, with few exceptions, been made by H. W. Elliott and J. W. Collins.

## GLOUCESTER HARBOR AND FISHING FLEET.

Gloucester Harbor, looking up from Ten Pound Island. Gloucester, Mass., 1882. (Photo. No. 2017.) U. S. Fish Commission.

## GLOUCESTER OUTER HARBOR.

View of Gloucester, and the outer harbor, from Eastern Point; vessels in the outer harbor under sail and in various positions. Irish boat with three sails set. Gloucester, Mass., October 21, 1882. (Photo. No. 2018.) U. S. Fish Commission.

## GLOUCESTER HARBOR.

Gloucester from Black Bess, Eastern Point. Gloucester, Mass., 1882. (Photo. No. 2022.) U. S. Fish Commission.

## GLOUCESTER HARBOR.

View of Gloucester Harbor from Railcut Hill. Gloucester, Mass., 1882. (Photo. No. 2041.) U. S. Fish Commission.

## GLOUCESTER HARBOR AND FLEET.

Views of Gloucester city, harbor, and fishing fleet, from Blake's Hill, East Gloucester. Gloucester, Mass., 1882. (Photos. Nos. 2077 to 2080.) U. S. Fish Commission.

## GLOUCESTER INNER HARBOR AND FLEET.

Views of the inner harbor and fishing fleet from end of Rocky Neck. Gloucester, Mass., 1882. (Photos. Nos. 2081 and 2082.) U. S. Fish Commission.

## HARBOR COVE AND FLEET.

View of Harbor Cove, Fort Wharf, fishing fleet, &c., from Rocky Neck. Gloucester, Mass., 1882. (Photo. No. 2083.) U. S. Fish Commission.

## GLOUCESTER HARBOR AND FLEET.

Views of Gloucester city and harbor, with fishing fleet, looking westerly from Point Hill, at the head of the harbor. Gloucester, Mass., 1882. (Photos. Nos. 2085 to 2087.) U. S. Fish Commission.

## 16. FISHING STEAMERS.

## WHALING STEAMERS.

Sketch of the steam whaling bark Mary and Helen. This ship was afterwards purchased by the United States Government, renamed the Rodgers, and sent to the Arctic in search of the Jeannette. She was finally destroyed by fire on the Siberian coast.

## OYSTER STEAMER.

Sketch of an oyster steamer at work dredging oysters. New Haven, Conn., 1883. U. S. Fish Commission.

## MENHADEN STEAMER.

Steamer Joseph Church, of Tiverton, R. I., arriving in port, loaded with 500 barrels of menhaden caught October 10 and 11, off Delaware Breakwater. Tiverton, R. I., 1882. (Photo. No. 1989.) U. S. Fish Commission.

## SARDINE STEAMER.

Steam tug employed at Eastport for towing loaded fishing boats to the sardine factories. Eastport, Me., 1882. (Photo. No. 1933.) U. S. Fish Commission.

## 17. SQUARE-RIGGED FISHING VESSELS AND FREIGHTERS.

## SALT-SHIP.

Salt-laden bark discharging at Pew's Wharf. View from Five Pound Island. Gloucester, Mass., 1882. (Photo. No. 1840.) U. S. Fish Commission. Large quantities of salt are brought to Gloucester, from Cadiz, Spain, from Trapani, and other ports, to be used in curing fish.

## REPAIRING WHALING VESSEL.

Views of a whaling vessel heeled or "hove down" for repairs. Deck view of same; near view of same. New Bedford, Mass., 1882. (Photos. Nos. 2136, 2137, and 2145.) U. S. Fish Commission.

## 18. FISHING SCHOONERS.

## PINKEYS.

## PINKEY.

Pinkey schooner Laurel, of Friendship, Me., lying at wharf at Portland, with foresail unbent, fitting out for a herring trip to Wood Island, Maine. Portland, Me., 1882. (Photo. No. 1864.) U. S. Fish Commission.

## PINKEY.

Pinkey under sail. Eastport, Me., 1882. (Photo. No. 1934.) U. S. Fish Commission.

## PINKEY AT ANCHOR.

Pinkey Senator, of Gloucester, at anchor on the "Old Southeast," a fishing ground off Half-Way Rock, Massachusetts Bay. Crew employed in pollock-fishing. The view (30 by 40 inches) includes fishing boats also. The Senator was built at Essex in 1831, and is the only vessel of her class now sailing from Gloucester. Massachusetts Bay, 1883. (Photo. No. 1940.) U. S. Fish Commission.

## MACKEREL-FISHING VESSELS.

## MACKEREL SCHOONER.

Mackerel schooner Oasis, of North Haven, Me., becalmed at the entrance to Portland Harbor. Vessel under foresail, mainsail, two jibs, and main gaff-topsail; towing seine-boat and dory. Her catch in 1882 was 1,500 barrels of mackerel; total stock, \$9,000. Built about 1863. Portland, Me., 1882. (Photo. No. 1865.) U. S. Fish Commission.

## MACKEREL SCHOONER.

Mackerel schooner Laura Nelson, of Gloucester, off Half-Way Rock, Massachusetts Bay; flying-jib down, seine-boat and dory towing; men at work on deck dressing mackerel. Massachusetts Bay, 1882. (Photo. No. 1935.) U. S. Fish Commission.

## MACKEREL SCHOONER.

Mackerel schooner Mabel Dilloway, of Gloucester, cruising on the fishing ground in Massachusetts Bay. The schooner is standing along by the wind, close-hauled, on the port tack. This photograph (30 by 40 inches) gives a good idea of the general appearance and rig of the best class of vessels employed in the purse-seine mackerel fishery. The seine-boat and dory are towing astern, and a man at the foremast-head is looking out for schools of mackerel. The balloon-jib, fore gaff-topsail, and main staysail are not set. Other vessels of the mackerel fleet are in the distance. Massachusetts Bay, 1882. (Photo. No. 1936.) U. S. Fish Commission.

## MACKEREL FISHING FLEET.

View of the mackerel fleet under sail searching for mackerel; harbor and city of Gloucester in the distance; schooner Ellen M. Adams, of Gloucester, in the foreground. Massachusetts Bay, 1882. (Photo. No. 1939.) U. S. Fish Commission.

## MACKEREL SCHOONER.

View of schooner Frank Foster, of Gloucester, lying at a wharf at East Gloucester; seine-boats astern; deck filled with mackerel in barrels; crew at work dressing fish. Gloucester, Mass., 1882. (Photo. No. 1968.) U. S. Fish Commission.

## MACKEREL SCHOONER.

Schooner Daniel Marcy, of Boston, bound out mackereling; balloon-jib set. Gloucester, Mass., 1882. (Photo. No. 2009.) U. S. Fish Commission.

**MACKEREL SCHOONER.**

Mackerel schooner A. R. Crittenden, of Gloucester, under sail, on starboard tack; man aloft looking for mackerel. Massachusetts Bay, 1882. (Photo. No. 1937.) U. S. Fish Commission.

**MACKEREL SCHOONER RUNNING FOR MARKET.**

Schooner A. R. Crittenden running for market with mainsail, foresail, jib, flying-jib, balloon-jib, main gaff-topsail, and staysail set. Massachusetts Bay, 1882. (Photo. No. 1941.) U. S. Fish Commission.

**MACKEREL SCHOONER LEAVING PORT.**

Mackerel schooner Grace A. Choate, of Portsmouth, N. H., standing out of Gloucester Harbor. Gloucester, Mass., 1882. (Photo. No. 1943.) U. S. Fish Commission.

**MACKEREL SCHOONER OUTWARD BOUND.**

Three views of schooner James Bliss, of Gloucester, running out of Gloucester Harbor. Gloucester, Mass., 1882. (Photos. Nos. 1946, 1946*a*, 1947.) U. S. Fish Commission.

**MACKEREL SCHOONER GETTING UNDER WAY.**

Schooner Robert Pettis, of Swan's Island, Maine, head on, getting under way from Atlantic Wharf. Gloucester, Mass., 1882. (Photo. No. 1951.) U. S. Fish Commission.

**SCHOONER GETTING UNDER WAY.**

Mackerel schooner Alaska, mainsail up, hoisting foresail and about to weigh anchor. Gloucester, Mass., 1882. (Photo. No. 1955.) U. S. Fish Commission.

**MACKEREL SCHOONER LEAVING PORT.**

Schooner A. R. Crittenden leaving Gloucester Harbor for the fishing ground, four lower sails and gaff-topsail set. Gloucester, Mass., 1882. (Photo. No. 2013.) U. S. Fish Commission.

**MACKEREL SCHOONER IN PORT.**

Mackerel schooner Edward E. Webster at anchor in Gloucester Harbor. Gloucester, Mass., 1882. (Photo. No. 2089.) U. S. Fish Commission.

**FISHING SCHOONER ENTERING HARBOR.**

Fishing schooner Piscataqua, of Gloucester, lowering her mainsail while entering the harbor. Gloucester, Mass., 1882. (Photo. No. 1848.) U. S. Fish Commission.

**MACKEREL SCHOONER FILLING WATER.**

Schooner Alaska, of Gloucester, taking in a supply of fresh water from water-boat. Gloucester, Mass., 1882. (Photo. No. 1950.) U. S. Fish Commission.

**FISHING SCHOONER.**

Schooner M. A. Baston, coming bow on, under three lower sails, balloon-gib, gaff-topsail, and staysail. Gloucester, Mass., 1882. (Photo. No. 2019.) U. S. Fish Commission.

**HIGH-LINE MACKEREL SCHOONERS.**

Schooners, Nellie M. Rowe (Capt. Eben Lewis), Edward E. Webster (Capt. Solomon Jacobs), and Warren J. Crosby (Capt. Hans Joyce). The two former vessels (the Rowe being on the left and the Webster in the middle) belong to Gloucester, the other hails from Portland, Me. The captains of those vessels are the three most fortunate mackerel fishermen of the United States; they are called the three great "fish killers." Gloucester, Mass., 1882. (Photo. No. 2104.) U. S. Fish Commission.

**NOVA SCOTIA MACKEREL SCHOONER.**

View of Gloucester Harbor from Rocky Neck. In the foreground, with British ensign in main rigging, is the schooner Festina Lente, of Lockport, Nova Scotia, Capt. Andrew Hammond; engaged in purse seine mackerel fishing off the New England coast. Gloucester, Mass., October 26, 1882. (Photo. No. 2106.) U. S. Fish Commission.

**COD-FISHING VESSELS.****COD-TRAWLING SCHOONER.**

Schooner Massena coming into port from a cod fishing trip to the Western Bank. Gloucester, Mass., 1882. (Photo. No. 2016.) U. S. Fish Commission.

**GEORGE'S COD-FISHING SCHOONER.**

View of the deck of the George's-man Laura Sayward, of Gloucester. This view shows the arrangement of gurry-pens on deck, the fishing rails, &c. Gloucester, Mass., 1882. (Photo. No. 2032.) U. S. Fish Commission.

**COD-FISHING SCHOONER. (Shore trawler.)**

Schooner Onward, bound in from shore cod-trawling. Gloucester, Mass., 1882. (Photo. No. 2007.) U. S. Fish Commission.

**COD-FISHING SCHOONERS.**

Schooners Northern Star and Lady Lincoln under way. Gloucester, Mass., 1882. (Photo. No. 2008.) U. S. Fish Commission.

## COD-FISHING SCHOONER. (Trawler.)

Schooner Racer of Gloucester, one of the Western Bank cod-trawlers, jogging in the outer harbor, waiting for part of her crew to come on board. This vessel was built at Essex, in 1852, and is one of the first of the so-called "sharp-shooters." Gloucester, Mass., 1882. (Photo. No. 1948.) U. S. Fish Commission.

## COD-FISHING SCHOONER. (Hand-liner.)

George's cod-fishing schooner Otis P. Lord, of Gloucester, at anchor in Gloucester Harbor, mainsail and foresail up. Gloucester, Mass., 1882. (Photo. No. 1949.) U. S. Fish Commission.

## GRAND BANK COD-TRAWLER LEAVING PORT.

View of Gloucester Harbor and fishing fleet. In the foreground is a Grand Bank cod-trawler being towed out of the harbor by a steam tug. Gloucester, Mass., 1882. (Photo. No. 2103.) U. S. Fish Commission.

## FRESH HALIBUT VESSELS.

## HALIBUT SCHOONER.

India-ink sketch (30 by 40 inches) of a halibut schooner on her homeward passage in winter, headreaching in a northwest gale, under two-reefed foresail, riding sail, and jib with the bonnet out. The vessel is represented as being iced up, which is generally the case under such conditions. Drawn by H. W. Elliott and J. W. Collins.

## HALIBUT SCHOONER "MARION."

Sketch (30 by 40 inches) of the halibut schooner Marion, of Gloucester, Mass., at anchor on the Grand Bank. The crew is represented as engaged in baiting their trawl-lines on deck. Drawn by H. W. Elliott and J. W. Collins.

## FISHING SCHOONER LYING-TO IN A GALE.

Sketch (30 by 40 inches) of a fishing schooner lying-to in a heavy winter's gale. The vessel is on the port tack and has a two-reefed foresail and a reefed riding sail set. This is the sail under which these vessels generally lie-to in a gale. Drawn by H. W. Elliott and J. W. Collins.

## FISHING SCHOONER TRIPPED BY A SEA.

Sketch (30 by 40 inches) of a fishing schooner tripped and knocked down by a sharp, breaking sea, while scudding in a gale. It is not an unusual circumstance for fishing schooners to be thrown on their beam-ends in heavy gales, and it is believed many are lost in this manner. Drawn by H. W. Elliott and J. W. Collins.

## FISHING SCHOONER AT ANCHOR IN A GALE.

Sketch (30 by 40 inches) of a fishing schooner riding out a winter's gale at anchor on the Grand Bank. The vessel is very much iced up. Drawn by H. W. Elliott and J. W. Collins.

## FISHING VESSEL'S CABIN.

Sketch of the interior of the cabin of the schooner John D. Long, of Gloucester, Mass. The crew off duty are in the cabin, reading, sleeping, &c. Drawn by H. W. Elliott. Gloucester, Mass., 1882. U. S. Fish Commission.

## HALIBUT SCHOONER OUTWARD BOUND.

Fresh halibut catcher rounding Eastern Point; bound to the outer fishing banks. Three lower sails and gaff-topsail set. Gloucester, Mass., 1882. (Photo. No. 2036.) U. S. Fish Commission.

## HERRING CATCHERS.

## HERRING SCHOONER.

Schooner Valiant, of Friendship, Me., standing out of Portland Harbor, bound for the gill-net herring-fishery at Wood Island, Maine. Three lower sails set; barrels on deck; dory in tow. Portland, Me., 1882. (Photo. No. 1866.) U. S. Fish Commission.

## HERRING SCHOONER.

Schooner Ethel and Edith, of Brookline, Me., standing out of Portland Harbor, with all fittings on board for herring trip to Wood Island; dories stowed on deck; three lower sails and main gaff-topsail set. Portland, Me., 1882. (Photo. No. 1867.) U. S. Fish Commission.

## HERRING SCHOONER.

Small herring schooner bound into port. Gloucester, Mass., 1882. (Photo. No. 2015.) U. S. Fish Commission.

## FISHING SCHOONERS, GENERAL.

## FISHING SCHOONERS ON MARINE RAILWAY.

View of marine railway at Parkhurst's Wharf, with schooners Mystic and Delia hauled out to be painted, &c. Gloucester, Mass., 1882. (Photo. No. 2090.) U. S. Fish Commission.

## SCHOONER IN WEDDING RIG.

View of Harbor Cove from Rocky Neck. Vessel in Harbor Cove decorated with flags in celebration of the wedding of one of her crew. It is customary when one of a fishing schooner's crew

## SCHOONER IN WEDDING RIG—Continued.

gets married to hoist all the flags obtainable in honor of the event, while the bridegroom is generally supposed to "wet the colors" by furnishing his shipmates with a liberal supply of whatever beverages they may prefer. Generally moderation is observed, but sometimes these occasions are celebrated in a very hilarious manner, and it is not uncommon for some members of the crew to get "gloriously drunk." Gloucester, Mass., 1882. (Photo. No. 2105.) U. S. Fish Commission.

## OLD FISHING SCHOONER.

Old-fashioned, square-sterned fishing vessel, sailing off the wind. This style of schooner was built about 1845. At present many of them are employed in freighting, being too slow for fishing. Massachusetts Bay, 1882. (Photo. No. 1942.) U. S. Fish Commission.

## 19. SLOOPS.

## FISHING SLOOP.

Sloop Leader, of Portland, Me. This vessel is engaged in flounder-fishing. The sloop is in the background, with fykes drying in her rigging, while in the foreground a man is engaged in mending a fyke. Portland, Me., 1882. (Photo. No. 1873.) U. S. Fish Commission.

## FISHING SLOOP.

Sloop Target, of Portland, Me., with boats for tending fyke-nets alongside. The vessel is used as a home and packing-house. Portland, Me., 1882. (Photo. No. 1869.) U. S. Fish Commission.

## HERRING SLOOP.

Herring sloop coming into port, with dories in tow. Gloucester, Mass., 1882. (Photo. No. 2014.) U. S. Fish Commission.

## 20. CUTTERS.

## BOSTON MARKET CUTTER.

A market cutter such as are used by the Irish fishermen sailing from Boston, Mass. This style of boat, which is often called the "Dungarven build," is generally employed to a considerable extent in the herring gill-net fisheries in autumn, and the fishermen are seen engaged in picking their nets. Gloucester, Mass., 1882. (Photo. No. 2006.) U. S. Fish Commission.

## BOSTON MARKET CUTTER.

Irish market boat, of Boston, Mass., under sail. Gloucester, Mass., 1882. (Photo. No. 2012.) U. S. Fish Commission.

## 21. QUODDY AND BLOCK ISLAND BOATS.

## QUODDY BOAT.

Quoddy boat Millet Swett at anchor, with sails furled. Eastport, Me., 1882. (Photo. No. 1907.) U. S. Fish Commission.

## QUODDY BOAT.

Quoddy boat (same as above) under mainsail and jib. Eastport, Me., 1882. (Photo. No. 1910.) U. S. Fish Commission.

## SARDINE (QUODDY) BOAT.

View of a sardine boat discharging at Gillis's Wharf. Lubec, Me., 1882. (Photo. No. 1920.) U. S. Fish Commission.

## FISHING BOAT.

View of an Eastport dock at low tide, showing the fishing boat Smuggler caught up by the nose. Eastport, Me., 1882. (Photo. No. 1927.) U. S. Fish Commission.

## BLOCK ISLAND FISHING BOAT.

Crayon sketch (30 by 40 inches), showing the Block Island fishing boat in various positions. Drawn by H. W. Elliott and J. W. Collins. Washington, D. C., 1882. U. S. Fish Commission.

## 22. SEINE-BOATS.

## FLEET OF SEINE-BOATS.

Mackerel purse-seine boats hauled up in winter quarters in the woods near Higgins & Gifford's boat shop; view from hill. Gloucester, Mass., 1882. (Photo. No. 2030.) U. S. Fish Commission.

## SEINE-BOATS.

Seine-boats in winter quarters; view from road. Gloucester, Mass. 1882. (Photo. No. 2037.) U. S. Fish Commission.

## PURSE-SEINE BOATS.

Seine-boat rowed by crew, with seine stowed; belonging to schooner E. W. Merchant, of Gloucester, Mass., Capt. Everett Clifford. Rockport, Mass., 1882. (Photo. No. 1831.) U. S. Fish Commission.

## 23. SHARPIES.

## CONNECTICUT SHARPY.

A two-sail sharpie such as are used on the coast of Connecticut in the oyster and other fisheries. These are flat-bottomed, wide-sterned boats, with two leg-of-mutton sails. New Haven, Conn., 1882. U. S. Fish Commission.

## 24. DORIES.

## DORY.

Fifteen-foot dory, with 21 men on board, weighing 3,362 pounds, or about 160 pounds each. Could carry 6 to 10 men more. Rockport, Mass., 1882. (Photo. No. 1828.) U. S. Fish Commission.

## DORIES.

Dories anchored off Blubber Hollow, Rockport, Mass., 1882. (Photo. No. 1836.) U. S. Fish Commission.

## FISHERMAN'S HAY-BOAT.

View of two dories on 'Squam River. The boats connected by platform and loaded with hay. Gloucester, Mass., 1882. (Photo. No. 1964.) U. S. Fish Commission.

## SAIL DORY.

View of a dory sailing with two sails set. Gloucester, Mass., 1882. (Photo. No. 2023.) U. S. Fish Commission.

## THE OLD AGE OF THE DORY.

An old dory, which has been condemned for fishing purposes, turned into a flower garden. Gloucester, Mass., 1882. (Photo. No. 2024.) U. S. Fish Commission.

## AN OLD DORY.

Flower garden in an old dory, Staten street. Gloucester, Mass., 1882. (Photo. No. 2054.) U. S. Fish Commission. This novel use of an old fishing boat is common in Gloucester, where one may often see an old dory, that has outlived her usefulness at sea, covered with a mass of trailing vines and many-hued flowers, sitting in a fisherman's garden.

## HOISTING A DORY.

View showing the crew hoisting a dory on board of schooner Isabel, of Greenport, Long Island, N. Y., 1882. (Photo. No. 2122.) U. S. Fish Commission.

## DORIES.

Wagon-load of dories, with harbor in background. Gloucester, Mass., 1882. (Photo. No. 1971.) U. S. Fish Commission. Dories are hauled to the fish-wharves on jiggers in the manner shown in photograph.

## 25. BARK CANOES.

## CANOES.

Indian birch-bark canoe under two sails. Eastport, Me., 1882. (Photo. No. 1908.) U. S. Fish Commission.

**BIRCH-BARK CANOE.**

Photograph (30 by 40 inches) of a birch-bark canoe, of Eastern Maine, being carried by two Indians of the Passamaquoddy tribe. Eastport, Me., 1882. (Photo. No. 1909.) U. S. Fish Commission.

**BIRCH-BARK CANOE.**

Sketch of a birch-bark canoe with two Indians in it engaged in fishing on a river. Drawn by L. Moeller. Washington, D. C., 1882. U. S. Fish Commission.

**26. SKIN BOATS.****BIDARKA.**

Sketch of a skin canoe such as are used by the natives of Alaska. Sketch shows a number of these boats with Aleuts in them engaged in catching codfish. Drawn by H. W. Elliott. Washington, D. C., 1883. U. S. Fish Commission.

**27. DUG-OUTS.****CHINESE FISHING BOATS.**

Sketch of a number of boats such as are used by the Chinese fishermen of California. Monterey, Cal., 1882. U. S. Fish Commission.

**28. SHIP-YARDS, BOAT-SHOPS, ETC.****HAULING TIMBER, ESSEX.**

Ox team, on the road at Essex, hauling logs to saw-mill to be made into plank for building fishing vessels. Essex, Mass., 1882. (Photo. No. 1960.) U. S. Fish Commission.

**FISHING VESSEL BUILDING AT ESSEX.**

Ship-yard of Willard A. Burnham. Fishing schooner (owned by J. F. Wonson & Co., East Gloucester) ready for launching. Laying the keel and ribs of a new vessel. Essex, Mass., 1882. (Photo. No. 1958.) U. S. Fish Commission.

**SHIP-YARDS, ESSEX.**

General view of vessels on the stocks at Essex. New schooner in the foreground, with shears erected for putting in masts. Essex, Mass., 1882. (Photo. No. 1959.) U. S. Fish Commission.

**NEW FISHING SCHOONER FITTING OUT.**

View of a new fishing schooner (the same that was photographed when just ready to launch at Essex) lying at the wharf of J. F. Wonson & Co., Gloucester, Mass., 1882. (Photo. No. 2084.) U. S. Fish Commission.

**SPLICING THE CABLES.**

Three men of the schooner *Laura Sayward*'s crew splicing a manila cable on the wharf. The cables used on fishing vessels of New England are manufactured in lengths varying from 25 to 100 fathoms, and these are spliced together to obtain the length required. Gloucester, Mass., 1882. (Photo. No. 2033.) U. S. Fish Commission.

**BOAT-BUILDERS' SHOP.**

Boat-shop of Higgins & Gifford, builders of purse-seine boats, dories, &c. View from the wharf of Sayward Brothers, Gloucester, Mass., 1882. (Photo. No. 2031.) U. S. Fish Commission.

## C.—FITTINGS AND APPLIANCES FOR FISHING VESSELS AND BOATS.

### 29. CANVAS USED ON FISHING VESSELS.

#### CANVAS.

Samples of cotton canvas, showing the various grades used on fishing vessels. Exhibited by the Old Colony Mills, Plymouth, Mass.

#### CANVAS.

Samples of cotton canvas, showing the various grades used on fishing vessels. Exhibited by the Lawrence Mills Company.

#### CANVAS.

Samples of cotton canvas, showing the various grades manufactured for use on fishing vessels. Exhibited by the Russell Mills Company, Plymouth, Mass., N. Boynton & Co., agents, Boston, Mass.

#### CANVAS.

Samples of cotton canvas. Various grades used for sails on fishing vessels. Exhibited by the Woodbury Mills, Baltimore, Md.

### 30. PHOTOGRAPHS OF SAIL-LOFT AND SAIL-MAKER'S DWELLING.

#### SAIL-LOFT.

Interior view of E. L. Rowe's sail-loft, with men at work making sails for fishing vessels. Gloucester, Mass., 1882. (Photo. No. 2091.) U. S. Fish Commission.

#### SAILMAKER'S HOUSE.

House of George D. Wharf, sailmaker, Prospect street, Gloucester, Mass., 1882. (Photo. No. 2052.) U. S. Fish Commission.

### 31. CORDAGE USED ON FISHING VESSELS.

#### MANILA CABLE.

Hawser-laid, tarred. Circumference,  $8\frac{1}{2}$  inches; length, 100 fathoms. In coil as it comes from the factory. Exhibited by J. T. Donnell, Bath, Me. Style of hawser used on New England fishing vessels for anchoring on the banks. Schooners employed in cod and halibut fishing on the outer banks carry from 200 to 425 fathoms of cable, and invariably ride by one anchor on the fishing ground. The size varies with the tonnage of the vessels, but this size is carried by schooners ranging from 60 to 75 tons or more.

## MANILA CABLE.

Hawser-laid, tarred. Circumference, 9 inches. Centennial collection, 1876. 54,704. Made by Sewall, Day & Co., Boston, Mass. Used on New England fishing vessels as an anchor cable. From 100 to 400 fathoms are taken by each vessel.

## MANILA ROPE.

Shroud-laid, tarred. Six samples (Nos. 1 to 6), of 6 and 9 thread lines. Centennial collection, 1876. 54,706. Made by Sewall, Day & Co., Boston, Mass. Used on New England fishing vessels chiefly as seizings for serving larger ropes.

## MANILA ROPE.

Shroud-laid. Fifteen samples (Nos. 1 to 15), measuring in circumference from  $\frac{3}{4}$  inch to 6 inches. Numbers 9, 13, and 14 are four-strand with heart-center, the others are three-strand. Centennial collection, 1876. 54,707. Made by Sewall, Day & Co., Boston, Mass. Numbers 1 to 4 are used on fishing vessels for seizings and servings; numbers 5 to 11 for running-rigging, as halliards, sheets, clew-lines, and reef-points; numbers 12 to 15 for boom tackle, heavy sheets, tow-lines, and for net-swings in mackerel dragging.

## HEMP ROPE.

Shroud-laid, tarred. Four sizes. (Nos. 1- to 4.) Circumference, from 4 to 7 inches. Centennial collection, 1876. 54,705. Made by Sewall, Day & Co., Boston, Mass. Used on New England fishing vessels for standing rigging, such as shrouds and stays. Many vessels use wire rope instead of hemp.

## SAIL-TWINE.

White cotton sail-twine for sail-makers' use. Value, 1882, 20 cents per pound. 54,408. U. S. Fish Commission. Used for making and mending sails and for rigging fishing-gear.

## BUOY-LINE.

Manila, 9-thread, one coil; weight, 42 pounds. Value, 1882,  $17\frac{1}{2}$  cents per pound. U. S. Fish Commission. (S. D. & Co.) 54,410. Used for buoy-lines on halibut trawls, for warps to lobster traps, and for boat-anchor warps.

## BUOY-LINE.

Manila, 6-thread; one coil; weight,  $26\frac{1}{2}$  pounds. Value, 1882,  $17\frac{1}{2}$  cents per pound. U. S. Fish Commission. (S. D. & Co.) 54,411. Commonly used for buoy-lines on cod, haddock, and halibut trawls.

## SPUN-YARN.

Hemp, tarred (2-thread); one coil; weight, 4 pounds. Value, 1882, 12½ cents per pound. 54,401. U. S. Fish Commission. For bending anchors, seizing stays, rigging gear, &c.

## SPUN-YARN.

Manila; one coil; weight, 12¼ pounds. Value, 1882, 17 cents per pound. 54,402. U. S. Fish Commission. For bending sails and anchors, rigging fishing gear, &c.

## MARLINE.

Hemp, tarred; one coil; weight, 10 pounds. Value, 1882, 18 cents per pound. 54,403. U. S. Fish Commission. Used on fishing vessels for seizings, &c.

## SAIL-TWINE.

White cotton sail-twine for sail-makers' use. Value, 1882, 20 cents per pound. 54,408. U. S. Fish Commission. Used for making and mending sails and for rigging fishing gear.

## GANG OF STANDING RIGGING.

Model, scale 6 inches to foot. This gang of rigging, which is one-half the size used on New England fishing schooners of 80 tons, is chiefly of hemp, and includes jib and jumper stays, fore and main shrouds—the eyes of the rigging being fitted over false mast heads—triotic stay, topmast stays, &c. The manner of fitting fishing schooners' rigging is accurately shown. Exhibited by James M. Simms, Gloucester, Mass.

## 32. WINDLASSES AND CAPSTANS.

## THE "PROVIDENCE" STEAM CAPSTAN-WINDLASS. (Model.)

Iron; worked by a system of interlocking cog-wheels and gearing, these being set in operation either by a capstan worked by hand or steam-power. Patented in the United States and Great Britain. Providence, R. I. 57,053. American Ship Windlass Company.

"The advantages of this style of windlass over our old steam windlass are: (1.) It can be set up in one-quarter the time and one-quarter the expense required when the engines are hung up to deck above. (2.) The engines being connected to the plate and all the parts of the windlass being tied together by the same plate, the whole must remain always in line; if the deck above twists or strains or is entirely crushed in or swept away, the windlass can be worked by steam as efficiently as before. (3.) The engines are more accessible, being at the right height and in the most convenient position possible—the engines, lock-

## THE "PROVIDENCE" STEAM CAPSTAN-WINDLASS. (Model.)—Cont'd.

ing-gear of windlass, and friction-levers being all within reach. (4.) The windlass can be set up in the shop, and every part (including engines, friction-stands, deck-pipes, and bits) bolted to its place and marked, so that when set up on ship-board each part must come to its place without trouble or delay."

## MODEL OF HAND-CAPSTAN OR WINDLASS.

Made with one double-acting lever and adapted for weighing anchors, hauling vessels from shores when stranded, setting up rigging, &c. Exhibited by Frederick S. Allen, Cuttyhunk, Mass.

## MODEL OF CAPSTAN OR WINDLASS.

Has two levers and is especially adapted to fishing vessels. The power can be applied to two teeth of the ratchet at the same time by the links on the push pawls of the levers. Exhibited by Frederick S. Allen, Cuttyhunk, Mass.

## MODEL OF HAND-CAPSTAN.

The brakes can always be hinged for action so that in the darkest night there need be no delay in revolving the capstan. The capstan is simple in construction and can be easily repaired. Exhibited by Frederick S. Allen, Cuttyhunk, Mass.

## 33. STEERERS.

## RICHARDSON'S CHALLENGE STEERER.

This steering-wheel was patented May 30, 1882. It is used to a considerable extent on fishing vessels, and is said to be much in favor in New England. Exhibited by Nathan Richardson, Gloucester, Mass.

## RUDDER-YOKE.

Made of brass, polished. Length, 14½ inches. Middletown, Conn. 57,552. Wilcox, Crittenden & Co.

## 34. COMPASSES, LOGS, ETC.

## RITCHIE LIQUID COMPASS.

U. S. Fish Commission. 39,385. Compasses of this kind are now extensively used on fishing vessels from New England.

## BRASS COMPASS.

Wooden box-case. Diameter of compass, 7¼ inches; box, 10 inches square and 7 inches deep. U. S. Fish Commission. 39,384. For use in rough weather.

**BRASS DORY COMPASS.**

Diameter, 3 inches; depth,  $1\frac{5}{8}$  inches. U. S. Fish Commission. 57,085. Carried on dories in foggy weather to enable the fishermen to find their vessels.

**PATENT DOLPHIN SHIP'S LOG.**

Brass, with dial; English make. Length, 18 inches; spread of fans, 6 inches. U. S. Fish Commission. 39,383. Used to ascertain the distance run by a vessel.

**PATENT TAFFRAIL LOG.**

Two sections, (1) the fan, which is towed astern of the vessel and is attached to the end of a line, the other end of which is fastened to (2) the indicator or register, that is secured to or near the taffrail. The advantage of this is that readings may be taken from the log without hauling it in, as must be done with all others. John Bliss & Co., New York.

“The following are some of the special advantages found in using the taffrail log: (1.) The dial of the log can be easily inspected at all times, which is particularly convenient when changing the course of the vessel, the necessity of hauling in being avoided. (2.) The rotator only being overboard and a smaller line used, the strain upon the line is about one-quarter of that of the submerged log, which is variously estimated at 40 or 50 pounds, sufficient to decrease the speed of the vessel to some extent; besides, the greater strain often causes the breakage of the line and the loss of the entire log. (3.) This log will be found, ultimately, the cheapest, because only the rotator is exposed to danger of loss, and when lost, can be replaced at trifling cost. (4.) The substantial manner in which these logs are made, and the fact that the registering apparatus is not exposed to the action of salt water, may be taken as a guarantee that they will last far longer than is possible with any submerged log. (5.) The liability of having the log ruined, or at least disabled, when crossing shoals, by striking the bottom, or being filled with sand, is avoided. (6.) The state of the log being readily seen, prevents the danger of overrunning a given distance when on any course. (7.) Fouling with sea-weed is avoided by the gradual taper of the blades, and the freedom from obstructions, such as knots or eyes. (8.) This log will indicate accurately at a lower speed than any submerged log, because there is less slip, owing to the spiral form of the blades of the rotator. (9.) The greater part of the damage caused by hauling in is avoided in this log, as that is so seldom required; besides, the blades, being spiral, are much stronger.” (J. BLISS & Co.)

## CHRONOMETER.

Used for ascertaining longitude. "This instrument [the chronometer] in its most perfect form has resulted from the demands of navigation, and upon its performance the safety of commerce in a large measure depends. As an instrument of precision it is entitled to the highest rank, and especially when it is considered that, unlike in the case of an astronomical clock, it is not almost daily compared with actual time observations to determine its error and rate, but on the contrary it is to be depended upon for weeks and even months, and the time observations are solely to find the local correction, and hence the longitude at sea. The method of construction has long been well established, and the only differences usually to be found in the work of different makers, beyond minor differences in the arrangement and size of the parts, are in respect to the adjustment for temperature. \* \* \* It is usual for American manufacturers to import the *ébauche* from England, and the work performed by them consists in finishing up the parts of the train, and in making the adjustments for isochronism and temperature, upon which the time-keeping properties depend. Messrs. John Bliss & Co., however, exhibited chronometers which had been wholly constructed by them, and hence of strictly American manufacture throughout." (Extracts from Report of Prof. James C. Watson to the United States Centennial Commission, 1876.) John Bliss & Co., New York.

## PARALLEL RULES.

Two sizes of Sigsbee's patent parallel rules. John Bliss & Co., New York. Used for shaping courses on charts.

"The principal advantages of this rule are as follows: (1.) Perfect ease of movement, due to the method of hinging the blades. (2.) The blades may be raised over thumb-tacks, creases or torn edges of charts; and are self-lifting when moved over the surfaces of uneven tables, reducing the probability of slipping. (3.) In projecting a course, if it be desired to examine for soundings or shoals that part of the chart covered by the rule, the movable blade may be thrown back for that purpose without shifting the other blade; or it may be stood on edge along the projected course, rendering pencil lines unnecessary. (4.) A slight pressure with the thumb and finger on the two rubber cushions of the fixed blade will prevent the rule from slipping. (5.) A parallel to the edge of a drawing board or block may be drawn by placing the blades at right angles to each other; one blade flat on the paper and the other flat against the edge of the board or block. (6.) The entire length of the inner edges of the blades may be used for ruling, without interference

## PARALLEL RULES—Continued.

from the links, by throwing back the movable blade until it rests upon the hand which holds the fixed blade.”

## LEVER-CLOCK.

U. S. Fish Commission. 39,388. Used on fishing vessels.

## QUADRANT.

Old style quadrant; large size, such as were in use 50 to 75 years ago. Gloucester, Mass., 1882. 54,332. A. R. Crittenden, Middletown, Conn.

## QUADRANT.

U. S. Fish Commission. 39,391. Used for obtaining altitudes of the sun, moon, or stars, from which the position of a vessel can be determined when at sea.

## SPY-GLASS.

Common telescope form. U. S. Fish Commission. 39,390. This is the style of spy-glass in most common use on fishing vessels.

## HOLOSTERIC BAROMETER.

U. S. Fish Commission. 39,386. Carried on nearly all of the first-class fishing vessels.

## 35. BOOKS.

## NAUTICAL ALMANAC FOR 1880.

U. S. Fish Commission. 39,389. Used on fishing vessels in ascertaining their position at sea.

## BOWDITCH'S AMERICAN PRACTICAL NAVIGATOR.

Published by United States Bureau of Navigation. U. S. Fish Commission. 39,390. Used in navigating fishing vessels.

## COAST PILOT.

Divisions A, B, and 14 of the Atlantic Coast Pilot. United States Coast and Geodetic Survey, J. E. Hilgard, Superintendent.

## NAUTICAL ALMANAC.

American Ephemeris and Nautical Almanac. United States Department of the Navy; Bureau of Navigation, Nautical Almanac Office.

## 36. CHARTS USED BY FISHERMEN.

## ELDRIDGE'S CHARTS AND COAST PILOT.

Exhibit of Eldridge's Charts and Coast Pilot, published by S. Thaxter & Son, Boston, Mass. "As a rule, the fishermen prefer to

## ELDRIDGE'S CHARTS AND COAST PILOT—Continued.

carry these charts instead of those of the United States Coast Survey and Hydrographic Office. Charts 8 and 9 were prepared for the trade between New York, Cuba, and New Orleans, and are arranged so as to avoid the necessity and expense of using four charts, as formerly. These charts are printed on the best quality of linen paper, and mounted on cloth to make them durable.

- “No. 1. *The Vineyard Sound and Nantucket Shoals*, on a very large scale, with a book of sailing directions. Persons using this chart will save the expense of employing a pilot. Price, \$5.
- “No. 2. *The Coast of North America*, from Cape Henry to Cape Sable, including the Chesapeake and Delaware Bays, and George's Shoals, on a large scale. Price, \$4.
- “No. 3. *Cape Cod to Belle Isle*, including the Bay of Fundy, Gulf of Saint Lawrence, and Banks of Newfoundland, with plans on a large scale of the coast of Nova Scotia, from Cape Canso to Pictou; the coast of Cape Breton, from Scatari to Sydney, and the harbors of Saint John's, Newfoundland, Saint John, New Brunswick, Halifax, and Miramichi. This is a new chart, prepared from the latest surveys, expressly for the coal and fishing trades. Price, \$5.
- “No. 4. *Boston Harbor*, on a large scale, with sailing directions. This chart affords a more practical guide to the various channels, passages, fishing-grounds, &c., of Boston Harbor, than any that has ever been issued. The bearings and distances of dangerous rocks and shoals, and the principal ranges of objects, are all given on the chart. Price, cloth, \$1.
- “No. 5. *A new chart of Long Island Sound*, from Newport to New York; with a book of sailing directions, containing a full description of the dangers to be avoided in entering the various harbors of the sound. Price, \$5.
- “No. 6. *Lynn to Halibut Point*, with the harbors of Salem, Beverly, Marblehead, Manchester, Gloucester, Rockport, and Annisquam; also the stone quarries at Folly Cove, Lanesville, Bay View, &c., on a large scale. Price, cloth, \$1.
- “No. 7. *Chesapeake Bay*, with the James, York, Rappahannock, and Potomac Rivers. This is a new chart, and the only one published which gives the rivers on a large scale on one sheet. Price, \$3.50.
- “No. 8. *Montauk Point to Saint Augustine*, with a plan of New York Bay and Harbor on a large scale. Price, \$3.50.
- “No. 9. *Saint Augustine to New Orleans*, with Florida Reefs, Bahama Banks, and entrance to Pensacola and Mobile Bays, on a large scale. Price, \$3.50.

## ELDRIDGE'S CHARTS AND COAST PILOT—Continued.

“No. 10. *Buzzard's Bay*, on a very large scale, with a book of sailing directions. Price, \$3.

“No. 11. *New chart of Delaware Bay and River*, on a large scale, in one sheet. Eldridge's Coast Pilot, No. 1, Chatham to Saint John. Price \$3.”

## CHARTS.

Charts of the Atlantic and Pacific coasts of North America. United States, Department of the Navy, Bureau of Navigation, Hydrographic Office.

## CHARTS.

Collection of about one hundred and twelve charts published by the Survey, being charts of the Atlantic and Pacific coasts of North America. United States Coast and Geodetic Survey, J. E. Hilgard, Superintendent.

## 37. CABIN LAMPS, LANTERNS, TORCHES, ETC.

## STARBOARD-SIDE LANTERN.

Tin, and cut green glass; the tin frame painted green; triangular; one glass side curved; the rest of tin. A swinging door is fitted in the after side, and a socket to fit on the lantern-board iron is on the third side. Triangular kerosene lamp inside. Boston, Mass., 1883. 57,180. U. S. Fish Commission. This is the style of side lantern commonly used on board of fishing vessels. This one is hung on the starboard lantern-board at night when the vessel is sailing, in order that the course she is pursuing may be easily determined by the crews of other vessels, and thereby a collision avoided which otherwise might occur.

“If two side lights you see ahead,  
Port your helm and show your red.  
Green to green, or red to red;  
Perfect safety, go ahead.”

## PORT-SIDE LANTERN.

Tin, and cut red glass; the tin part painted red; triangular; one side of curved glass; the rest of tin. A swinging door is fitted in the after side, and a socket to fit on the lantern-board iron is on the third side. Triangular kerosene lamp inside. Boston; Mass., 1883. 57,179. U. S. Fish Commission. This colored lantern is hung on the port lantern-board at night when a vessel is sailing.

## BOAT-LANTERNS.

Copper and glass; triangular; flat-bottom; convex top, with ventilator at apex; lamp inside with two burners; width of lantern

## BOAT-LANTERNS—Continued.

at back 21 inches; each of the two sides 18 inches wide. Southern New England. 29,365. James H. Latham, Noank, Conn. Used in bow of boat in weequashing or spearing eels by night.

## BOX SIGNAL-LANTERN (old style).

Square wooden frame, top and bottom; 4 panes of glass, 11 by  $7\frac{1}{2}$  inches, set on the side, one on each side. Door on one side swings on hinges; top of lantern has been repaired with tin when holes have been burned through. Dimensions, 16 inches high, 9 inches square. Rockport, Mass. Gift of J. W. B. Parsons. This was in use about 1830, a candle or oil-lamp furnishing the light.

## FISHERMAN'S LANTERN.

Tubular; tin and glass. Height, 14 inches; diameter at base, 7 inches. Value (1882), \$1. Gloucester, Mass., 1883. 54,382. U. S. Fish Commission. Used on fishing-vessels, especially those employed in the halibut and haddock fisheries, to hang around the deck or in the hold while "baiting-up," or stowing away the catch.

## TUB-LAMP.

Tin lamp to hang on side of trawl-tub while "baiting-up" in the hold of a haddock vessel. Value (1882), 45 cents. Gloucester, Mass. 54,381. U. S. Fish Commission.

## BINNACLE LAMP.

Copper; globular; hung in gimbals; fitted with kerosene burner; weighted with lead on the bottom to keep it upright. Gloucester, Mass., 1883. U. S. Fish Commission. Used on New England fishing-vessels to light up the compass at night.

## CABIN LAMP.

Tin; fitted with kerosene burner; hung in gimbals. Gloucester, Mass., 1883. U. S. Fish Commission. Used in the cabins and forecastles of New England fishing-vessels.

## FISHERMAN'S TORCH.

Tin; height, 9 inches; greatest diameter,  $6\frac{1}{2}$  inches. Fitted by fishermen to a staff about 6 feet long, and used about the deck while dressing mackerel at night. Gloucester, Mass., 1882. 54,384. U. S. Fish Commission.

## FISHERMEN'S TIN CANDLESTICKS.

Gloucester, Mass., 1883. 54,416. U. S. Fish Commission.

## CANDLESTICK.

Candlestick or "Sticking Tommy." Gloucester, Mass. 32,692. G. Brown Goode. Used in hold of vessel while storing fish.

## 38. LANTERN-BOARDS.

## PORT SIDE-LANTERN BOARD.

Wood, painted red; projecting ends and lower side on after end; lantern iron, four holes in each end for lashings; length 4 feet, depth 11 inches, width of lower side 8 inches. Lantern iron, length 9 inches, width at base 6 inches, width of flange  $1\frac{1}{8}$  inches. Gloucester, Mass., 1883. 57,850. U. S. Fish Commission. Used for hanging port side-lantern.

## STARBOARD SIDE-LANTERN BOARD.

Wood, painted green; projecting end lower side, on after part; lantern iron attached, four holes in each end for lashings; length 4 feet, depth 11 inches, width (horizontally) 8 inches. Length of iron 9 inches, width of base 6 inches, width of flange  $1\frac{1}{8}$  inches. Gloucester, Mass., 1883. 57,849. U. S. Fish Commission. Used for hanging starboard side-lantern, being lashed in starboard fore-rigging about 12 feet above deck.

## 39. FOG-HORNS.

## COLLINS'S PATENT FOG-ALARM.

This invention consists of an upright cylindrical bellows of stout grain-leather, supported by and working upon three brass rods which are fastened at the lower ends to a strong wooden pedestal, and the upper ends of which are secured by means of screw-caps to a wooden top, to which also is attached the upper part of the bellows. This wooden top or cap-piece is surmounted by a brass coue having a hole in its apex into which is screwed a reed horn (either one of Nos. 56,956, 56,957, or 56,958 being used). The bellows is collapsed or distended by means of an iron lever working on a hinge attached to the wooden base. By moving this lever the air in the bellows is driven through the horn at the top with great force. A very heavy sound is obtained when either of the two large horns (Nos. 56,956 and 56,957) are used, while either of the small horns (No. 56,958) can be blown to its fullest capacity with very slight exertion on the part of the operator. Gloucester, Mass., 1883. 56,955. Capt. J. W. Collins. This implement was originally designed for use on fishing vessels, especially such as are employed in the trawl-line fishery. In the latter fishery the men go out in dories long distances (1 to 3 miles) from the schooners that are lying at anchor, and the prevalence on the banks of dense fogs

## COLLINS'S PATENT FOG-ALARM—Continued.

in summer and snow in winter causes the loss of many fishermen, who go astray because they are unable to hear the horns which are ordinarily employed. The advantages of this fog-alarm are that it can be heard farther than any horn now in use on sailing vessels (this having been proved by actual test at sea); that the material of which it is made and the simplicity of its construction renders it less liable to get out of repair than other patent horns; that it may be at all times operated with comparatively slight physical exertion, and without any of the exhaustion that results from blowing a mouth-horn; and, finally, that it is adapted for use on all kinds and classes of vessels. Dimensions: Diameter of base 2 feet, thickness 4 inches; diameter of wooden top 19 inches, thickness,  $1\frac{1}{2}$  inches; diameter of bellows (56,955) 15 inches, height 20 inches; height of brass cone,  $6\frac{1}{2}$  inches; diameter of cone (at base), 9 inches; thickness of brass rods, five-eighths inches; length of lever 4 feet.

## BRASS FOG-HORN.

Bell-mouth; fitted; large brass reed at small end. Length,  $3\frac{1}{2}$  feet; diameter of mouth, 6 inches. Gloucester, Mass., 1883. 56,956. Capt. J. W. Collins. Used on bellows No. 56,955.

## NICKEL-PLATED FOG-HORN.

Tin, nickel-plated; bell-mouth; fitted with large brass reed. Length (exclusive of reed), 4 feet; diameter of mouth, 8 inches. Gloucester, Mass., 1883. 56,957. Capt. J. W. Collins. Used on bellows No. 56,955, and constitutes a portion of Collins's fog-alarm.

## TIN FOG-HORNS.

Three horns, tin; ordinary mouth-horns, adapted for use on bellows No. 56,955. Length of each, 3 feet 2 inches; diameter of mouth,  $5\frac{1}{2}$  inches. Gloucester, Mass., 1883. 56,958. Capt. J. W. Collins.

## FOG-HORN REEDS, ETC.

One large brass reed  $3\frac{1}{2}$  inches long,  $1\frac{3}{8}$  inches wide; 2 small reeds and mouth-pieces for small fog-horns. Gloucester, Mass., 1883. 56,959. Capt. J. W. Collins. To be used to replace other reeds which may be lost or injured.

## THE ANDERSON FOG-HORN.

Tin; tubular; blown by hand. U.S. Fish Commission. 25,281.

**PATENT FOG-HORN.**

Tin; trombone shape; with wooden pusher. Length, 2 feet 8 inches. Gloucester, Mass., 1883. 57,807. U. S. Fish Commission. Not sufficiently powerful to be used on fishing-vessels.

**SERIES OF COMMON REED FOG-HORNS. (Nos. 1, 2, 3, and 4.)**

Tin; ordinary type of fog-horn, blown by the mouth. Middletown, Conn. 29,382. Wilcox, Crittenden & Co.

**GRAND BANK FOG-HORN.**

Called by the fishermen "lipper" or "ripper." Provincetown, Mass. 25,783. William H. Weston.

**40. PRESERVATIVE FLUIDS AND PAINTS.****CANVAS AND ROPE PRESERVATIVE.**

Nelson's patent preserving solution for canvas, ropes, and netting. Made by Chresten Nelsen. Gloucester, Mass., 1880. 32,801. "This solution is used to preserve canvas from injury by exposure to the weather, in any climate. Sails, &c., treated with the solution do not mildew or become stained in the least, but retain the appearance of new canvas after having been treated, and are as strong as when new."

**PRESERVED CANVAS.**

Piece of canvas showing the operation of Nelson's preserving solution. Chresten Nelsen, Gloucester, Mass., 1880. 32,802. "This piece of canvas was exposed to the weather, on damp ground, for six months, after half had been saturated with the preserving solution."

**PRESERVED CANVAS.**

Piece of canvas showing the operation of Nelson's preserving solution. Chresten Nelsen, Gloucester, Mass., 1880. 32,803. "This piece of canvas was exposed to the weather, on damp ground, for two seasons, after one-half had been thoroughly saturated with the preservative solution."

**PRESERVED ROPE.**

Piece of rope showing the action of Nelson's preservative on manila rope. Chresten Nelsen, Gloucester, Mass., 1883.

**PRESERVED NETTING.**

Pieces of netting showing the action of Nelson's preservative on netting. Chresten Nelsen, Gloucester, Mass., 1883.

## PATENT COPPER PAINT.

Tarr & Wonson's copper paint for the bottoms of vessels. Tarr & Wonson, Gloucester, Mass. 39,430.

## CAPE ANN COPPER PAINT.

Used on bottoms of fishing vessels to prevent the growth of barnacles and grass; also to keep the planks from being worm-eaten. James H. Tarr, Gloucester, Mass.

## 41. CHAFING-GEAR.

## STRAD.

Made of three strands of manila rope, loosely braided and pointed at ends; 10 feet long. Gloucester, Mass, 1878. 32,696. Collected by Capt. J. W. Collins. Used on schooner's cable to prevent chafing in hawse-pipe and on stem. The strads are wound around the cable for a distance of 2 or 3 fathoms.

## MAT FOR FLYING-JIBBOOM CAP.

Ponce mat, woven by hand, of tarred house-line; lines at corners for lashing mat in place. Length, 2 feet; width, 4 inches. Gloucester, Mass., 1883. 57,842. U. S. Fish Commission. Used on jibboom cap to prevent flying-jib and sheets from chafing on the iron cap.

## MAT FOR PORT AFTER FORE-SWIFTER.

Ponce mat, made of tarred-hemp spun-yarn; tarred lines for roving at corners. Length, 4 feet; width, 4 inches. Gloucester, Mass., 1883. 57,844. U. S. Fish Commission. Used on port after fore-swifter to prevent fore gaff from chafing the fore rigging.

## MAT FOR STARBOARD AFTER FORE-SWIFTER.

Ponce mat, made by hand-weaving, of tarred-hemp spun-yarn; tarred lines or rovings at corners. Length, 4 feet; width, 4 inches. Gloucester, Mass., 1883. 57,843. U. S. Fish Commission. Used on the after fore-swifter on starboard side to prevent fore gaff from chafing the shroud.

## MAT FOR FORE CROSS-TREES.

Canvas, to which are sewed manila thrums (short rope-arns); 14 small brass grommets along the edges of canvas for roving-line to pass through. Length, 4 feet; width, center  $6\frac{3}{4}$  inches, ends 4 inches. Gloucester, Mass., 1883. 57,836. U. S. Fish Commission. Used on after part of fore cross-trees to prevent fore-peak halyards from chafing.

## FORE-BOOM BAND MAT.

Ponce mat of manila spun-yarn, thrummed with tarred manila yarn; tarred house-line at corners for tying mat in place.

**FORE-BOOM BAND MAT**—Continued.

Length, 2 feet; width, 5 inches. Gloucester, Mass., 1883. 57,841. U. S. Fish Commission. Used on fore-boom band to prevent foot of a foresail from chafing.

**SWORD-MAT FOR PORT MAIN-RIGGING LANYARD.**

Mat made of tarred house-line, rovings at ends. Length, 4 feet; width, 5 inches. Gloucester, Mass., 1883. 57,846. U. S. Fish Commission. Used on after main-rigging lanyard on port side to prevent lanyard from being chafed by boom-tackle, &c.

**SWORD-MAT FOR STARBOARD MAIN-RIGGING LANYARD.**

Sword-mat made (by weaving over a dagger-shaped piece of wood) of tarred-hemp house-line; tarred rovings at ends. Length, 4 feet; width, 5 inches. Gloucester, Mass., 1883. 57,845. U. S. Fish Commission. Used on after main-swifter lanyard on starboard side to prevent lanyard from being chafed by boom-tackle, &c.

**MAT FOR PORT MAIN-SWIFTER.**

Ponce mat; woven by hand of tarred hemp spun-yarn; rovings of house-line attached to corners. Length, 4 feet  $2\frac{1}{2}$  inches; width,  $5\frac{1}{2}$  inches. Gloucester, Mass., 1883. 57,848. U. S. Fish Commission. Used on port main-swifter to prevent main gaff from chafing the shroud.

**MAT FOR STARBOARD MAIN-SWIFTER.**

Ponce mat of tarred hemp spun-yarn; rovings of same attached to corners. Length, 4 feet  $2\frac{1}{2}$  inches; width,  $5\frac{1}{2}$  inches. Gloucester, Mass., 1883. 57,847. U. S. Fish Commission. Used on starboard main-swifter (7 to 8 feet below the cross-trees) to prevent the main gaff from chafing the shroud when the gaff is pressed out against the rigging.

**CROSS-MAT FOR OUTRIGGER (port side).**

Cross-shaped piece of canvas upon which are sewed manila thrums (short rope-yarns); 8 small grommets of brass along sides for roving to pass through. Length, 13 by 11 inches; width of end,  $3\frac{1}{2}$  inches. Gloucester, Mass., 1883. 57,838. U. S. Fish Commission. Lashed on end of port outrigger to main-topmast cross-tree to prevent chafing of sails, halyards, &c.

**CROSS-MAT FOR OUTRIGGER (starboard side).**

Cross-shaped piece of canvas, with manila thrums (short rope-yarns) sewed to it with stout twine; 8 brass grommets for roving to pass through. Length, 13 by 11 inches; width of ends, 4 inches.

**CROSS-MAT FOR OUTRIGGER (starboard side)—Continued.**

Gloucester, Mass., 1883. 57,839. U. S. Fish Commission. Lashed to end of starboard outrigger for main-topmast backstay to prevent chafing of mainsail, staysail, and gaff-topsail halyards, &c.

**MAT FOR MAIN CROSS-TREES.**

Canvas, to which are sewed manila thrums; 14 brass grommets along edges of canvas for roving-line to pass through. Length, 4 feet; width, center 7 inches, end 4 inches. Gloucester, Mass., 1883. 57,835. U. S. Fish Commission. Used on main cross-trees to prevent main-peak halyards from chafing.

**MAT FOR MAIN-BOOM TOPPING-LIFT.**

Ponce mat of manila spun-yarn, woven by hand and filled with manila thrums—bunches of short rope-yarns. Tarred house-line at corners for lashing. Length, 2 feet; width, 5 inches. Gloucester, Mass., 1883. 57,837. U. S. Fish Commission. Used on main-boom topping-lift to prevent the lift from being chafed by the main-peak block.

**MAT FOR MAIN-BOOM BAND.**

Bag rickal mat, made by weaving manila thrums (short rope-yarns) into two long pieces of manila spun-yarn, which are finally sewed together to form the mat. Length,  $3\frac{1}{8}$  feet; width,  $4\frac{1}{2}$  inches. Gloucester, Mass., 1883. 57,840. U. S. Fish Commission. This mat is fastened over the iron band in the slings of the main boom to prevent the band from chafing foot of mainsail.

**42. BLOCKS, SHEAVES, AND DEAD-EYES.****PATENT TACKLE-BLOCKS.**

Galvanized-iron shells and sheaves with steel pins; hooks and straps of wrought iron. Sizes 5, 7, 9, and 11 with single sheave; sizes 6, 8, 10, and 12 with double sheave. Loose hooks. Middletown, Conn. 54,702. Wilcox, Crittenden & Co.

**TACKLE-BLOCKS.**

Made of galvanized iron, with single eye. Series with single and double sheaves. Used largely by dory fishermen along the New England coast. Middletown, Conn. 25,152 and 54,704. Wilcox, Crittenden & Co.

**TACKLE-BLOCKS.**

Made of galvanized iron, with double eyes. Series with single and double sheaves. Middletown, Conn. 54,703–54,705. Wilcox, Crittenden & Co.

**TACKLE-BLOCKS.**

Made of galvanized iron; single sheave; one fixed and one swivel eye. Series of four sizes. Middletown, Conn. 54,707. Wilcox, Crittenden & Co.

**TACKLE-BLOCK.**

Made of galvanized iron. Single sheave, becket, swivel hook. Middletown, Conn. 54,708. Wilcox, Crittenden & Co.

**TACKLE-BLOCK.**

Made of galvanized iron. Single sheave, fixed becket and hook. Middletown, Conn. 54,709. Wilcox, Crittenden & Co.

**PLAIN HOOK TACKLE-BLOCKS.**

Wooden shell, double brass sheave, plain loose hook. Two sizes. Made by Walter Coleman & Sons. 25,816.

**PLAIN HOOK TACKLE-BLOCKS.**

Wooden shell, loose hook, double iron sheave. Two sizes. Made by Walter Coleman & Sons. 25,820.

**PLAIN HOOK TACKLE-BLOCKS.**

Wooden shell, loose hook, single iron sheave. Three sizes. Made by Walter Coleman & Sons. 25,821.

**SISTER-HOOK TACKLE-BLOCK.**

Wooden shell, single brass sheave, sister-hook, thimble in eye. Made by Walter Coleman & Sons. 25,817.

**SISTER-HOOK TACKLE-BLOCK.**

Wooden shell, single brass sheave, sister-hook, thimble in eye. Made by Walter Coleman & Sons. 25,819.

**SISTER-HOOK TACKLE-BLOCK.**

Wooden shell, double iron sheave, sister-hook, thimble in eye. Made by Walter Coleman & Sons. 25,818.

**SWIVEL-EYE BLOCKS.**

Made of galvanized iron. Series with single and double sheaves. Sometimes used on boats, but made chiefly for awnings. Middletown, Conn. 54,706 and 54,710. Wilcox, Crittenden & Co.

**BULL'S-EYE BLOCKS.**

Made of lignum-vitæ wood; two sizes. Used to secure the standing or fixed rigging to the hull of the vessel. Made by Walter Coleman & Sons. 25,805.

**ROUND-BLOCK.**

Wooden shell, single galvanized-iron sheave, no hook or eye, strap score. Used for jib-sheets on small craft. Made by Walter Coleman & Sons. 25,812.

**JIB-SHEET BLOCK.**

Made of galvanized-iron. Peculiar to Gloucester and Boston fishing vessels. Sizes 1 and 2. The first size is used on small vessels and the second size on large vessels. Middletown; Conn. 29,460. Wilcox, Crittenden & Co.

**OUTRIGGER-BLOCK.**

Iron, one sheave, swivel-hook. Total length,  $9\frac{1}{2}$  inches. Gloucester, Mass., 1883. 54,698. Capt. George Merchant, jr. Attached to mackerel-pocket outrigger, or boat-boom on mackerel schooner.

**SNATCH-BLOCK FOR PURSE-SEINES.**

Made of galvanized iron. Used on seine-boats for pursing mackerel and menhaden seines. Gift of Higgins & Gifford. 25,179.

**SEINE-BLOCK.**

Made of galvanized iron. In general use along the New England coast for pursing the mackerel seine. Varies slightly from the Higgins & Gifford or Cape Ann pattern, and meets with about the same favor. Middletown, Conn. 54,711. Wilcox, Crittenden & Co.

**SEINE-BOAT BLOCK.**

Made of galvanized iron. The first style of metallic seine-boat block used at Gloucester, Mass. Middletown, Conn. 29,462. Wilcox, Crittenden & Co.

**HEART BLOCK.**

Made of lignum-vitæ wood. Used to secure the standing or fixed rigging to the hull of the vessel. Made by Walter Coleman & Sons. 25,804.

**IMPROVED SHEET-BLOCK WITH BOOM BUFFER COMBINED.**

Has rubber cushions at its upper and lower ends, which are intended to ease off the strain when the boom jibes over suddenly. Intended to hang on the boom. Exhibited by Bagnall & Loud, Boston, Mass.

**HARCOURT'S PATENT IMPROVED INSIDE IRON-STRAPPED BLOCK.**

This improvement consists in having a solid partition in a double or triple block, and having four straps in a double and six in a triple block, each strap being let into each side of every partition. Exhibited by Bagnall & Loud, Boston, Mass.

**IMPROVED SNATCH-BLOCK.**

The outside straps are fastened at the end of the block by a bolt, which prevents the sides of the block from pinching the sheave. To lock and unlock the fastening is very easily accomplished by turning the block or hook to right angles, thus bringing the link even with the lip, which then is slipped off, the rope inserted, and the link replaced. This does away with the bolt and chain. Exhibited by Bagnall & Loud, Boston, Mass.

**IMPROVED SEINE-BLOCK.**

The improvement in this purse-seine block consists chiefly in having a lip to the slot where the purse-line is put in, and also in being provided with a lubricant that causes the sheave always to revolve easily. Exhibited by Bagnall & Loud, Boston, Mass.

**SEINE-BLOCK. (Brown's patent.)**

Made of galvanized iron. Used on seine-boats for pursuing the mackerel seine. Middletown, Conn. 29,432. Wilcox, Crittenden & Co.

**PURSE-SEINE BLOCK. (Merchant's patent, 1882.)**

A galvanized-iron block, with single sheave, triangular shell, ridges on sides to prevent fouling. Gloucester, Mass., 1882. 54,322. Made by Wilcox, Crittenden & Co. Invented by Capt. George Merchant, jr., and intended to take the place of ordinary purse-rings at the foot of mackerel seines.

**PATENT ROLLER SHEAVE.**

Made of brass. Either the brass or iron roller sheave is much used in blocks. Made by Walter Coleman & Sons. 25,813.

**IMPROVED LUG-ROLLER WITH IRON SHEAVE.**

Exhibited by Bagnall & Loud, Boston, Mass.

**SHEAVE-ROLLER BUSHING.**

The rolls revolve on a sleeve or second pin, which in halyard blocks is one and one-half inches in diameter in place of three-quarter inch, thus giving a large bearing for the rolls to revolve on, the wear on the pin in the block being little, if any. Exhibited by Bagnall & Loud, Boston, Mass.

**LUG-ROLLER BUSHING.**

The washer, being flexible, will stay in its place until the rolls are entirely worn out, which is not the case with the old style of roller bushing. Bagnall & Loud, Boston, Mass.

**DEAD-EYE.**

Made of lignum-vitæ wood. Used to fasten standing-rigging to side of vessel. Made by Walter Coleman & Sons. 25,806.

## 43. HOOPS AND HANKS.

## MAST-HOOP.

Made of wood, and used to hold the sail to the mast. Gift of Walter Coleman & Sons. 25,807.

## MAST-HOOP.

Wood, usually of hickory or white oak; ends bolted. Diameter, 25 inches; thickness,  $1\frac{1}{2}$  inches. Gloucester, Mass., 1883. 57,815. U. S. Fish Commission. This is the size of mast-hoop used on schooners of 75 or 80 tons. They slide up and down the masts, the luff of the sails being bent to the hoops.

## MAST-HOOPS.

Made of galvanized iron. Series of sixteen sizes, 3 to 10 inches diameter. Used on small sail-boats in shore fisheries. Middletown, Conn. 25,159. Wilcox, Crittenden & Co.

## RIDING-SAIL HOOP WITH BECKET ATTACHMENT.

Ordinary hickory mast-hoop with about one-third sawed out, leaving two ends separated about 17 inches. Iron hook fastened to each end of the hoop. Piece of luff of sail with becket; thimbles in ends of beckets. Diameter of hoop, 25 inches; width between hoops,  $15\frac{3}{4}$  inches; length of becket ends, 1 foot. Gloucester, Mass., 1883. U. S. Fish Commission. Used for attaching riding sail to mainmast.

## ADJUSTABLE JIB-HANK. (Clements' patent.)

Made of galvanized iron. Three sizes. Used for single stays. Middletown, Conn. 25,214. Wilcox, Crittenden & Co.

## ADJUSTABLE JIB-HANK. (Clements' patent.)

Made of galvanized iron. Two samples. Self-adjusting. Used for double stays. Middletown, Conn. 25,215. Wilcox, Crittenden & Co.

## JIB-HANKS.

For single stays. Made of galvanized iron. Series of thirteen sizes. This style of hank, half-round, was used from 1864 to 1875, but not now made. Middletown, Conn. 25,156. Wilcox, Crittenden & Co.

## JIB-HANK. (Pratt's patent.)

Made of galvanized iron; two sizes. Used chiefly on yachts to ship and unship the jib easily and quickly. The hank is strung on the stay the same as the common jib-hank; the eye is seized on the luff-rope of the jib and hooked to the hanks whenever needed. Middletown, Conn. 25,158. Wilcox, Crittenden & Co.

**JIB-HANKS.**

For double stays. Made of galvanized iron. Series of eleven sizes. Middletown, Conn. 25,157 and 54,331. Wilcox, Crittenden & Co.

**JIB-HANK.**

Made of wood. Small size, for use on boats. Gift of Samuel Elwell, jr., Gloucester, Mass. 25,777.

**JIB-HANK.** (Beaman's patent).

Made of wood; used to hold the jib to the stay. Gift of Walter Coleman & Sons, 25,803.

**JIB-HANK.** (Beaman's patent.)

Made of galvanized iron. Middletown, Conn. 54,320. Wilcox, Crittenden & Co.

**JIB-HANKS.**

Made of galvanized-iron wire. Series of sizes from  $\frac{3}{4}$  inch to  $5\frac{1}{2}$  inches. Used by all vessels rigged with wire stays. Middletown, Conn. 54,330. Wilcox, Crittenden & Co.

**JIB-HANK.**

For double stays. Made of galvanized iron. Pattern in use from 1865 to 1875, but not now made. Middletown, Conn. 54,724. Wilcox, Crittenden & Co.

**JIB-HANK.**

Made of galvanized iron. The first style of iron jib-hank used on Connecticut River vessels. Middletown, Conn. 54,725. Wilcox, Crittenden & Co.

44. **HOOKS, CLEWS, THIMBLES, AND GROMMETS.****HOOKS.****FISH-HOOK.**

Galvanized iron; a barbless, hook-shaped implement, with blunt point, and eye and thimble at end of shank. Size of iron,  $\frac{3}{4}$  inch; spread of hook, 5 inches. U. S. Fish Commission. 22,225. Used for lifting the flukes of anchors on a vessel's bow. For this purpose they are fitted with a rope from 9 to 12 feet long. Larger sizes are used on vessels above 50 tons.

**DECK-HOOKS.**

Made of galvanized wrought iron. Two sizes, one short and one long shank. Middletown, Conn. 25,194. Wilcox, Crittenden & Co.

**MAST-HOOK CLUTCH.** (Sawyer's patent.)

One pair, to be connected by a screw. Portland, Me. 29,449. Gift of E. A. Sawyer.

**SWIVEL-HOOK.**

Made of galvanized iron. Improved pattern for blocks and general use. Middletown, Conn. 29,444. Wilcox, Crittenden & Co.

**EYE-HOOK.**

Made of galvanized iron. Used in iron-strapped yacht-blocks. One sample, size  $\frac{1}{2}$  inch; made from  $\frac{1}{4}$  inch to 1 inch. Middletown, Conn. 57,545. Wilcox, Crittenden & Co.

**TACKLE-HOOKS.**

Hooks and thimbles made of galvanized iron. Series of ten sizes,  $\frac{1}{4}$  inch to 1 inch. (They are made up to  $2\frac{1}{2}$  inches.) Used by riggers on many parts of vessels and in rope-strapped blocks. Middletown, Conn. 25,155. Wilcox, Crittenden & Co.

**MATCH-HOOKS AND THIMBLES.**

Made of galvanized iron. Series of ten sizes, from  $\frac{1}{4}$  inch to 1 inch. (They are made as large as 2 inches.) Used by riggers, and often called riggers' match or sister hooks. Middletown, Conn. 25,206. Wilcox, Crittenden & Co.

**SAILMAKERS' SISTER-HOOKS.**

Made of galvanized iron with wide spread. Series of ten sizes,  $\frac{1}{4}$  inch to 1 inch. Used for jib-bonnet hooks and various other purposes. Middletown, Conn. 25,144. Wilcox, Crittenden & Co.

**CAPE ANN BONNET-HOOKS.**

Made of galvanized iron. Thimbles with wide mouth. Series of three sizes. Used in the luff of a jib to hook the bonnet on. Middletown, Conn. 25,145. Wilcox, Crittenden & Co.

**BONNET-HOOK AND EYE.**

Made of galvanized iron. Two sizes. Used to quickly remove or put the bonnet on the jib. Middletown, Conn. 29,452. Wilcox, Crittenden & Co.

**PLATE-HOOK.**

Made of galvanized iron. Used for hammocks and for various purposes about boats and vessels. Middletown, Conn. 25,185. Wilcox, Crittenden & Co.

**GAFF-TOPSAIL SHEET-HOOK.** (Henshaw patent.)

Made of galvanized iron. Used generally on Cape Cod vessels and on some Gloucester vessels. Middletown, Conn. 54,727. Wilcox, Crittenden & Co.

**GAFF-TOPSAIL SHEET-HOOK.** (Coleman patent.)

Made of galvanized iron. Used on all Gloucester fishing-vessels. Middletown, Conn. 54,728. Wilcox, Crittenden & Co.

**TOW LINK AND HOOK.**

Made of galvanized iron. Pattern used at Gloucester from 1873 to 1878 on seine-boats 28 to 30 feet long. Link, 12 inches long and 4 inches wide, with thimble at one end and hook 8 inches long at the other end. Middletown, Conn. 25,168. Wilcox, Crittenden & Co.

**SEINE-BOAT TOW LINK AND HOOK.** (Improved pattern, 1879 to 1882.)

Made of galvanized iron. Used on Cape Ann seine-boats. Total length, 21 inches; length of link, 13½ inches. Middletown, Conn. 54,742. Wilcox, Crittenden & Co.

**HAMMOCK-HOOK.**

Made of galvanized iron. Plate variety. Middletown, Conn. 25,195. Wilcox, Crittenden & Co.

**SCREW-HOOKS.**

Made of galvanized wrought iron. Series of seven sizes; used for hammocks and other purposes. Middletown, Conn. 54,750. Wilcox, Crittenden & Co.

**CLEWS AND EARINGS.****SHIP-CLEWS.**

Made of galvanized iron. Series of nine sizes. Used in pairs. They are thimbled in the clew-line bow for rope-strapped blocks. When iron-strapped blocks are used the clew-line is taken out and the block hooked in the bow. Middletown, Conn. 25,137 and 25,139. Wilcox, Crittenden & Co.

**SHIP-CLEWS.**

Made of galvanized iron. A bar for the clew line allows the clew-line block to lie snug to the sail. Much used on New Bedford whaling vessels but not liked by merchantmen. Middletown, Conn. 25,221 and 25,138. Wilcox, Crittenden & Co.

**SPECTACLE OR FORE-AND-AFT CLEWS.**

Made of galvanized wrought iron. Series of nine sizes. Used on all fore-and-aft rigged vessels and on upper top-sails of square-rigged vessels. Middletown, Conn. 25,135. Wilcox, Crittenden & Co.

**HEART-CLEWS.**

Made of galvanized iron. Series of six sizes. Used for clew of sails on any fore-and-aft rigged vessels. Middletown, Conn. 25,136 and 54,715. Wilcox, Crittenden & Co.

**RING-CLEWS.**

Made of galvanized iron. Complete set of clew irons for the main-sail of a 500-ton schooner. Includes the earing, tack, clew, and throat-ring clews. Middletown, Conn. 25,140-42 and 54,714. Wilcox, Crittenden & Co.

**JIB-HEADS WITH CLEW-THIMBLES.**

Made of galvanized iron. Two sizes. Used when the jib has stretched and gives too much hoist. The head of the jib is cut off and this iron attached. Middletown, Conn. 25,143. Wilcox, Crittenden & Co.

**CENTER-TACK CLEW.**

Made of galvanized iron. By a series of ropes running to the center of a square sail and attaching to this clew the sail is furled without the men going aloft. Middletown, Conn. 54,713. Wilcox, Crittenden & Co.

**HEART-RING.**

Made of galvanized iron. Pattern peculiar to the fishing vessels of Portland, Me. Used in the tack of a sail to prevent its puckering. Middletown, Conn. 54,716. Wilcox, Crittenden & Co.

**TACK-RING CLEW.**

Made of galvanized iron. Pattern peculiar to the fishing vessels of Gloucester, Mass. Used to prevent the puckering of a sail when the thimbles draw together. Middletown, Conn. 54,717. Wilcox, Crittenden & Co.

**HEART-EARING CLEW.**

Made of galvanized iron; two styles. Used on whaling vessels. Permits the leech of a sail to drop below the yard so as not to chafe the rope off. Middletown, Conn. 54,718-19. Wilcox, Crittenden & Co.

**HEART-CHAIN EARING.**

Made of galvanized iron. Middletown, Conn. 54,720. Wilcox, Crittenden & Co.

**LINK EARING.**

Made of galvanized iron. Middletown, Conn. 54,721. Wilcox, Crittenden & Co.

**CLEW-BAR.**

Made of galvanized iron. Navy pattern. Used on square-rigged vessels. Middletown, Conn. 54,712. Wilcox, Crittenden & Co.

## THIMBLES.

## SAIL-THIMBLES.

Made of heavy galvanized iron. Series of eighteen sizes—2 inches to 5 inches. Middletown, Conn. 25,129. Wilcox, Crittenden & Co.

## SAIL-THIMBLES.

Made of heavy galvanized iron. Navy pattern. Used on United States naval vessels since 1858. Series of eight sizes. Middletown, Conn. 25,130. Wilcox, Crittenden & Co.

## SAIL-THIMBLES.

Made of light galvanized iron. Series of fourteen sizes. Middletown, Conn. 25,131. Wilcox, Crittenden & Co.

## LIP OR SADDLE THIMBLES.

Made of galvanized iron. Called also reef-tackle thimbles. Used in the leech of sails when the reef-tackle block hooks in. Series of five sizes—from  $2\frac{1}{4}$  to  $3\frac{1}{4}$  inches. Middletown, Conn. 25,133. Wilcox, Crittenden & Co.

## SAIL-THIMBLES.

Made of brass, polished. Series of fourteen sizes. Middletown, Conn. 25,134. Wilcox, Crittenden & Co.

## OPEN OR RIGGERS' THIMBLES.

Made of galvanized iron. Series of seventeen sizes. Middletown, Conn. 25,152. Wilcox, Crittenden & Co.

## WIRE-ROPE THIMBLES.

Made of galvanized iron. Pattern of 1875. Series of ten sizes. Middletown, Conn. 25,153. Wilcox, Crittenden & Co.

## WIRE-ROPE THIMBLES.

Made of galvanized iron. Series of fifteen sizes. Used on vessels with wire rigging. Middletown, Conn. 54,328. Wilcox, Crittenden & Co.

## THROAT-THIMBLES.

Made of galvanized iron, with wide score. Series of four sizes— $2\frac{1}{4}$  inches to 3 inches. Used on Gloucester vessels in the throat of the sail instead of a clew, so that the sail will hug close to the gaff. Middletown, Conn. 25,312. Wilcox, Crittenden & Co.

## WIRE-ROPE THIMBLES.

Made of galvanized iron. Series of fifteen sizes. Used on vessels with wire rigging. Middletown, Conn. 54,328. Wilcox, Crittenden & Co.

**BLOCK BECKET AND THIMBLE.**

Made of galvanized iron. Used in the Harcourt patent double iron-strapped blocks. Middletown, Conn. 54,726. Wilcox, Crittenden & Co.

**RIDING-SAIL HOOK-THIMBLES.**

Made of galvanized iron. One pair used on Gloucester fishing vessel to connect the mast hoop with the storm trysail or riding sail. Middletown, Conn. 54,729. Wilcox, Crittenden & Co.

**GROMMETS.****IRON GROMMETS. (Wilcox's patent.)**

Made of galvanized iron. One series loose and one inserted in canvas. Used on vessels in the Great Lakes. Middletown, Conn. 25,116. Wilcox, Crittenden & Co.

**EYELET GROMMETS.**

Made of brass. Eleven sizes. Used to line worked holes, also as coupling for Wilcox's patent grommet. Middletown, Conn. 25,124. Wilcox, Crittenden & Co.

**BRASS GROMMETS. (Wilcox's patent.)**

One series loose and one inserted in canvas. Middletown, Conn. 25,117. Wilcox, Crittenden & Co.

**BRASS GROMMETS. (Patent, conical-pointed.)**

One series loose and one inserted in canvas. Middletown, Conn. 25,118. Wilcox, Crittenden & Co.

**BRASS GROMMETS.**

Made of sheet brass, with washer. Series of four sizes, inserted and loose. The first kind of metallic grommet used in America. 25,119. Wilcox, Crittenden & Co.

**BRASS GROMMETS.**

Made of sheet brass, with teeth. Series of four sizes, inserted and loose. The first style of grommet patented in America. 25,120. Wilcox, Crittenden & Co.

**BRASS GROMMETS.**

Oblong shape. Series of five sizes. Specially designed for United States mail bags. 54,731. Wilcox, Crittenden & Co.

**GROMMET RINGS.**

Made of galvanized iron; one sample loose and one worked in canvas. 25,122. Wilcox, Crittenden & Co.

**GROMMET RINGS.**

Made of galvanized wire. Series of nineteen sizes. Middletown, Conn. 25,127. Wilcox, Crittenden & Co.

**GROMMET RINGS.**

Made of light galvanized iron wire. Series of seventeen sizes. Middletown, Conn. 25,128. Wilcox, Crittenden & Co.

**GROMMET RINGS.**

Made of galvanized iron. One ring inserted and lined with brass eyelet. Brass eyelet and ring loose. 54,732. Wilcox, Crittenden & Co.

**BONNET-HOOK AND GROMMET.**

Made of galvanized iron. The grommet is set in the foot of the jib, just above the foot rope. The hook is strung on the head rope of the bonnet when attached, and the jib and the latchet line serves through the eye on the back of the jib. By detaching one end of the latchet line the bonnet is unshipped at once. Middletown, Conn. 29,478. Wilcox, Crittenden & Co.

**BUNTLINE HOLE AND GROMMET.**

Galvanized iron grommet inserted. The hole is always round and open. Middletown, Conn. 54,735. Wilcox, Crittenden & Co.

**ROPE-YARN GROMMETS.**

Made of rope yarn. One sample loose and one inserted. 25,121. Wilcox, Crittenden & Co.

**45. CHOCKS.****BOW-CHOCKS.**

Made of galvanized iron; two samples, each seven inches long. Used on boats. Middletown, Conn. 25,216. Wilcox, Crittenden & Co.

**CHOCKS.**

Made of galvanized iron. This variety is usually made of brass and used by small yachts. Middletown, Conn. 54,743. Wilcox, Crittenden & Co.

**CHOCKS.**

Made of galvanized iron. Series of ten sizes, the smaller used on dories and the larger on Gloucester fishing vessels. Middletown, Conn. 54,745. Wilcox, Crittenden & Co.

**BOW-CHOCKS.**

Made of galvanized cast iron. Two pairs, for small boats. Middletown, Conn. 54,744. Wilcox, Crittenden & Co.

## PATENT CHOCK FOR WHALE-BOAT.

Mayhew Adams, Chilmark, Mass.

## 46. BOAT-HOOKS.

## BOAT-HOOKS, UNMOUNTED.

## BOAT-HOOKS.

Made of galvanized wrought iron. Sharp points. Sizes 1, 2, and 3, unmounted. Middletown, Conn. 25,196. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized iron. Navy pattern; double ball-point variety. Two sizes, unmounted. Middletown, Conn. 25,197. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized malleable iron. Navy pattern; single ball-point variety. Sizes 2 and 3, unmounted. Middletown, Conn. 25,198. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized malleable iron. Sharp points. Sizes 2 and 3, unmounted. Middletown, Conn. 25,199. Wilcox, Crittenden & Co.

## BOAT-HOOKS, MOUNTED.

## BOAT-HOOKS.

Made of galvanized wrought iron. Sharp points. Mounted on poles. Middletown, Conn. 25,196. Wilcox, Crittenden & Co.

## BOAT-HOOK.

Made of galvanized wrought iron. Sharp point. Size 0, mounted on pole. Middletown, Conn. 25,196. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized iron. Navy pattern; double ball-point variety; mounted on poles. Middletown, Conn. 25,197. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized iron. Navy pattern; ball points. Mounted on pole. Middletown, Conn. 25,198. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized malleable iron. Sharp points. Mounted on poles. Middletown, Conn. 25,199. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized malleable iron. Sharp points. Sizes 0 and 1, mounted on poles. Middletown, Conn. 25,199. Wilcox, Crittenden & Co.

## BOAT-HOOKS.

Made of galvanized iron. Navy pattern; ball points; single hook; mounted on wooden pole. Middletown, Conn. 25,198. Wilcox, Crittenden & Co.

## BOAT-HOOKS—ABORIGINAL.

## BOAT-HOOK.

Staff of cedar, 1 inch in diameter, one end ornamented with notches, the other shod with an ivory hook carved in shape of a bird's beak, and lashed to staff with thongs of hide. Used in kyak for extracting articles from the forward and after ends of boat, and for the various purposes of ordinary boat-hook. Length, 2 feet 7 inches; hook,  $1\frac{1}{2}$  inches long. Alaska, 1878. 36,020. Collected by E. W. Nelson.

## BOAT-HOOK.

Wooden staff,  $1\frac{1}{4}$  inches in diameter, oval in cross-section, shod at one end with a piece of pointed bone and at the other with a hook of bone, each lashed to staff with thongs of hide. Used in kyak or native boat, by Alaskan Indians, to ward off floating ice, &c. Length, 4 feet; length of bone, 5 inches. Alaska, 1878. 36,022. Collected by E. W. Nelson.

## BOAT-HOOK.

Staff of cedar,  $\frac{3}{4}$  inch in diameter, 3 feet 10 inches long, shod on upper end with bone hook lashed with thongs of hide. Used in native boat or kyak for extracting articles from forward and after ends of boat and for various purposes of ordinary boat-hook. Length, 3 feet 10 inches. Alaska, 1878. 36,023. Collected by E. W. Nelson.

## BOAT-HOOK.

Wooden staff,  $1\frac{1}{4}$  inches in diameter, armed at upper end with elaborately carved ivory tusk, triangular in cross-section, the upper end butting against the staff, and lashed in plane of stick with strips of hide. Part of outfit of a bidarka or native Alaskan boat from Goloon Bay. Alaska, 1880. 43,347. Collected by E. W. Nelson.

## BOAT-HOOK.

Staff of wood, oval in cross-section,  $1\frac{3}{4}$  inches in diameter, shod at one end with a piece of pointed bone 7 inches long and at

## BOAT-HOOK—Continued.

the other with a hook of bone, each lashed to staff with thongs of hide. Carried in kyak or native boat by Alaskan Indians to ward off floating ice. Length, 5 feet. Alaska, 1882. 72,419. Collected by Chas. L. McKay.

## EXTRACTOR.

Cedar staff,  $1\frac{1}{4}$  inches in diameter, notched at one end, and shod at the other with a boat-shaped piece of carved bone lashed with strips of hide. Sledge Island. Used in kyak generally as a boat-hook, and to extract articles stowed forward and abaft the central opening, or cockpit, in which occupant sits. Length, 3 feet 9 inches. Alaska, 1878. 45,408. Collected by E. W. Nelson.

## 47. LEADERS AND LIZARDS.

## BUNTLINE LEADERS.

Rope buntline hole and rope grommet, inserted and loose. Middletown, Conn. 25,123. Wilcox, Crittenden & Co.

## BUNTLINE LEADER.

Made of galvanized iron. One sample loose and one inserted in canvas. Middletown, Conn. 54,733. Wilcox, Crittenden & Co.

## BUNTLINE LEADER. (Wilcox's patent, improved.)

One sample loose and one inserted. A galvanized iron grommet-ring is first worked in, then the whole covered with the brass grommet. This is said to be the strongest and best buntline leader now used. Middletown, Conn. 54,734. Wilcox, Crittenden & Co.

## LIZARDS OR BUNTLINE BULL'S-EYES.

Made of lignum-vitæ. Series of fifteen sizes. Used to secure standing rigging to the side of the vessel, and sometimes used as fair-leaders. Middletown, Conn. 25,151. Wilcox, Crittenden & Co.

## FAIR-LEADERS AND BOOM FOOT-STOPS.

Series of three sizes; used by the smack fishermen of Newport, R. I. 25,604. Gift of J. M. K. Southwick.

## FAIR-LEADER.

Used on the booms of Gloucester vessels. Gloucester, Mass. 29,450. Samuel Elwell, jr.

**FAIR-LEADERS.**

Made of brass, with sheaves. Series of three sizes. Middletown, Conn. 54,730. Wilcox, Crittenden & Co.

**LACE TRUCKS.**

Used on the foot of sail to attach it to the boom. Providence, R. I. 25,808. Walter Coleman & Sons.

**LIZARD.**

Used in connection with the luff of a sail and the mast hoops and hoisting-line. 29,446. Wilcox, Crittenden & Co.

**LIZARDS OR BECKETS. (Sawyer's patent, two sizes.)**

These are seized to the luff-rope of the sail, and the jack-rope, which connects the luff of the sail to the mast hoops, and passes through the thimbles. 29,447. Wilcox, Crittenden & Co.

**LEADER FOR PEAK HALYARDS.**

Used on the cross-trees. "A new and useful attachment." Improved sheet block with boom buffer combined.

**48. PURREL TRUCKS.****PURREL TRUCKS.**

Made of lignum-vitæ wood. Series of six sizes. Used on a rope around the mast to keep the gaff on the mast. Made by Walter Coleman & Sons. 25,802.

**PURREL TRUCKS.**

Made of lignum-vitæ wood. Two styles. Made by Walter Coleman & Sons. 25,943.

**49. CLEATS AND BELAYING-PINS.****GAFF-TOPSAIL CLEAT AND DOWNHAUL ATTACHMENT. (Bagnall & Loud's patent, 1877.)**

Made of galvanized iron. It is readily applied with one bolt to the gaff of vessels. This cleat swings to any position, overcoming the abrasion of the rope and side of the cleat, and by a downhaul attachment does away with the bull's-eye or block that was formerly fastened by a bolt driven into the end of the gaff. Middletown, Conn. 39,239. Wilcox, Crittenden & Co.

**IMPROVED GAFF-TOPSAIL CLEAT AND DOWNHAUL ATTACHMENT.**

"The advantages are first in a swinging cleat which will always have a fair lead, and can be applied either to the port or starboard side as well. In connection with the cleat is the band on the gaff and downhaul attachment, consisting of a brass bull's-eye, all being easily applied in one piece to the gaff by one bolt." Bagnall & Loud, Boston, Mass.

## STAYSAIL AND SNATCH CLEAT.

Made of wood. Used on Gloucester fishing schooners. Made by Allan L. McDonald, Gloucester, Mass. 25,779.

## BOAT-CLEATS.

Galvanized iron; two sizes. Length, 7 and 8 inches. Middletown, Conn. 57,036. Wilcox, Crittenden & Co. The large size is frequently used on seine-boats in place of the regular seine-boat cleat with plate. These are called the spike or rivet variety, because they are spiked or riveted on.

## BOAT-CLEATS.

Galvanized iron; plate variety; two sizes. Length,  $4\frac{1}{2}$  and  $5\frac{1}{2}$  inches. Gloucester, Mass., 1883. 57,037. Wilcox, Crittenden & Co., Middletown, Conn. Used on fishing boats, &c., for fastening sheets and other ropes.

## BOAT-CLEATS.

Made of galvanized iron. Plate pattern, or style used on seine boats. Sizes 1, 2, and 3. Middletown, Conn. 25,191. Wilcox, Crittenden & Co.

## BOAT-CLEATS.

Made of galvanized iron. Old style, to bolt on. Sizes 4, 5, and 6. Middletown, Conn. 54,747. Wilcox, Crittenden & Co.

## BOAT-CLEATS. (New pattern.)

Made of galvanized iron. Series of four sizes, 3, 4, 5, and 6. Middletown, Conn. 54,748. Wilcox, Crittenden & Co.

## CLEATS.

Made of galvanized cast iron. Series of six sizes, the largest one being the smallest size used on fishing vessels measuring over 85 tons. Middletown, Conn. 54,746. Wilcox, Crittenden & Co.

## CAPE ANN SEINE-BOAT CLEAT.

Made of galvanized iron. Middletown, Conn. 25,177. Wilcox, Crittenden & Co.

## AWNING-CLEATS.

Made of galvanized iron, in shape of curved horn. Sizes 1, 2, 3, and 4. Middletown, Conn. 25,218. Wilcox, Crittenden & Co.

## ROUND-BOTTOM AWNING-CLEATS.

Two sizes made of brass, and two of galvanized iron. Middletown, Conn. 25,217. Wilcox, Crittenden & Co.

## CLEATS.

Made of wood. Two samples, small size. Made by Walter Coleman & Sons. 25,809.

## IRON BELAYING-PINS.

Solid cast-iron. Middletown, Conn. 54,741. Wilcox, Crittenden & Co. Used in fastening ropes.

## BELAYING-PINS.

Made of galvanized iron, hollow. The two smaller sizes are extensively used on Gloucester fishing vessels. Middletown, Conn. 25,161. Wilcox, Crittenden & Co.

## BELAYING-PINS.

Made of galvanized iron, solid. Sizes 1, 2, and 3. Middletown, Conn. 54,741. Wilcox, Crittenden & Co.

## STEM-CAP BELAYING-PINS.

Made of galvanized iron. Used on Cape Ann seine-boats to prevent the tow-link from rising off the stem-cap. Called by the fishermen "whistling-pin." Middletown, Conn. 25,169. Wilcox, Crittenden & Co.

## BELAYING-PINS.

Made of wood; two sizes. Middletown, Conn. 25,766. Wilcox, Crittenden & Co.

## 50. ANCHORS AND GRAPNELS.

## SNUG-STOW BOAT ANCHOR.

Galvanized iron; adjustable stock; flat shank. Length of shank, 21 inches; stock, 26 inches; spread of flukes, 15 inches. Middletown, Conn. 22,224. Presented by Wilcox, Crittenden & Co. Used chiefly for anchoring boats engaged in pleasure fishing.

## BOAT ANCHOR.

Galvanized iron; short shank; adjustable stock, bent at one end. Length of shank,  $20\frac{1}{2}$  inches; stock, 18 inches; spread of flukes,  $14\frac{1}{2}$  inches. Presented by Wilcox, Crittenden & Co. 56,858. Used for anchoring fishing and pleasure boats.

## BOAT ANCHOR.

Galvanized iron; adjustable stock, bent at one end. Length of shank,  $17\frac{1}{2}$  inches; stock, 16 inches; spread of flukes,  $14\frac{1}{2}$  inches. Presented by Wilcox, Crittenden & Co. 56,857.

## BOAT ANCHOR.

Galvanized iron; adjustable stock, bent at one end. Shank, 16 inches long; stock, 15 inches long; spread of flukes, 13½ inches. Middletown, Conn. 25,162. Presented by Wilcox, Crittenden & Co. Used chiefly for anchoring boats engaged in pleasure fishing.

## BOAT ANCHOR.

Double-end anchor; called also "Virgin Rocks," "double header," "end for end," "double flukes," "double dory-anchor." Iron; black; flukes at each end of shank, those on one end standing at right angles to those on the other. A ring on the shank slides freely to either end, and to this the anchor line is fastened. Length of shank, 30 inches; spread of flukes, 18 inches. Provincetown, Mass., 1882. 54,303. Presented by A. R. Crittenden, Middletown, Conn. Used by the Grand Bank hand-line cod fishermen on Virgin Rocks, where anchors frequently foul on the bottom. A ring in the shank slides back and forth, so that if one end fouls the fisherman can row in the opposite direction and the ring slides to the other head and generally throws the fouled end out. The Virgin Rock grappling is said to be better than the ordinary double-header.

## VOSS'S IMPROVED SELF-STOCKING ANCHOR.

Galvanized iron. Length of shank, 2½ feet; spread of flukes, 13 inches; stock, 1 foot long each side of shank. East Gloucester, Mass. 39,421. D. C. Voss.

"This invention consists of a shank and flukes, similar to a common anchor; but its superiority consists in the folding of the stock, which is effected by means of a bar passing through the shank, to which the arms or parts of the stock are pivoted by bolts, the pivoted ends of the stock being so formed as to stop and support the arms at right angles to the shank, and while the folding stock enables you to stow or handle your anchor with ease, it does not prevent it from answering all the purposes of a common stock, as the draught of the cable on the shank cannot fail to bring it into position, nor can the cable get foul with the stock, as the pivot enables the stock to fall back, causing the turn of the cable to ship off. It is claimed that its advantages as a trawl anchor cannot be surpassed, as one can stow them anywhere in the dory and they are out of the way, besides the advantage of stowing them in the hold of the vessel (as six or eight of them can be stowed in the same space as one of the common anchors)."

**TRAWL ANCHOR.** (Small size.)

Galvanized iron. Length of shank, 18 inches; stock, 17 inches; spread of flukes, 10 inches. 56,856. Common type of anchor in general use among New England fishermen. Sizes used on trawls vary from 5 to 25 pounds.

**TRAWL ANCHOR.** (Common style.)

Iron; black; iron stock; ring parceled, and beackets of buoy-line bent to it. Length of shank, 3 feet; stock, 2 feet 8½ inches; spread of flukes, 16½ inches. Gloucester, Mass., 1883. 54,517. U. S. Fish Commission. Used for anchoring trawl-lines, boats, and nets.

**MUSHROOM ANCHOR.**

Black iron. It has no flukes, but a circular foot, formed of a wide band of iron attached to, and supported on, the ends of four stout arms which curve sharply upward from the crown. It has no stock, as the foot is always ready to take hold. Eye at top for rope to bend in. Length of shank, 4 feet 5 inches; diameter of foot, 2 feet 5 inches. Provincetown, Mass., 1879. 36,044. Collected by G. Brown Goode. Used by small vessels employed in catching mackerel with gill-nets.

**DORY GRAPPLING.**

Galvanized iron grappling, with 4 prongs; no stock; ring and thimble at top of shank. Length of shank, 17 inches; spread of prongs (point to point), 17 inches. Middletown, Conn. 25,163. Presented by Wilcox, Crittenden & Co. Used for anchoring dories on rocky bottom.

**BOAT GRAPPLING.**

Black iron; roughly made; four prongs, formed by two pieces of pointed square iron rods passing at right angles to each other through the shank near its lower end. No stock. Length of shank, 2½ feet; spread of flukes, 13½ inches. Provincetown, Mass., 1882. 54,304. Gift of A. R. Crittenden, Middletown, Conn. Used chiefly on Virgin Rocks, and on Rocky Bottom, Banquereau, for anchoring dories. The prongs being small and easily bent, the anchor can be pulled clear when caught beneath a rock.

**GRAPPLING ANCHOR.**

Galvanized iron; four prongs; no stock; ring in upper end of shank. Length, 19 inches; spread of prongs, 15½ inches. Middletown, Conn. 56,859. Made by Wilcox, Crittenden & Co. Used for anchoring nets or boats.

## TWO-PRONGED GRAPPLING.

Galvanized iron; double shanks, united at top, where there is an eye and thimble; separated below with reversed prongs. Length,  $2\frac{1}{2}$  feet. Saint George's River, Maine. 22,223. Presented by Wilcox, Crittenden & Co. Used for boat and net anchor and also for dragging after lost cables, anchors, &c.

## GRAPPLING ANCHOR.

Galvanized iron; four prongs braced at the bottom. Thimble in ring at top of shank. Length,  $17\frac{1}{2}$  inches; spread of prongs,  $14\frac{1}{2}$  inches. Presented by Wilcox, Crittenden & Co. 56,860. Used for anchoring nets, &c.

## IRON KILLICK FOR SHORE COD-TRAWL.

An ordinary yoke-shaped killick, of blacked iron, with small piece of buoy-line attached. Length of shank,  $13\frac{1}{2}$  inches; flukes (point to point), 11 inches. U. S. Fish Commission. 54,538. Used for anchoring trawl-lines, &c.

## IRON KILLICK.

Black; flat flukes; oblong piece of iron at right angles to flukes, held in place by shank of two pieces of twisted iron rod. Length of shank, 13 inches; flukes,  $13\frac{1}{2}$  inches (from point to point). Gloucester, Mass. 32,675. Presented by A. Voss. Used principally for anchoring trawl-lines.

## IRON KILLICK.

Galvanized iron; flat flukes, with 8 inches spread; flat piece of iron fixed in the shank, which is double, being bent around the plate and fastened in the fluke like a yoke; thimble in top of shank. Length of iron weight, 8 inches; width, 3 inches; thickness,  $1\frac{1}{2}$  inches. Gloucester, Mass. 56,862. U. S. Fish Commission. Used for anchoring trawl-lines, nets, &c.

## STONE KILLICK.

Rough, rectangular stone block fastened in a yoke, the arms of the yoke forming the flukes; rope strap fastened to arms. Rock  $8\frac{1}{2}$  by  $6\frac{1}{2}$  by 3 inches; sticks, 2 feet long; fluke piece, 1 foot long. Rockport, Mass., 1883. 54,417. U. S. Fish Commission. Used for anchoring boats, nets, and lines.

## STONE KILLICK FOR HERRING-NET.

An oblong piece of rough granite, weighing about 60 pounds, fastened in a wooden and iron yoke, the iron part of which forms the flukes, and two sticks, the shank. Rock, 26 inches long,  $7\frac{1}{2}$  inches wide, 4 inches thick at bottom, 3 inches thick at top. Rockport, Mass., 1882. 54,548. U. S. Fish Commission. Used for anchoring gill-nets. Usually made by the fishermen and called the "poor man's anchor."

**WOODEN KILLICK, OR COAST ANCHOR.**

Wood and stone; shank of white oak, split at butt into 4 parts, these parts inclosing a stone, and fastening, at lower ends, into two flat pieces of hard wood which cross at right angles. Iron ferrule above split. Noank, Conn. 25,219. Presented by Capt. H. C. Chester. Used for anchoring fishing-gear, boats, &c. Sometimes called "poor man's anchor."

**GRAPPLING-IRON.**

Iron; black; four stout recurved hooks joined together on a single shank. Ring at top of shank served with canvas. Length of shank, 7 inches; spread of prongs, 8 inches. Gloucester, Mass. 25,936. Presented by A. McCurdy. Used to recover lost fishing lines, &c.

**DEVIL'S-CLAW GRAPNEL.**

Iron; black; a piece of  $\frac{3}{8}$ -inch chain, 10 or 12 feet long, with 3-prong, claw-like grapnels fastened at intervals of 3 feet along its length, and one at the extreme end of the chain. Length of each grapnel, 9 inches; each prong, 5 inches. Gloucester, Mass., 1883. 54,342. U. S. Fish Commission. Used for recovering lost trawl-lines, &c.

**51. MAST-GEAR.****MAST-HEAD TRUCK.**

Made of lignum-vitæ wood. Used on the topmast to display bunting and signals. Made by Walter Coleman & Sons. 25,810.

**MAST-HEAD BALL.**

Made of lignum-vitæ wood. Used on top of the topmast to display bunting and signals. Made by Walter Coleman & Sons. 25,811.

**MAST-HEAD GEAR.**

Made of galvanized iron. Used chiefly on dories at Provincetown, Mass. Gift of Amasa Taylor. 29,480.

**MAST-GEAR.**

Mast-head gear for dory. Provincetown, Mass. 29,480. Amasa Taylor.

**MAST AND BOOM ATTACHMENT.**

Used chiefly on dories at Provincetown, Mass. Gift of Amasa Taylor. 29,481.

**WHALEBOAT MAST AND GAFF ATTACHMENT.**

Made of brass. Used by Provincetown whalers. Middletown, Conn. 29,484. Wilcox, Crittenden & Co.

## MAST-GEAR.

Six purrel trucks. Used on a rope around the mast to keep the gaff on the mast. Providence, R. I. Walter Coleman & Sons. 25,802.

## MAST HINGE FOR WHALEBOAT.

Made of brass. Permits the mast to be easily raised or lowered. Middletown, Conn. 25,181. Wilcox, Crittenden & Co.

## 52. BOAT-BUILDERS' MATERIALS.

## MISCELLANEOUS.

## SOCKET FOR BOOM-REST OR CROTCH.

Made of galvanized iron. Used on the taffrail of fishing vessels when they are "lying to" on the Banks. Wellfleet, Mass. 29,482. Gift of Theodore Brown.

## WATER DECK-IRON.

Made of galvanized iron. Fire-proof. Pipe opening 5 inches in diameter. These irons are made with openings from 4 inches to 10 inches in diameter. Sizes 4, 4½, 5, and 5½ are used on Gloucester fishing vessels. Middletown, Conn., 1882. 25,204. Wilcox, Crittenden & Co.

## TOPSAIL TRAVELERS. (Patent.)

One pair; used on square-rigged vessels. Middletown, Conn. 29,463. Wilcox, Crittenden & Co.

## ADJUSTABLE JACK-STAY LINK. (Clement's patent.)

Made of galvanized iron. Middletown, Conn. 54,722. Wilcox, Crittenden & Co.

## ADJUSTABLE CONNECTING LINK. (Clement's patent.)

Made of galvanized iron. Middletown, Conn. 54,723. Wilcox, Crittenden & Co.

## BOOM-TACKLE ATTACHMENT.

Made of brass. (Cruikshank's patent.) Middletown, Conn. 26,987. Wilcox, Crittenden & Co.

## PLATE-RING.

Made of galvanized iron. Used on vessels for port-rings and other purposes. Middletown, Conn. 57,546. Wilcox, Crittenden & Co.

## BURRS OR WASHERS.

Made of galvanized Swede's iron. Called also fore-locks. Series of twelve sizes. The large ones are used to lock ring-bolts,

**BURRS OR WASHERS—Continued.**

the small ones on various sized boat-rivets. Middletown, Conn. 25,223. Wilcox, Crittenden & Co.

**GUNWALE SUPPORTER. (Old style.)**

Made of galvanized iron. Used about 1874 on Cape Ann seine-boats. Middletown, Conn. 25,176. Wilcox, Crittenden & Co.

**GUNWALE SUPPORTER. (Pattern of 1878.)**

Made of galvanized iron. Used on Cape Ann seine-boats. Middletown, Conn. 57,544. Wilcox, Crittenden & Co.

**STEM-CAP OR BUMPER.**

Made of rubber. Used on stem of seine-boats. Middletown, Conn. 56,932. Wilcox, Crittenden & Co.

**SEINE-BOAT STEM-CAP.**

Made of galvanized malleable iron. Pattern used on Cape Ann seine-boats in 1874. Middletown, Conn. 25,178. Wilcox, Crittenden & Co.

**SEINE-BOAT TOW-IRON.**

Made of galvanized iron. Used on purse-seine boats all along the New England coast. Middletown, Conn. 25,167. Wilcox, Crittenden & Co.

**TOW-LINE CHAFE-PLATES.**

Made of galvanized iron. Used on gunwale of Cape Ann seine-boats at base of stem-cap, where the tow-line bears on and chafes the gunwale. Middletown, Conn. 54,310. Wilcox, Crittenden & Co.

**SEINE-BOAT STEM-CAP WITH CHAFE-PLATES.**

Made of galvanized iron. This is an improved pattern of stem-cap with gunwale chafe-plates joined to it, thereby making it do double duty, one piece taking the place of three pieces in old patterns. Middletown, Conn. 54,311. Wilcox, Crittenden & Co.

**SEINE-BOAT BREAST-HOOK.**

Made of galvanized iron. Used as a knee or brace on Cape Ann seine-boats. Middletown, Conn. 25,174. Wilcox, Crittenden & Co.

**BREAST-HOOK AND STERN-KNEES.**

Made of galvanized iron. Used in dories as breast-hook and right and left stern-braces. Middletown, Conn. 29,472. Wilcox, Crittenden & Co.

**STERN-BRACE.** (Pattern of January, 1883.)

Galvanized iron; shaped like a breast-hook. Used on bow of boat. Gloucester, Mass., 1883. 57,035. Wilcox, Crittenden & Co. Middletown, Conn.

Used on 40-foot seine-boats to strengthen the sterns. This was the first iron brace made of this pattern.

**LONG DAVIT.**

Made of galvanized steel. Used on Cape Ann seine-boats to hold the purse-blocks. Middletown, Conn. 54,315. Wilcox, Crittenden & Co.

**DAVIT-IRON.**

Made of galvanized iron. Used on Cape Ann seine-boats. The purse-blocks hook into it. Middletown, Conn. 25,166. Wilcox, Crittenden & Co.

**DAVIT UPPER PLATE FOR THWART.**

Made of galvanized iron. Used on Cape Ann seine-boats to prevent the splitting of the thwart when the seine is being pursed up and there is a great strain on the davit. Middletown, Conn. 54,314. Wilcox, Crittenden & Co.

**DAVIT STEP-PLATE.** (Improved pattern.)

Made of galvanized iron. Used on Cape Ann seine-boats. The socket goes through the thwart and prevents the plate from sliding or working loose. Middletown, Conn. 54,313. Wilcox, Crittenden & Co.

**DAVIT-GUARD.** (Improved pattern.)

Made of galvanized iron. Used on Cape Ann seine-boats for holding the purse-blocks. This pattern has a wider plate than the old style, takes more screws, and does not work loose as easily. Middletown, Conn. 54,312. Wilcox, Crittenden & Co.

**DAVIT-GUARD AND STEP-PLATE.**

Made of galvanized iron. Pattern of 1873 and 1875. Used on Cape Ann seine-boats. Middletown, Conn. 25,173. Wilcox, Crittenden & Co.

**EYE-PLATES.**

Made of galvanized iron; two sizes. Used on Cape Ann seine-boats for the oar-cranes or holders to swivel in; also used to hook the pursing-blocks into. Middletown, Conn. 25,175. Wilcox, Crittenden & Co.

**OAR-HOLDER OR CRANE. (Old style.)**

Used on Cape Ann seine-boats in 1870. Made of galvanized iron. Shank, 22 inches high, with projecting arm 12 inches high and 9 inches wide. Gloucester, Mass. 25,172. Gift of Higgins & Gifford.

**OAR-HOLDERS OR CRANES.**

Made of galvanized iron. One crooked or after crane, and one straight or forward crane. Used on Cape Ann seine-boats. Total height, 24 inches. Middletown, Conn. 25,171. Wilcox, Crittenden & Co.

**BOAT-NAILS.**

Made of galvanized iron; round head; chisel point. Series of twenty sizes. Middletown, Conn. 25,212. Wilcox, Crittenden & Co.

**ROUND-HEAD BOAT-NAILS.**

Made of galvanized Lake Superior iron. Series of twenty-one sizes. Middletown, Conn. 25,211. Wilcox, Crittenden & Co.

**COUNTERSUNK BOAT-NAILS.**

Made of galvanized Lake Superior iron, with screw heads. Series of twenty sizes. Middletown, Conn. 25,213. Wilcox, Crittenden & Co.

**BOAT-RIVETS.**

Made of galvanized iron, oval heads. Series of twenty sizes,  $2\frac{1}{2}$  to  $10\frac{1}{4}$  inches. Middletown, Conn. 25,220. Wilcox, Crittenden & Co.

**COUNTERSUNK BOAT-RIVETS.**

Made of galvanized iron, with screw heads. Series from  $2\frac{1}{2}$  to  $10\frac{1}{4}$  inches. Middletown, Conn. 25,220a. Wilcox, Crittenden & Co.

**RING-BOLT.**

Made of galvanized iron. Used on the bows of Cape Ann seine-boats for hoisting-in purposes. Middletown, Conn. 25,170. Wilcox, Crittenden & Co.

**RING-BOLTS.**

Made of galvanized wrought iron; to drive and rivet. Series of eight sizes. Used in all sorts of boats. Middletown, Conn. 25,203. Wilcox, Crittenden & Co.

## SCREW RING-BOLTS.

Made of galvanized wrought iron. Series of eight sizes, from  $\frac{1}{4}$  inch to  $\frac{7}{8}$  inch. Used for various purposes about boats and vessels. Middletown, Conn. 25,202. Wilcox, Crittenden & Co.

## SCREW EYE-BOLTS.

Made of galvanized wrought iron. Series of ten sizes, from  $\frac{3}{16}$  inch to 1 inch. Used for various purposes about a vessel. Middletown, Conn. 25,201. Wilcox, Crittenden & Co.

## SCREW EYE-BOLTS, OR BOOM FOOT-STOPS.

One series made of brass and one of galvanized iron. They screw into the boom, and the foot of the sail is laced to them. Used largely by Baltimore oystermen. Middletown, Conn. 25,604. Wilcox, Crittenden & Co.

## SCREW EYE-BOLTS.

Made of galvanized iron. Split-eye variety. Series of four sizes. Middletown, Conn. 54,749. Wilcox, Crittenden & Co.

## TOGGLE-POINT PUMP-BOLT.

Used extensively on Gloucester-vessels. Middletown, Conn. 29,470. Wilcox, Crittenden & Co.

## PUMP STANDARD.

Composed of pump-brake, standard, plate, socket, nut, and washer combined. Middletown, Conn. 54,739. Wilcox, Crittenden & Co. Used on Gloucester fishing schooners.

## SMALL PUMP STANDARD.

Middletown, Conn. 54,740. Wilcox, Crittenden & Co.

## ABORIGINAL IMPLEMENTS.

## WEDGES.

Three wedges used in canoe building for splitting logs. Lengths, 16, 14, and 11 inches. Makah Indians, Cape Flattery, Washington Territory, 1883. 72,679. James G. Swan. The log is first marked across the end with a sharp instrument. The small wedges are inserted and driven in carefully with a stone hammer. As soon as the slab begins to split, longer wedges are inserted on each side and carefully driven in. In this manner cedar boards 5 feet wide and 20 feet long are made.

## WEDGE.

A wedge used in the manufacture of canoes. Length, 33 inches. Makah Indians, Neah Bay, Washington Territory, 1883. 72,678. James G. Swan. The top slab and one or two boards are first split from the log, and the remaining portion of the log is hewn into the shape of the canoe with the ax and adze.

## STONE HAMMER.

An implement with a conical and a square-cut end used in canoe building for driving wedges. Length,  $7\frac{1}{2}$  inches. Makah Indians. Cape Flattery, 1883. 72,695. James G. Swan.

## MAKAH HAMMER.

Stone hammer, resembling in appearance an ordinary pestle, with square-cut ends; used in canoe building and for domestic purposes. Length, 7 inches. Makah Indians, Cape Flattery, 1883. 72,680. James G. Swan.

These hammers "are made of the hardest jade that can be procured, and are wrought into shape by the slow drudgery of striking them with a smaller fragment, which knocks off a little bit at each blow. Months are consumed in the process, and it is one of their superstitions that from first to last no woman must touch the materials, nor the work be done except at night, when the maker can toil in solitude unnoticed by others. If a woman should handle the pestle, it would break, or if other persons should look on while the work was in progress, the stone would split or chip off. The night is preferred, because they imagine the stone is softer then than during the day. Any one can form an idea of the nature of this manufacture and its tedious labor by taking two nodules of flint or a couple of paving stones and attempting to reduce one of them to a required shape by striking them together. Yet these Indians not only fashion their hammers in this manner, but they make very nice jobs, and some that I have seen had quite a smooth surface, with a degree of polish. They are valued, according to the hardness of the stone, at from one to three blankets."—*(Indians of Cape Flattery. J. G. Swan.)*

## WITHES.

Withes made from the long tapering limbs of cedar (*Thuja gigantea*) used in building and repairing canoes and for fastening the ends of the stretchers (thwarts). As the projecting stems and sterns cannot be cut from a log in one and the same piece with the canoe, they are carved separately and fastened on by means of withes. The end pieces being adjusted, holes are bored; the withes are soaked in water, and used in scarfing the two pieces of wood, the tapering ends acting upon the principle of a bristle or waxed end of a cobbler's thread. Wooden pegs are driven in to fasten the ends, and the work is strong and durable. Length, 18 inches. Makah Indians, Neah Bay, Washington Territory. 72,667. James G. Swan.

## TRINKET MAKERS.

Short, rude steel or iron points in ends of bone or wood handles, secured by lashings of fiber or thongs or by wedges. Length: points, three-fourths to 1 inch; handles, 4 inches. Bristol Bay, Alaska, 1882. 55,923. Charles L. McKay.

## RUDDER FIXTURES.

## WHALE-BOAT RUDDER-BRACES.

Made of galvanized iron; one pair. Used on any whale-boat, but called Labrador pattern. Middletown, Conn. 25,182. Wilcox, Crittenden & Co.

## RUDDER-BRACES. (Lewis Raymond pattern.)

Made of galvanized iron; one pair. Used on metallic life-boats. Middletown, Conn. 25,183. Wilcox, Crittenden & Co.

## SPIKE RUDDER-BRACES.

Made of galvanized wrought iron. Called also drive rudder-braces. Series of six sizes. Middletown, Conn. 25,189. Wilcox, Crittenden & Co.

## SCREW RUDDER-GUDGEONS.

Made of galvanized iron with screw and eye. Series of twelve sizes. Middletown, Conn. 25,190 and 57,543. Wilcox, Crittenden & Co.

## RUDDER-BRACES.

Made of galvanized wrought iron. Series of six sizes. Middletown, Conn. 25,209. Wilcox, Crittenden & Co.

## STRAP RUDDER-BRACES.

Made of galvanized iron. Series of six sizes. Used on sharp-stern boats; the three larger sizes on New Orleans boats engaged in the capture of catfish. Middletown, Conn. 25,210. Wilcox, Crittenden & Co.

## RUDDER-BRACES.

Made of galvanized iron. La Chapelle variety, peculiar to Detroit River and vicinity. Middletown, Conn. 57,551. Wilcox, Crittenden & Co.

## RUDDER FIXTURES.

"W. N. Clark's rudder-hanger." (Patented September 3, 1867.) Chester, Conn. 29,496. James B. Clarke.

"Advantages claimed for this hanger: To ship the rudder one has only to enter the tongue (which has the rudder already at-

## RUDDER FIXTURES—Continued.

tached) in the grooved plate from the top just far enough to get it steady, and then let it down, when it will go to its place without further care. Hence arises the first great advantage which this hanger possesses over the old way, viz: the ease and dispatch with which the rudder can be shipped under all circumstances."

## CENTER-BOARDS.

## ATWOOD'S CENTER-BOARD.

Working model of Atwood's patent center-board for boats and canoes. Atwood Brothers, Clayton, N. Y.

## BOAT-DETACHING APPARATUS.

## WOOD'S BOAT ATTACHING AND DETACHING APPARATUS.

This is a non-automatic apparatus, being detached by one of the boat's crew. Invented and exhibited by Lieut. William M. Wood, U. S. N.

"When the crew, coxswain, and officer, if one is going, are in the boat, and after one of the stroke oarsmen has cast loose the lanyard, and handed it to the officer in charge, or the coxswain, the officer of the deck gives the order to 'lower away.' As soon as the boat is near enough the water, say about 2 feet, the person holding the end of the lanyard gives a quick jerk, and thus freeing the ends of the chain, they slack and allow the links to rise and the toggles to escape simultaneously. In case the ship is rolling heavily very little lowering will be necessary, as the boat can be detached as she rolls toward the water, and will be clear of the ship before the return roll. As soon as the boat is clear of the ship one of the stroke oarsmen brings the ends of the chain together, refastens the slip-hook and hitches the lanyard forward as a securing. The boat is then ready for 'hooking on' when she returns to the ship, after having completed her trip. When she comes alongside, the man in the bow gets the forward fall and sticks the toggle into the large part of the link and pushes it up beyond the tumbler. The man in the stern does the same, and as the falls are set taut on deck, they slue the turns out of the falls, the toggles acting as swivels. In fitting this apparatus in the boats of ships of war, it is deemed advisable to replace the two upper wood-screws by through-bolts. Also, in the bows of these boats, having the deep wooden breast-hook in the eyes, it will be better to bolt a piece of wood on to the apron of the stem, to set the link A out far enough to play up clear of the breast-hook. In boats with metallic breast-hooks this will not be necessary.

## WOOD'S BOAT ATTACHING AND DETACHING APPARATUS—Continued.

“We now manufacture the roller B on a prolongation of the back plate of A, so that the apparatus is fastened in together. In case of a curvature in the apron of the stem or stern, this back piece can easily be bent to suit. We also have substituted chain for the wire rope, securing it at one end to the link by a shackle, so that, when it is placed in a boat, an excess of chain being always furnished, it can be taken up to the right length, cut off, and the shackle inserted in the proper link.” (Extract from the instructions of Admiral William Reynolds, Chief of Bureau of Equipment and Recruiting, issued January 30, 1875, for guidance in handling boats fitted with the Wood apparatus.)

## ROWLOCKS AND THOLE-PINS.

## DAVIS'S STANDARD ROWLOCK.

“Twenty specimens of Davis' standard rowlocks, made in two patterns, with opening on back of bracket or front, as desired. Back opening always sent unless otherwise ordered. Made of three materials, galvanized, malleable iron, lacquered gun metal, or hard composition, and polished gun metal. Made in four sizes,  $1\frac{3}{4}$  inches, 2 inches,  $2\frac{1}{4}$  inches,  $2\frac{1}{2}$  inches in width between the narrow part of the horns. Frank E. Davis, Gloucester, Mass., exhibitor.

“The horns of these rowlocks are very wide, thus saving much wear to the oars. They are easily attached to the boat by screwing to the gunwale without cutting the rail, thereby strengthening instead of weakening it. They can be instantly turned down when not in use, leaving the rail as smooth and clear as if they were taken out. This is a great advantage in loading luggage, &c. They can be placed in position in a second, and thus are always ready for an emergency. The pattern with opening on back cannot be lost overboard, misplaced, or stolen, as they are securely locked in the socket when applied to the rail. They revolve in their sockets, which renders it almost impossible to trip the boat in a heavy sea. They are almost noiseless when in use, as they are nicely fitted. They are very strong and simple, as they are composed of but two pieces, and cannot get out of order. The pattern that has the opening on the front of bracket is specially designed for all cases where it is desirable to take the rowlock from the boat at any time, as in harbor boats, gunning floats, &c.

“The same general shape as described in the other pattern is retained, and the advantages there mentioned of durability, noiselessness, and manner of application are the same. In this pat-

## DAVIS'S STANDARD ROWLOCK—Continued.

tern the fork may be taken from the bracket when desired by letting the fork part hang downward, then raising it vertically in that position, when it will readily slip out of the front opening. These may also be turned into position for use or dropped out of the way in the same quick manner. They also revolve in their sockets. By procuring extra brackets the rowlocks may be shifted from place to place on the rail."—[Davis.]

## ACME OARLOCK. (Dowling Le Page patent, 1876.)

Made of galvanized iron. Series of 7 sizes, 0 to 6; height, 7 to 10 inches. Middletown, Conn. 22,227. Wilcox, Crittenden & Co.

## SEINE-BOAT ROWLOCK.

Made of galvanized iron, with brass socket. Used on Cape Ann seine-boats. Height, 7 inches; opening of horns, 3 inches wide. Middletown, Conn. 25,085. Wilcox, Crittenden & Co.

## WHALEBOAT ROWLOCK.

Made of galvanized iron, with brass socket. Height, 9 inches; opening of horns,  $3\frac{1}{2}$  inches wide. Middletown, Conn. 25,088. Wilcox, Crittenden & Co.

## BRASS WASH-STREAK ROWLOCK.

Made of galvanized iron. They screw on the wash-streak of sail-boats. Middletown, Conn. 25,086. Wilcox, Crittenden & Co.

## PATENT SWIVEL ROWLOCK.

Made of brass, polished, with swivel-plates. Series of three sizes,  $3\frac{1}{2}$ ,  $4\frac{1}{2}$ , and 5 inches high. Middletown, Conn. 25,073-4-5. Wilcox, Crittenden & Co.

## SWIVEL ROWLOCK. (Norcross patent, 1864.)

Made of galvanized iron. This was the first kind of swivel rowlock put on the market. Height,  $5\frac{1}{2}$  inches; opening of horns,  $2\frac{1}{4}$  inches wide. Middletown, Conn. 25,101. Wilcox, Crittenden & Co.

## PATENT SWIVEL ROWLOCKS.

Made of brass, unpolished. Socket screws on gunwale. Series of three sizes,  $3\frac{1}{2}$  to  $4\frac{1}{2}$  inches high. Middletown, Conn. 25,092-4. Wilcox, Crittenden & Co.

## PATENT SWIVEL ROWLOCKS.

Made of galvanized iron. The swivel plate screws on the gunwale and does not weaken it as when holes are made for sockets.

## PATENT SWIVEL ROWLOCKS—Continued.

Series of six sizes, from  $3\frac{1}{2}$  to 6 inches high, and with openings 2 to  $3\frac{1}{4}$  inches wide. Middletown, Conn. 25,094-9. Wilcox, Crittenden & Co.

## SOCKET ROWLOCKS.

Made of brass, unpolished. Series of three sizes; the smallest size has patent fastening at foot of shank. Middletown, Conn. 25,082-4. Wilcox, Crittenden & Co.

## COMMON SOCKET ROWLOCKS.

Made of galvanized iron. Series of four sizes, from  $4\frac{1}{2}$  to 8 inches high. Middletown, Conn. 25,102-5. Wilcox, Crittenden & Co.

## SOCKET ROWLOCKS.

Made of galvanized iron. Slim shanks or pintles. Used on gunning skiffs or any boats with very light gunwales. Two sizes,  $5\frac{1}{2}$  inches long; openings,  $1\frac{3}{4}$  and 2 inches wide. Middletown, Conn. 57,547. Wilcox, Crittenden & Co.

## SOCKET ROWLOCKS.

Made of brass, polished, with sockets. Series of three sizes, 5 to  $6\frac{1}{2}$  inches high. Middletown, Conn. 25,070-2. Wilcox, Crittenden & Co.

## BECKET-OARLOCK AND SOCKET.

Made of galvanized iron. Pattern used on boats of United States revenue cutters. Height,  $7\frac{1}{2}$  inches; opening of horns,  $2\frac{1}{2}$  inches wide. Middletown, Conn. 25,109. Wilcox, Crittenden & Co.

## BECKET ROWLOCK. (Norcross patent.)

Made of galvanized iron. The oarlock revolves on upright that is adjustable on a plate socket. Height, 5 inches; width, 8 inches. Middletown, Conn. 25,110. Wilcox, Crittenden & Co.

## STEERING-OAR LOCK AND SOCKET.

Galvanized iron; latest pattern (January, 1883), for 40-foot Cape Ann seine-boat. This oarlock was the first one made, and was cast from a wooden pattern whittled out by a Gloucester fisherman. Length of steering-oar used with this lock, 18 feet. Gloucester, Mass., 1883. 57,033-4. Wilcox, Crittenden & Co., Middletown, Conn.

## STEERING ROWLOCK AND STERN-BAND SOCKET. (Improved patterns.)

Made of galvanized iron. Used on Cape Ann seine-boats. This rowlock is much like the original pattern, except that the  
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## STEERING ROWLOCK AND STERN-BAND SOCKET—Continued.

shank is altered in shape so as not to be liable to break, and the horns are wider so that the oar need not be drawn out so far on the blade to be unshipped. The stern-band socket is of improved pattern; it prevents splitting of the stern-post, and cannot be worked or wrenched loose. Middletown, Conn. 54,308-9. Wilcox, Crittenden & Co.

## STEERING ROWLOCK WITH SOCKET.

Made of galvanized iron. Used on Cape Ann seine-boats. The small opening of the horns prevents rising of the oar. Height,  $9\frac{1}{2}$  inches. Middletown, Conn. 25,113. Wilcox, Crittenden & Co.

## STEERING-OAR SOCKET.

Made of galvanized iron. Used on side of stern of Cape Ann seine-boat. Middletown, Conn. 25,114. Wilcox, Crittenden & Co.

## MENHADEN SEINE-BOAT ROWLOCK.

Made of galvanized iron, with brass socket. Made specially for use of boats belonging to menhaden oil factory of Joseph Church & Co., Tiverton, R. I. Height, 8 inches; opening,  $3\frac{1}{2}$  inches wide. Middletown, Conn. 57,549. Wilcox, Crittenden & Co.

## LYMAN'S PATENT BOW-FACING ROWING-GEAR. (William Lyman, patentee, Middlefield, Conn.)

This bow-facing, *i. e.*, front-view rowing-gear, is an invention which allows the rower to face forward instead of backward, pulling in the same manner as with the ordinary oars. This reverse movement is obtained by having the oar in two parts, each part having a ball and socket joint, which is attached to the wale of the boat by means of a slot and button, and the two parts connected by a rod (with hinged bearings) which crosses the wale of the boat. U. S. Fish Commission. 26,902, 39,453. "Some of the advantages claimed by the inventor of this rowing-gear over the ordinary oar: (1.) The oarsman faces the direction in which he goes. This advantage of right position can be appreciated by conceiving how awkward it would be to drive or walk backward, which is the position of all oarsmen when using the old-style oars. (2.) The arrangement of the lever is such that the oarsman applies his strength to the best mechanical advantage, enabling him to row faster and more easily than with any other oar. (3.) During the stroke the

## LYMAN'S PATENT BOW-FACING ROWING-GEAR—Continued.

stroke; secondly, to enable the outer end of the oar to be bow of the boat is slightly raised by the motion of the rower, instead of being lowered by his motion as in ordinary rowing. (4.) The stroke is longer than with ordinary oars. (5.) The oars can be instantly closed up out of the way along the side of the boat without detaching them from the gunwale, and by pressing up catch of the handle joint they can be folded inside the gunwale of the boat. (6.) It is better from the fact that the blade of the oar is in front, and can be seen at the beginning of the stroke, so there is no difficulty in avoiding obstacles, and there is no possibility of 'catching crabs.' (7.) With these oars the boatman makes no more effort in steering than in directing his course while walking, and this advantage lessens greatly the effort in rowing. (8.) The recovery, *i. e.*, return stroke of these oars, is very easy, so that any head wind upon the blade is hardly noticeable. (9.) While rowing there is no noise from the bearings. (10.) A pair of these oars weigh about 6 pounds more than the ordinary oars, but this additional weight has this advantage, that at the beginning and end of the stroke it helps to lower and raise the blade, owing to the peculiar position of the oar. (11.) When these oars are detached from the boat no wood or iron projections are left on the wale of the boat, as in ordinary rowing-gear, and thus a serious inconvenience is obviated. (12.) All danger of collision is avoided, and this advantage cannot be overestimated. One of the chief advantages of facing forward is that the oarsman can row with greater ease and safety in rough water. These oars can be attached to and detached from the boat very quickly, and they can be closed up in a convenient form for carrying. These several advantages, *viz*: the front view, the increased ease and speed in rowing, the raising of the bow instead of depressing it, the closing up of the oar out of the way while on the boat, the increased facility in avoiding obstacles, the diminished effort of hand and eyes in steering, the rowing without noise, the better balance and swing of the oars, have commended this new gear to all who have tried it."—(*Lyman*.)

## NOISELESS ROWLOCK.

Frederick D. Graves's improved noiseless rowlock. Boston, Mass. 28,292. Frederick D. Graves. "The object of this invention is to improve the construction and operation of the class of rowlocks in such manner as, first, to insure the proper inclination of the blade of the oar, and prevent the liability of its catching the water when feathering in recovering, as well as to insure the proper position of the blade of the oar when making the

## NOISELESS ROWLOCK—Continued.

raised when it is being feathered, in order to prevent its contact with the water in rough weather. My improved rowlock is composed of an inclosing ring located on a pintle, and an inner ring inclosed by the ring and adapted to be partially rotated therein; the inside of the inclosing ring is provided with a groove, which extends almost around it, its continuity being broken only by a stop. The pintle of the rowlock is inserted in a socket attached to the gunwale of the boat, the pintle and rowlock being adapted to turn freely in the socket. From the foregoing it will readily be seen that an oar pivoted in the inner ring is adapted to be partially rotated, in addition to its oscillating movements, so that when its stroke is completed it can be turned so as to feather the blade in the recover stroke. The stop and shoulders of the inner ring are arranged in such mutual relation that the shoulder abuts the stop, in feathering the oar, before the blade becomes horizontal in cross-section, so that the cross-section of the oar is unnecessarily inclined downward from its forward to its rear edge during the feathering stroke, this inclination of the blade preventing its forward edge from engaging with the water and overturning the rower, or, in other words, causing him to 'catch a crab.' This limitation of the oar in its rotation prevents awkward accidents in feathering, and enables an unskilled person to row with a considerable degree of certainty."—(*F. D. Graves.*)

## EAST RIVER ROWLOCK.

Made of galvanized iron. Called also Blackburn's rowlock. It is made in one piece, 10 inches long and 3 inches high, and screws on the gunwale. Middletown, Conn. 25,089. Wilcox, Crittenden & Co.

## NORTH RIVER ROWLOCK. (Albany pattern.)

Made of galvanized iron. Height, 5 inches. Middletown, Conn. 25,087. Wilcox, Crittenden & Co.

## NORTH RIVER ROWLOCK. (Toledo pattern.)

Made of galvanized iron. A small rowlock with cross-pin and socket. Height,  $5\frac{1}{2}$  inches. Middletown, Conn. 57,548. Wilcox, Crittenden & Co.

## WHITEHALL PATTERN ROWLOCK.

Made of galvanized iron, with socket. Called also East River rowlock, and used on Whitehall boats in vicinity of New York. Two sizes,  $5\frac{1}{2}$  inches high. Middletown, Conn. 25,115. Wilcox, Crittenden & Co.

## COUNTERSUNK ROWLOCK.

Made of galvanized iron. Used on Ohio River flat-boats. Middletown, Conn. 25,111. Wilcox, Crittenden & Co.

## LA CHAPELLE ROWLOCK.

Called also Lake Michigan rowlock. Made of galvanized iron. Used in vicinity of Detroit River. Middletown, Conn. 25,112. Wilcox, Crittenden & Co.

## SAIL-BOAT ROWLOCK.

Made of galvanized iron, with socket. Middletown, Conn. 57,550. Wilcox, Crittenden & Co.

## SIDE-PLATE ROWLOCKS.

Made of brass, polished. Used on gunning skiffs. Series of three sizes,  $5\frac{1}{2}$  to 6 inches high. Middletown, Conn. 25,076-8. Wilcox, Crittenden & Co.

## SIDE-PLATE ROWLOCKS.

Made of brass, unpolished. Series of three sizes,  $5\frac{1}{2}$  to 6 inches high. Middletown, Conn. 25,079-81. Wilcox, Crittenden & Co.

## SIDE-PLATE ROWLOCKS.

Made of galvanized iron. Series of three sizes, 5 to 6 inches long. Used on gunning skiffs with light gunwales. Delaware River model. Middletown, Conn. 25,106-8. Wilcox, Crittenden & Co.

## SOCKET-JOINT ROWLOCKS.

Made of brass, polished. Frederick A. Gower, the maker, claims several advantages over ordinary rowlocks. "Wabbling of the oar is prevented, a good grip of the water is secured, it has superior strength, and is very compact." Height,  $5\frac{1}{2}$  inches. Middletown, Conn. 29,319. Wilcox Crittenden & Co.

## ROUND SOCKET ROWLOCK. (Newport and Providence River pattern.)

Made of galvanized iron. Height,  $5\frac{3}{4}$  inches; opening for oar,  $2\frac{1}{2}$  inches diameter. Middletown, Conn. 29,459. Wilcox, Crittenden & Co.

## PATENT ROWLOCKS.

Made of brass, polished. Series of five varieties of ball-and-socket rowlocks invented by Israel Mayo, of Gloucester, Mass. Middletown, Conn. 57,544. Wilcox, Crittenden & Co.

## DORY ROWLOCK.

Made of gun-metal, with socket. Southwick's patent fastening at foot of shank to prevent slipping. Middletown, Conn. 25,090. Wilcox, Crittenden & Co.

**DORY ROWLOCK.**

Made of galvanized iron, with socket. Southwick's patent fastening at foot of shank to prevent slipping. Middletown, Conn. 25,100. Wilcox, Crittenden & Co.

**DORY ROWLOCK.**

Made of galvanized iron, with socket. A small piece of wood attached to a piece of string fastened in foot of shank shows common method used to prevent the rowlock slipping out and overboard. This is the common size of socket rowlock used in New England dories. Middletown, Conn. 25,188. Wilcox, Crittenden & Co.

**THOLE-PIN OARLOCK.**

Made of galvanized iron. One pair. Pattern used on Louis Raymond's patent metallic life-boats, and other metallic life-boats for ocean steamers. Middletown, Conn. 25,184. Wilcox, Crittenden & Co.

**THOLE-PIN OARLOCK PLATES.**

Made of galvanized iron. Series of three sizes. 8 to 9 inches long. They screw on the gunwale and prevent its wearing or chafing away. Middletown, Conn. 57,553. Wilcox, Crittenden & Co.

**DORY THOLE-PINS.**

Made of oak. Bunch of one dozen pins as sold to the fishermen. Middletown, Conn. 54,488. Wilcox, Crittenden & Co.

**53. DRAGS, OR FLOATING SEA ANCHORS.****COLLINS'S IMPROVED ADJUSTABLE MARINE DRAG.**

- Full size for fishing vessels. It consists of a strong iron hoop, jointed and braced so that it can be folded and stowed away in small compass when not in use. To this is attached by interlocking hooks a heavy canvas bag, which will fill with water when thrown overboard and hold the vessel steady, nearly head to the sea and wind, and with only a moderate leeway. The drag, when in use, is secured to a hawser by a chain bridle, and can be suspended at any required depth by means of a buoy. A line is attached to the bottom of the bag so that it can be tripped and easily hauled in when its use is no longer necessary. The advantages of this drag are that it is always ready for use, being easily adjusted in a few moments when needed; that it can be unrigged and stowed away when not in use; that it can be constructed at a moderate cost; and that it promises to secure the desired end much better than

## COLLINS'S IMPROVED ADJUSTABLE MARINE DRAG—Continued.

the drags ordinarily employed for the same purpose. Dimensions: Circumference of hoop, 18 feet; length of cross-bars, 5 feet 10½ inches; size of iron, 1½ inches; length of bridle chains (each), 5 feet; circumference of bag, 19 feet; depth of bag, 4 feet; canvas (No. 0), white cotton duck; buoy, 7-gallon keg; buoy-line, 10 fathoms long; tripping-line, 25 fathoms long. Gloucester, Mass., 1883. 57,015. Capt. J. W. Collins. This drag is used to insure the greater safety of vessels in heavy gales, and also to prevent them from drifting so rapidly to leeward as they usually do when it is not employed. It is secured to a hawser or chain and paid out from the bow of a schooner, the distance varying from 25 to 75 fathoms.

## COLLINS'S ADJUSTABLE MARINE DRAG (model, scale of one-third).

Gloucester, Mass. 39,488. Capt. J. W. Collins. Used by vessels "lying to" in a storm.

## 54. SCRAPERS AND DECK-SCRUBS.

## IMPROVED SHIP'S DECK-SCRAPER.

Triangular, concave, steel head, fastened by means of a screw to an iron socket into which the wooden handle fits. Length of the sides of head 4¾ inches, handle 18 inches. Middletown, Conn. 54,325. Wilcox, Crittenden & Co. Used for scraping the pitch from a vessel's deck and the outside of the hull. The peculiar form of the head of this scraper renders it better for the work.

## DECK-SCRAPERS.

Series of ships' deck-scrappers. Middletown, Conn. 25,160. Wilcox, Crittenden & Co.

## SQUILLGEE.

Consists of head and handle. Head flat piece of wood, into one edge of which is fastened, in a groove, a strip of rubber; handle of wood; length of head, 15 inches; width, 3½ inches; length of handle, 4 feet. Gloucester, Mass., 1883. 57,811. U. S. Fish Commission. Used for cleaning decks, floors of packing-houses, &c.

## DECK-SCRUBBING BROOM.

Rough oak sapling, with one end stripped in fibers or slivers, to form the broom. These fibers are tied together with a piece of marline. Length 40 inches. Gloucester, Mass., 1883. 57,813. U. S. Fish Commission. Used for scrubbing decks, ice-houses, &c.

## BIRCH SCRUB-BROOM.

Made of a birch sapling; the butt being stripped into fibers to form the broom. Gloucester, Mass., 1880. 39,194. U. S. Fish Commission. Used to scrub decks, &c., on fishing-vessels.

## CABIN AND DECK BROOM.

Corn-straw broom, attached by wire to cypress-wood handle. Gloucester, Mass., 1883. 57,814. U. S. Fish Commission. Used for sweeping cabin and deck.

## 55. SCOOPS AND BAILERS.

## DORY SCOOP.

Carved out of one piece of wood; painted light brown; shovel-shaped bowl; round, straight handle. Length of bowl, 8 inches; width, 6 inches; handle,  $3\frac{3}{4}$  inches long. Gloucester, Mass., 1876. 25,222. S. Elwell, jr. For bailing out dories.

## DORY SCOOP.

Carved out of single block of wood; painted blue; shovel-shaped bowl, with projecting slightly curved handle. Length,  $8\frac{1}{2}$  inches; width,  $7\frac{1}{2}$  inches; handle,  $3\frac{3}{4}$  inches long. Provincetown, Mass., 1876. 25,707. Central Wharf Company, Provincetown. Used by fishermen for bailing out dories.

## DORY SCOOP.

Wood, painted; shovel-shaped; round, projecting handle. Length, 8 inches; width, 7 inches; handle,  $3\frac{3}{4}$  inches long. Gloucester, Mass., 1880. 57,048. U. S. Fish Commission. Used for bailing out dories.

## FISHERMAN'S HOME-MADE DORY SCOOP.

Wooden sides and handle; zinc bottom. Length of scoop, 9 inches; width,  $8\frac{1}{4}$  inches; length of handle,  $3\frac{3}{4}$  inches. Gloucester, Mass., 1883. 57,818. U. S. Fish Commission. This is the kind of large scoops made by the fishermen themselves for use in winter, when smaller scoops are of no avail.

## WOODEN SCOOP.

Hard wood; a spoon-shaped bowl, with projecting handle; a hole cut in the latter to admit the hand. Length of bowl, 9 inches; average width  $7\frac{1}{2}$  inches; handle, 5 inches long. Northwest coast of America. 690. George Gibbs. Used for bailing out canoes.

## WOODEN SCOOP.

Hard wood, carved out of single block; spoon-shaped bowl, with slot in handle; a line of red paint around the inner upper edge.

## WOODEN SCOOP—Continued.

Length of bowl, 10 inches; average width,  $6\frac{1}{2}$  inches; handle,  $3\frac{3}{4}$  inches long. Port Townsend, Washington Territory. 13,104. James G. Swan. Used for bailing out canoes by Haidah Indians, Queen Charlotte Islands.

## 56. SHOVELS.

## ASH AND COAL SHOVEL.

Galvanized iron, projecting handle, with eye at end. Total length (handle included), 13 inches; width of blade 5 inches. Gloucester, Mass., 1882. 54,329. Wilcox, Crittenden & Co., Middletown, Conn. Used for removing ashes from stove and for filling stove with coal, &c.

## 57. PUMPS AND BUNG-BUCKETS.

## RUSSELL'S FOUNTAIN PUMP.

Iron, with iron boxes, worked by hand with lever; mounted on wooden box to show it in operation. Dimensions of pump: Height, 11 inches; including apparatus for working it, 14 inches; diameter, 16 inches; projecting lip or spout, 5 by 9 inches; handle,  $2\frac{1}{2}$  feet long. Newburyport, Mass., 1883. Albert Russell & Sons. This style of pump is now extensively used on the modern-built fishing vessels of New England, and is found much more powerful and easier to work than the wooden pumps formerly carried.

## HAND WATER-PUMP.

Hard wood, tubular, small cylinder-shaped nozzle 5 inches from top. Wooden box connected by wire rod to wooden handle at top. Length,  $3\frac{3}{4}$  feet; diameter, at lower end  $1\frac{3}{4}$  inches, upper end 3 inches. Gloucester, Mass., 1883. 57,047. U. S. Fish Commission. Used for pumping fresh water from tanks, casks, or barrels.

## SEINE-BOAT PUMP.

Wooden cylinder, with projecting, tubular-shaped wooden spout, inserted in round hole below top of pump, and standing at right angles with the latter. Galvanized-iron rod and pump-box. Length of pump, 4 feet; diameter,  $6\frac{1}{2}$  inches; spout, 3 feet 10 inches long; diameter, 4 inches. Gloucester, Mass., 1883. 57,046. U. S. Fish Commission. Used for pumping water out of purse-seine boats. The pump is usually fixed in the after part of the boat.

## BUNG-BUCKET OR WATER-THIEF.

Tin; tubular; closed at bottom and open at top. Provincetown, Mass. 25,784. Wm. H. H. Weston. Used instead of a pump for drawing drinking-water from the bung-hole of a cask. More common on large than on small vessels.

## 58. FIDS, MARLINE-SPIKES, AND SPLICERS.

## SPLICING-FID.

Hard wood, round, and painted. Length 28 inches, diameter of thickest end 4 inches. Gloucester, Mass., 1883. 57,817. U. S. Fish Commission. Used for splicing cables.

## IMPROVISED SPLICING-FID.

Hard wood, pointed at one end; rope strap through the upper or larger part  $3\frac{1}{2}$  inches from the end. Length of fid 18 inches; diameter at butt end 5 inches. U. S. Fish Commission. Made by fishermen on board of their vessel. Used for opening the strands of a cable when it is being spliced.

## HAND FIDS.

Series of hickory hand fids. 25,146. Wilcox, Crittenden & Co., Middletown, Conn. Used chiefly by sailmakers.

## MARLINE-SPIKE.

Sailmakers' marline-spike. 25,147. Wilcox, Crittenden & Co., Middletown, Conn. Used in making sails.

## MARLINE-SPIKES.

Series of marline-spikes. 25,164. Wilcox, Crittenden & Co., Middletown, Conn.

## BONE MARLINE-SPIKE.

Made from the jawbone of whale. 29,419. Frank O. Blake, Portland, Me.

## BONE MARLINE-SPIKE.

Made from the jawbone of sperm whale. 29,455. Robert D. Baxter, Provincetown, Mass.

## PRICKER.

Sailmakers' marline-pricker. 25,148. Wilcox, Crittenden & Co., Middletown, Conn.

## SPLICER.

Splicer or pricker. 29,418. Wilcox, Crittenden & Co., Middletown, Conn. Used for splicing trawl-lines.

**SPLICER.**

Copper marline-spike. Made at sea by Thomas Freeman. Used for splicing trawl-lines. Sandford Freeman, Norwichport, Mass. 25,672.

**SPLICER.**

Iron, pointed at one end, eye at other. Used for splicing fishing lines. Gloucester, Mass., 1878. 32,693. G. Brown Goode.

**59. ACCESSORIES.****SCOUT-HORNS.****SCOUT-HORN.**

A wooden pole having a piece of a leather boot-leg fastened to one end so as to form a scoop. Length of pole, 10 feet. U. S. Fish Commission. 54,699. Used in former years to wet the sails of small vessels in order to make them set flat and hold the wind when sailing close-hauled.

**BARREL-LIFTERS.****BILGE-HOOKS.**

An iron hoop, jointed, provided with stout iron teeth to grasp the object encircled; semicircular handle or bail with eye in center, into which the hoisting-tackle is hooked. Diameter of hoop 22 inches; size of iron five-eighths inch. Gloucester, Mass., 1883. 57,827. U. S. Fish Commission. Used for hoisting barrels filled with fish and brine and having one head out.

**LONG BILGE CAN-HOOKS.**

Two iron rods with hooks attached to lower ends, and a manila rope strap spliced with eyes at upper ends. Length of rods, 2½ feet; rope strap (¾-inch manila), 4½ feet; hooks, 2½ inches wide. Gloucester, Mass., 1883. 57,834. U. S. Fish Commission. Used for lifting barrels which have one head out and are full of fish and brine.

**BARREL-LIFTERS.**

Two galvanized-iron can-hooks, with hollow cylindrical-shaped handles. Length of hooks, 4½ inches, width 2½ inches, handle 4½ inches. Middletown, Conn. 56,891. Wilcox, Crittenden & Co. Used for stowing mackerel barrels in a vessel's hold, also for loading barrels on cars. One hook is held in each hand and hooked into the chimes of a barrel; the knee is then pressed against the bilge and the barrel is easily lifted without cutting the fingers.

## ICE-HOOKS AND MALLETS.

## ICE HOOKS.

Iron, steel pointed. Two flat, semi-circular, sharp pointed hooks, riveted together near their tops, and provided with oval-shaped handles at the upper ends. Gloucester, Mass., 1878. 32,647. G. Brown Goode. Used for lifting ice by hand, or for hoisting it on board of the vessels or to and from the wharves.

## ICE-MALLETT (large).

The head is a cylindrical block of lignum-vitæ, sawed off square at each end, and slightly flattened at the side next the handle, which is of hard wood. Length of head  $6\frac{1}{2}$  inches, diameter 6 inches; handle 25 inches long,  $1\frac{1}{2}$  inches thick. Gloucester, Mass., 1880. 39,191. U. S. Fish Commission. Used in vessel's hold for crushing ice for packing fresh fish.

## ICE-MALLET (small).

The head is a cylindrical block of lignum-vitæ, sawed square at each end, slightly flattened on side next to the handle, which is of hard wood. Length of head 6 inches, diameter 5 inches; handle 28 inches long, and  $1\frac{1}{2}$  inches thick. Gloucester, Mass., 1880. 39,192. U. S. Fish Commission. Used in winter on deck of fishing vessels to break ice from the rigging, sails, &c.

## WATER-JUGS.

## DORY WATER-JUG.

Earthenware, brown, glazed; capacity, one gallon. Gloucester, Mass., 1883. 57,819. U. S. Fish Commission. Used to carry supply of water for fishermen when absent from vessels in dories.

## BOOM-SUPPORTERS.

## SMALL'S PATENT BOOM-CROTCH SUPPORTERS.

"This invention consists of two braces, each one being formed of two parts, united by means of screw coupling-links, with hooks formed on their outer ends. These hooks are inserted in the bail of the mainboom and then into the ring-bolts in the deck; a few turns of the screw-links secures the boom in the crotch so firmly that there is no motion whatever. By means of these supporters vessels can go with one set of crotch tackle-blocks, thus effecting a saving every year in rigging. They will last as long as the vessel lasts; they will not shrink or expand as rigging will, and will prevent all creaking and straining." Gloucester, Mass. 57,831. Exhibited by Adolph Voss. These articles are made of galvanized iron and specially

## SMALL'S PATENT BOOM-CROTCH SUPPORTERS—Continued.

designed for use on fishing vessels at sea, and have been found so much better adapted for the purpose for which they are made that they have been quite generally adopted.

## BUOYS.

## CABLE BUOY.

Heavy oak, iron-bound cask, having 8 iron hoops, and slung with stout manila rope. Dimensions: Length of staves, 46 inches; diameter of heads,  $20\frac{1}{2}$  inches. Provincetown, Mass., 1883. 56,945. U. S. Fish Commission. Buoys of this kind are used by the codfishing vessels from Provincetown and other New England ports for the purpose of buoying their cables so as to keep them off the bottom when fishing at Virgin Rocks on the Grand Bank and elsewhere where there is rocky ground. Several of these buoys are fastened to the cable when a long scope is paid out.

## CLAWS.

## DEVIL'S CLAW.

Made of galvanized iron. A double claw,  $4\frac{1}{2}$  inches long, with eye at top. Provincetown, Mass. 29,442. Gift of W. H. Hesbolt. Used to stop the chain when the windlass is wanted for other purposes.

## PADDLES.

## CANOE-PADDLES.

Two paddles used by the Haidah Indians. Ornamented. Length, 61 inches. Queen Charlotte Islands. 72,675. James G. Swan.

## FISHING-PADDLE.

The common form of paddle used by the natives when fishing. Length, 50 inches. Makah Indians, Cape Flattery, Washington Territory. 72,694. James G. Swan. The paddles of the Makahs are made of yew, and are usually procured by barter with the Ciyquot Indians. Blade broad; end rounded in an oval or lanceolate form. When new the paddles are blackened by slightly charring them in the fire, and polished.

## D.—FISHERMEN AND ANGLERS.

### 60. FIGURES OF FISHERMEN.

#### SKIPPER OF MACKEREL SCHOONER.

Plaster cast of the master of a New England mackerel schooner, dressed in a suit often worn in wet summer weather, namely, officer's long oiled coat, sou'wester, and sea-boots. He is represented with a pair of marine glasses at his eyes as though engaged in looking for schools of fish or in watching the movements of distant vessels. Washington, D. C., 1883. U. S. Fish Commission.

#### MACKEREL FISHERMAN.

Plaster cast of a purse-seine mackerel fisherman, dressed in a suit of yellow oiled clothes, sou'wester, and leather boots; holds in his hands a large dip net such as are used for bailing mackerel from the seine to the vessel's deck. Washington, D. C., 1883. U. S. Fish Commission.

#### SKIPPER OF A HALIBUT SCHOONER.

Plaster cast of the captain of a New England halibut schooner, dressed in a suit (trousers and jacket) of rubber clothes with rubber boots and oiled sou'wester. He is represented as reading from his patent log, which he holds in his hands, the distance the vessel has run. Washington, D. C., 1883. U. S. Fish Commission.

#### HALIBUT FISHERMAN.

Plaster cast of a New England halibut fisherman, dressed in a suit of black oil clothes, rubber boots, and sou'wester, and holding a "halibut killer" (a stout club) in his right hand, while on his left shoulder is a winch for heaving in the trawl-lines, usually called a "hurdy-gurdy." Washington, D. C., 1883. U. S. Fish Commission.

#### SWORDFISH FISHERMAN.

Plaster cast of a swordfish fisherman, dressed in woolen clothing, standing in the "pulpit" at bowsprit end, holding the staff of a swordfish-iron in his hand as if in the act of striking a fish. The method of catching swordfish, as practiced on the New

## SWORDFISH FISHERMAN—Continued.

England coast, is to steer the vessel directly for the fish, the presence of which is made known by the appearance of its tail and dorsal fin above the water's surface. When the man at the bowsprit is directly over the fish, which generally happens before the latter is frightened by the approaching vessel, the iron is thrown, and as the craft sails along the harpoon-line is reeled out and finally let go, having a buoy at its end. Later the buoy is recovered and the fish killed and taken on board. Washington, D. C.; 1883. U. S. Fish Commission.

## SHAD FISHERMAN.

Plaster cast of a negro shad fisherman of the Southern States, dressed in woolen trousers and shirt, barefooted, holding an oar in his hands. Washington, D. C., 1883. J. E. Hendley, United States National Museum, Washington, D. C. (The lay figures in the collective exhibit of the United States, with the exception of the whalemén, were made by Mr. Hendley.)

## SHAD FISHERMAN.

Plaster cast of a negro shad fisherman of the South, barefooted, dressed in woolen trousers and shirt and straw hat, holding an oar in his hands. Washington, D. C., 1883. U. S. Fish Commission.

## WHALEMAN.

Plaster cast of a harpoonersman in the act of striking a whale. The figure is dressed in woolen clothing; is mounted in the bow of a whaleboat, and holds in his hands a harpoon which he appears to be just in the act of throwing. Washington, D. C., 1883. U. S. Fish Commission.

## WHALEMAN.

Plaster cast of a whaleman at the masthead on the lookout for whales; dressed in woolen clothing, with a common telescope spy-glass at his eye. Washington, D. C., 1883. U. S. Fish Commission.

## WHALEMAN.

Plaster cast of a whaleman standing on a cutting-in stage; dressed in woolen clothing, with "belly band" around him, and holding a cutting spade in his hand. This illustrates the position in which whalemén stand on a ship's side when cutting-in or stripping the blubber from a whale. Washington, D. C., 1883. U. S. Fish Commission.

## 61. PHOTOGRAPHS OF FISHERMEN AND FISH MERCHANTS.\*

## IRISH FISHERMEN.

Three Irish fishermen belonging to the cunner boats at Commercial Wharf, Boston, Mass., 1882. (Photo. No. 1809.) U. S. Fish Commission.

## AGED FISHERMEN OF NEW ENGLAND.

Two old New England fishermen—1. Thomas Thompson, and, 2. William Tarr Abbott—who claim to have been captured in the war of 1812-'15 and incarcerated in Dartmoor prison, England. Rockport, Mass., 1882. (Photo. No. 1826.) U. S. Fish Commission.

## GROUP OF OLD FISHERMEN.

Group of eight oldest fishermen of Rockport. Combined ages, 656 years. Rockport, Mass., 1882. (Photo. No. 1827.) U. S. Fish Commission.

## NEW ENGLAND FISHERMEN.

Crowd of fishermen—chiefly mackerel catchers—on Leighton's Wharf, waiting for a change of weather, which may enable them to leave port. Gloucester, Mass., 1882. (Photo. No. 2074.) U. S. Fish Commission. When unfavorable winds or calms (as in this instance) prevent the vessels from sailing the skippers and crews generally gather on the wharves nearest to their respective schooners and wait for a change in the wind or weather which may permit of their sailing.

## MACKEREL FISHERMEN.

Capt. Solomon Jacobs and full crew—17 men, all told—of mackerel schooner Edward E. Webster, of Gloucester, Mass. This vessel carries two purse-seines and two seine-boats. In three years she has stocked a total of \$83,600 as follows: 1880, \$19,800; 1881, \$26,800; 1882, \$37,000. Her catch in the last mentioned year was 1,170,000 fresh mackerel, in number, and 2,250 barrels of salted mackerel. Time employed each season, about eight months. Gloucester, Mass., 1882. (Photo. No. 2088.) U. S. Fish Commission.

## CREW OF A FRESH HALIBUT SCHOONER.

Crew of the fresh-halibut schooner Isaac Chapman, of Gloucester; ready for sea, waiting for steam-tug to come and tow the vessel out of the harbor. Gloucester, Mass., 1882. (Photo. No. 2110.) U. S. Fish Commission.

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\*The numbers given are those belonging to the negatives from which the photographs were made, and should not be confounded with the National Museum catalogue numbers attached to various other exhibits.

**FRESH-HALIBUT FISHERMEN.**

Crew of the fresh-halibut schooner *Gertie E. Foster*, on deck of their vessel. This is a crew of mixed nationalities, and may well illustrate the class of men often found on board of a Gloucester fishing vessel. Three of them, including the captain, are Norwegians, two are Swedes, three natives of the United States, one a Dane, and one a Prussian. Gloucester, Mass., 1882. (Photo. No. 2068.) U. S. Fish Commission.

**NORWEGIAN FISHERMEN.**

Group of Norwegians—the skipper and part of the crew of schooner *Gertie E. Foster*, of Gloucester, Mass.: Capt. Thomas Olsen, William Thompson (ex-captain), Christophor Nelsen. Gloucester, Mass., 1882. (Photo. No. 2069.) Natives of Norway and Sweden are among the most daring, skillful, and successful of the New England fishermen.

**SWEDISH FISHERMEN.**

Group of Swedish fishermen, part of the crew of schooner *Gertie E. Foster*, of Gloucester: Lars Sterling and Frank Stream. Gloucester, Mass., 1882. (Photo. No. 2070.) U. S. Fish Commission.

**DANISH AND PRUSSIAN FISHERMEN.**

Two members of the crew of schooner *Gertie E. Foster*, of Gloucester, one a Dane, the other a Prussian: Sinius Nelsen, of Copenhagen (sitting down), Paul Wilhelms, of Dantzig, Prussia. Comparatively few Danes or Prussians are employed in the New England fisheries. Gloucester, Mass., 1882. (Photo. No. 2071.) U. S. Fish Commission.

**AMERICAN HALIBUT FISHERMEN.**

Three American fishermen, members of the crew of schooner *Gertie E. Foster*, of Gloucester: Fred Woods, of Newport, R. I.; James Abbot, of Gloucester, Mass.; John Harris, of New London, Conn. The greater part of the native-born American fishermen sailing from Gloucester are natives of Maine and Massachusetts. Gloucester, Mass., 1882. (Photo. No. 2072.) U. S. Fish Commission.

**HALIBUT FISHERMEN.**

Capt. Jerome McDonald and group of other Prince Edward Islanders, part of the crew of schooner *G. P. Whitman*, employed in the fresh-halibut fishery. Gloucester, Mass., 1882. (Photo. No. 2076.) U. S. Fish Commission.

**CREW OF PORTUGUESE HADDOCK FISHERMEN.**

View of the schooner *Ontario*, of Gloucester, with her crew of Azorean Portuguese at work on deck cleaning their trawl-lines.

## CREW OF PORTUGUESE HADDOCK FISHERMEN—Continued.

The names are as follows: Capt. Joseph F. Silva, Manuel Simmons, Joseph Francis, Fred Pryor, Manuel Enas, Joseph Rotche, Antoine G. Silva, Christian Veada, John J. Fouswick. All Azoreans. Captain Silva is about forty years old; came to Gloucester thirty years ago. Gloucester, Mass., 1882. (Photo. No. 2093). U. S. Fish Commission. It is not an unusual thing for the Portuguese fishermen to drop their own and adopt English names while on board of the vessels.

## AZOREAN PORTUGUESE FISHERMEN.

Groups of Portuguese fishermen (natives of the Azores) on shore at the building of John Pew & Sons. A large number of Azoreans are settled in Gloucester; they are good fishermen, and in some cases fishing schooners are commanded and manned exclusively by natives of the Azores. Gloucester, Mass., 1882. (Photo. No. 2065.) U. S. Fish Commission.

## NOVA SCOTIA FISHERMEN.

Crew of the schooner Mystic baiting haddock trawl-lines on deck; all Nova Scotia men; commencing on the left the names are as follows: Richard Mulloy, Capt. John McKinnon (master) and boy, Abraham Cheiror, Andrew Nelson, Michael Ryan, Patrick Vale, Archibald Chisholm, Daniel McKay, Michael Longan, and Alexander Landrey. A large percentage of the fishermen sailing from Gloucester are natives of the British North American provinces; they are generally hardy and daring men, and are among the most skillful fishermen sailing from New England. Gloucester, Mass., 1882. (Photo. No. 2066.) U. S. Fish Commission.

## CREW OF NEW YORK BLUE-FISH FISHERMEN.

Crew of schooner Isabel, of Greenport, Long Island, engaged in blue-fish fishing. Capt. Fred. Chip, Fred. Conkling, Coleman McMullen, George Hathaway (the one with pipe a Portuguese), James Joseph (at tub, Portuguese), Charles Bishop, James Cassidy. New York, 1882. (Photo. No. 2121). U. S. Fish Commission.

## INDIAN FISHERMEN.

Group of Passamaquoddy Indian porpoise hunters at Pleasant Point, near Eastport, Me. Tomaso with oar; Sosef Piel with spear; Sosef Lolar with gun, and Sosef Noel in boat. Eastport, Me., 1882. (Photo. No. 1906.) U. S. Fish Commission.

## WHALING CAPTAINS.

Group of whaling skippers. New Bedford, Mass., 1882. (Photo. No. 1818.) U. S. Fish Commission.

## PORTUGUESE WHALEMEN.

Group of Azore Portuguese whalemén. (1) Serge de Rosa, Fayal, 1850; (2) John José Alexander, Pacheco; (3) Estehan José, Rico, 1870. Of whaleship Catalpa, New Bedford, Mass., 1882. (Photo. No. 1820.) U. S. Fish Commission. A large percentage of the whalemén sailing from New Bedford are Portuguese, who are generally shipped at the Azores and other islands, where the ships touch on their outward passage to the whaling grounds. Many of the officers of the whaling fleet are Portuguese.

## WHALEMEN.

Group of three whalemén, names as follows: Tom. Peter; Grafton Dermie; Wm. M. James. New Bedford, Mass., 1882. (Photo. No. 2133.) U. S. Fish Commission.

## KANAKA WHALEMAN.

A Kanaka whaleman, native of the Sandwich Islands. New Bedford, Mass., 1882. (Photo. No. 2134.) U. S. Fish Commission.

## WHALEMEN.

Two of the crew of bark Swallow, of New Bedford. John Barlles, height 6 feet 3 inches, born in Essex County, Virginia; John Bay, from Anabon, Africa. New Bedford, Mass., 1882. (Photo. No. 2140.) U. S. Fish Commission.

## HUDSON BAY WHALEMEN.

Three Hudson Bay whalemén dressed in furs. (1) James Grady; (2) Alex. Grace; (3) Joseph A. Francis. New Bedford, Mass., 1882. (Photo. No. 2141.) U. S. Fish Commission.

## FISH MERCHANTS.

Group of old fishing merchants, all of whom have formerly been fishermen. (1) Daniel Sayward, born September 3, 1802; a fisherman for 50 years, and then fitter and owner of fishing vessels. (2) William Henry Wonson, born July 22, 1804; went fishing for 40 years; established smoked-halibut business in 1850. (3) John Pew, born August 19, 1807; went fishing till 1849; established the fishing firm of John Pew & Sons in 1851. (4) Andrew Leighton, born December 10, 1819; went fishing till 1870, since which time he has been vessel fitter and owner. Gloucester, Mass., 1882. (Photo. No. 2092.) U. S. Fish Commission.

## 62. FISHERMEN'S WEARING APPAREL, ETC.

## SUITS OF CLOTHES.

## WINTER SUIT FOR ROUGHEST WEATHER.

Flannel shirt; rubber jacket; rubber pants; rubber boots; black oil-cloth sou'wester hat (Tower's make). (Displayed on lay figure of halibut skipper.)

**SKIPPER'S SUMMER SUIT FOR DAMP WEATHER.**

Blue flannel shirt; calico jumper; felt hat; long oil-cloth coat (Tower's make); leather boots. (Displayed on lay figure of mackerel skipper.)

**SUIT FOR WET WEATHER IN SUMMER.**

Woolen jumper; yellow oil-cloth jacket; yellow oil-cloth pants; black oil-cloth sou'wester; red leather boots. (Displayed on lay figure of mackerel fisherman.)

**SUIT OF BLACK OIL-CLOTH FOR WET WEATHER.**

Black oil-cloth jacket, double (second-hand); black oil-cloth pants, double (second-hand); black oil-cloth sou'wester hat; pair of rubber boots; flannel shirt. (Displayed on lay figure of halibut fisherman.)

**TROUSERS AND OVERALLS.****DARK TROUSERS.**

Made of heavy dark colored woolen cloth, lined, two side pockets, one hip pocket. Style of trousers most generally worn by New England fishermen. Gloucester, Mass., 1883. U. S. Fish Commission.

**GRAY TROUSERS.**

Made of heavy gray woolen cloth, with dark stripes. Half-lined, with two side pockets, one hip pocket, and metal buttons. About the average quality of trousers worn by New England fishermen on shipboard. Gloucester, Mass., 1883. 102,106. U. S. Fish Commission.

**COTTON TROUSERS.**

Made of heavy cotton plaid, with side-pockets and cheap metal buttons. Worn chiefly by cooks in summer. Gloucester, Mass., 1883. 102,108. U. S. Fish Commission.

**COTTON TROUSERS.**

Made of heavy black and white mixed cotton cloth. A cheap pair, with side-pockets, and cheap metal buttons. Worn occasionally by fishermen, but more frequently by cooks of fishing vessels in summer. Gloucester, Mass., 1883. 102,107. U. S. Fish Commission.

**BROWN OVERALLS.**

Made of brown canvas. Provided with one hip pocket, two side pockets, and a watch pocket. Metal rivet buttons. Worn by New England fishermen and fish-packers. Gloucester, Mass., 1880. 42,710. U. S. Fish Commission.

**BROWN PLAID OVERALLS.**

Made of heavy cotton cloth. Provided with shoulder-straps, front bib, and left side pocket. Worn chiefly by cooks of fishing vessels in summer. Gloucester, Mass., 1883. 102,103. U. S. Fish Commission.

**GINGHAM OVERALLS.**

Made of brown and white gingham, with a left side pocket, shoulder-straps, and bib. Worn chiefly by cooks of fishing vessels. Gloucester, Mass., 1883. 102,105. U. S. Fish Commission. Duplicate of 102,105. Gloucester, Mass., 1883. 102,109. U. S. Fish Commission.

**GINGHAM OVERALLS.**

Made of blue and white gingham. With a left side pocket, shoulder-straps, and bib. Worn chiefly by cooks of fishing vessels. Gloucester, Mass. 1883. 102,105. U. S. Fish Commission.

**JACKETS AND JUMPERS.****MONKEY JACKETS.**

Made of blue chinchilla, lined with heavy checked flannel. A very heavy jacket, with inside and outside breast pockets; outside side pockets with flaps, a velvet collar, and gutta percha buttons. Worn by New England fishermen, chiefly in winter, but to some extent in summer on northern fishing grounds. Gloucester, Mass., 1883. 102,093. U. S. Fish Commission.

**JUMPER JACKET.**

Made of blue and white woolen cloth and lined with plaid flannel, with red flannel facings. This garment is similar to the jumper, but longer and without a band around the waist. Side pockets, a broad neckband, no collar, gutta-percha buttons. Worn by New England fishermen at all seasons, but especially adapted for wearing underneath oil clothing. Gloucester, Mass., 1883. 102,094. U. S. Fish Commission.

**CARDIGAN JACKET.**

A dark-brown knit jacket, with side pockets, horn-buttons, no collar, and close-fitting knit cuffs. Bound in front and on pockets. Worn by New England fishermen at all seasons, but chiefly during cold weather underneath a woolen jacket or oil-clothing. Gloucester, Mass., 1883. 102,095. U. S. Fish Commission.

**WOOLEN JUMPER.**

Made of blue and white cloth lined with red flannel. One breast pocket. The jumper is a short jacket-like garment worn by fishermen. This style is the one in most common use. It is worn

**WOOLEN JUMPER—Continued.**

chiefly in winter, spring, and fall, on land, but at all seasons on the northern fishing grounds. Gloucester, Mass., 1883. 102,087. U. S. Fish Commission.

**GREEN GINGHAM JUMPER.**

Made of green and white gingham. With breast pocket, and cheap metal buttons. Worn in warm weather as a substitute for a coat. Gloucester, Mass., 1883. 102,092. U. S. Fish Commission.

**BROWN GINGHAM JUMPER.**

Same as 102,092, except made of light and dark brown gingham. Gloucester, Mass., 1883. 102,090. U. S. Fish Commission.

**DARK GINGHAM JUMPER.**

Same as 102,092, except made of black and white gingham. Gloucester, Mass., 1883. 102,089. U. S. Fish Commission. Duplicate of 102,089. Gloucester, Mass., 1883. 102,091. U. S. Fish Commission.

**HEAVY COTTON JUMPER.**

Made of extra heavy checked cotton cloth. With breast pocket and metal buttons. Style commonly worn in summer by the New England fishermen. Gloucester, Mass., 1883. 102,088. U. S. Fish Commission.

**SHIRTS AND DRAWERS.****BLUE FLANNEL SHIRT.**

Made of best quality heavy blue flannel. The style commonly called "home-made." Provided with collar and cuffs, and porcelain buttons. In common use among the New England fishermen at all seasons of the year. Gloucester, Mass., 1883. 102,096. U. S. Fish Commission.

**PLAID FLANNEL SHIRT.**

Made of green, blue, and black plaid flannel; with porcelain buttons and facings for neckband and wristbands. No collar. Worn at all seasons, chiefly by Portuguese engaged in American fisheries. Gloucester, Mass., 1883. 102,098. U. S. Fish Commission.

**GRAY FLANNEL SHIRT.**

Made of heavy gray flannel, with neckband and wristbands and gutta-percha buttons. In common use among the New England fishermen. Gloucester, Mass., 1883. 42,708. U. S. Fish Commission.

**BROWN FLANNEL SHIRT.**

Made of heavy brown ribbed flannel, with wristbands and neckband. In very general use among the New England fishermen at all seasons. Gloucester, Mass., 1883. 102,097. U. S. Fish Commission.

**PLAID SHIRT.**

Made of plaid cotton and woolen cloth, with a neckband, wide wristbands, and no collar. Gloucester, Mass., 1883. 102,099. U. S. Fish Commission.

**GINGHAM SHIRT.**

Made of light-colored gingham, with neckband and wristbands. Worn chiefly by cooks on fishing vessels in summer. Gloucester, Mass., 1883. 102,102. U. S. Fish Commission.

**STRIPED COTTON SHIRT.**

Made of stout striped cotton, with neckband and wristbands. Worn by fishermen during the summer months. Gloucester, Mass., 1883. 102,101. U. S. Fish Commission.

**PLAID SHIRT.**

Made of heavy cotton plaid, with a laced bosom, collar, and wide wristbands. Commonly worn by cooks on board fishing vessels, but occasionally by fishermen. Gloucester, Mass., 1883. 102,100. U. S. Fish Commission.

**WOOLEN UNDERSHIRT.**

Made of coarse striped woolen cloth, commonly known as "whaleman's stripe." In very general use among the New England fishermen during the cooler portion of the year. Gloucester, Mass., 1883. 102,118. U. S. Fish Commission. Duplicate of 102,118. Gloucester, Mass., 1883. 42,721. U. S. Fish Commission.

**WOOLEN UNDERSHIRT.**

Woven, with red and white stripes. Factory made. Tight-fitting wristbands. Commonly worn by fishermen throughout the year. Gloucester, Mass., 1883. 102,117. U. S. Fish Commission.

**COTTON UNDERSHIRT.**

Woven of gray cotton. Factory made. Commonly worn by fishermen in summer. Gloucester, Mass., 1883. 102,119. U. S. Fish Commission.

**WOOLEN DRAWERS.**

Made of coarse striped woolen cloth, commonly known as "whaleman's stripe." The waistband is faced on the outside with twilled cotton. In very general use among New England fishermen during the cooler portion of the year. Gloucester, Mass., 1883. 102,115. U. S. Fish Commission. Duplicate of 102,115. Gloucester, Mass., 1880. 42,772. U. S. Fish Commission.

**WOOLEN DRAWERS.**

Woven, with red and white stripes. Factory made. Lined seams and waistband. Commonly worn by fishermen throughout the year. Gloucester, Mass., 1883. 102,114. U. S. Fish Commission.

**COTTON DRAWERS.**

Woven of gray cotton. Factory made. Commonly worn by fishermen in summer. Gloucester, Mass., 1883. 102,116. U. S. Fish Commission.

**APRONS.****FISH-SKINNER'S APRON.**

Made of white canvas. With a neckband, a back-strap, and a pocket on the right side. Style of apron commonly used by men employed in skinning and boning fish. Gloucester, Mass., 1883. 102,110. U. S. Fish Commission.

**COOK'S APRON.**

Made of brown canvas. Provided with pockets, and with neck and back straps. Used by cooks on fishing vessels. Gloucester, Mass., 1880. 42,753. U. S. Fish Commission.

**SOCKS.****WOOLEN SOCKS.**

Made of mixed woolen yarn, with white toes and tops. Extensively worn by New England fishermen. Gloucester, Mass., 1883. 57,644. U. S. Fish Commission.

**RIBBED WOOLEN SOCKS.**

Knit of heavy blue yarn, with white toes and tops. Commonly worn by New England fishermen. Gloucester, Mass., 1883. 57,888. U. S. Fish Commission.

**MITTENS, GLOVES, AND NIPPERS.****RUBBER MITTENS.**

Outside of rubber cloth, lined with red flannel. Gloucester, Mass., 1883. 57,873. U. S. Fish Commission. Used in cold and stormy winter weather by New England fishermen.

**FISHERMEN'S MITTENS.**

Knit of woolen yarn, and of large size to allow for shrinkage. Gloucester, Mass., 1882. 57,883. U. S. Fish Commission. Worn while dressing fish, or in cold, stormy weather.

**WOOLEN MITTENS.**

Home-made. Knit of white woolen yarn. Used by New England cod-fishermen while dressing fish, or for protecting the hands against cold. Extra quality. Gloucester, Mass., 1880. 39,286. U. S. Fish Commission.

**WOOLEN MITTENS.**

Known to the fishermen as "Newfoundland cuffs." Made of very heavy woolen cloth, called "swan's skin," with a heavy nap. Used to a considerable extent by the fishermen of Gloucester, being the warmest mitten used among the fishermen. Gloucester, Mass., 1880. 25,788. U. S. Fish Commission.

**COTTON MITTENS.**

Made of twilled cotton cloth, with thumb lined. Used by fishermen of New England while dressing mackerel. Gloucester, Mass., 1883. 54,385. U. S. Fish Commission.

**COTTON MITTENS.**

Made of twilled cotton cloth, with thumbs protected by an extra thickness of cloth; provided with a rubber band for drawing them closely around the wrist. Used by the fishermen of New England in dressing mackerel. Gloucester, Mass., 1880. 57,879. U. S. Fish Commission.

**OIL-CLOTH MITTENS.**

Made of white cotton cloth rendered waterproof by a preparation of linseed oil. Used by the fishermen of New England for protecting their hands in stormy weather or when handling wet ropes. Gloucester, Mass., 1883. 102,120. U. S. Fish Commission. Duplicate of 102,120. 102,077.

**GIBBING GLOVES.**

Made of canton flannel. Worn by the mackerel fishermen of New England when gibbing mackerel. Gloucester, Mass., 1880. 102,075. U. S. Fish Commission.

**HAND-HAULER.**

A peculiarly shaped mitten, knit from white woolen yarn. It has a half-thumb and forefinger, the remaining fingers being entirely wanting. Used to protect the hands from cold while using nippers in winter fishing. Gloucester, Mass., 1883. 57,882. U. S. Fish Commission.

**FISHERMEN'S NIPPERS.**

Knit of woolen yarn and stuffed with woolen cloth. Gloucester, Mass., 1883. 57,884. U. S. Fish Commission. Used on the hands of fishermen to enable them to grasp and hold a fishing-line better than they otherwise could do. Duplicates of these nippers are numbered 42, 706, 102,070-102,074.

**FISHERMEN'S NIPPERS.**

Knit of white woolen yarn and stuffed with pieces of woolen cloth. U. S. Fish Commission. 57,886. Used when hauling fishing-lines.

**WOOLEN NIPPERS.**

Thin circular bands of woolen cloth, covered with white knitted yarn. Used by the fishermen of Cape Cod in the shore, trawl, and hand-line fisheries for protecting the fingers when hauling in the lines. Provincetown, Mass., 1880. 25,717. Gift of Central Wharf Company.

**HATS AND CAPS.****SOFT FELT HAT.**

Made of black felt, with a silk band and binding. Style commonly worn by New England fishermen. Gloucester, Mass., 1883. 102,131. U. S. Fish Commission.

**STRAW HAT.**

Made of common straw, and has a black band. Worn by New England fishermen in summer. Gloucester, Mass., 1883. 102,130. U. S. Fish Commission.

**RUSSIAN CAP.**

Made of lambskin, tanned, with wool-lined ear protectors, and peak. Worn by New England fishermen in extremely cold weather. Gloucester, Mass., 1883. 102,129. U. S. Fish Commission.

**SCOTCH CAP.**

Made of blue cloth, without seams. Visor made of pasteboard covered with cloth. A cambric lining. Gloucester, Mass., 1883. 102,128.

**WOOLEN CAP.**

Made of blue cloth. Provided with plush ear protectors, which extend entirely around the cap, buttoning on one side. A leather visor covered with cloth, and a heavy quilted lining. Commonly worn by New England fishermen. Gloucester, Mass., 1880. 42,720. U. S. Fish Commission.

## WOOLEN CAP.

Made of blue chinchilla. Provided with ear protectors, which extend entirely around the cap, buttoning in front. A pasteboard visor, covered with cloth. Lined with red flannel. Commonly worn by New England fishermen. Gloucester, Mass., 1883. 57,891. U. S. Fish Commission.

## OILED CLOTHING, ETC.

[Exhibit of A. J. Tower, Boston, Mass.]

a. *Double goods, yellow. Fish brand.*

"All garments bearing the fish brand trade mark are provided with a zinc-metal button which cannot break or rust, which is attached by means of a brass-wire staple passing through the button and fabric, thence through a stay or small button on inside of garment, and the ends of the staple securely interlocked in such a manner as to render the accidental detaching of the button an impossibility. An invaluable consideration to seamen."

## 1. OFFICERS' LONG COAT, WITH INSIDE SLEEVE, LEATHER BUTTON-HOLES, PATCHED ELBOW, EPAULET ON SHOULDER, ETC.

"This coat is an extra fine grade, and designed for officers of steamers and sailing vessels of all kinds. Price, \$39 per dozen."

## 2. LONG COAT, PATCHED ELBOWS, INSIDE SLEEVES, AND EPAULETS.

"This coat is the most universally used of any of the styles manufactured. It is very popular with subordinate officers on ship-board, and with farmers and truckmen in all parts of the country. Price, \$30 per dozen."

## 3. JACKET.

"Designed with special reference to the requirements of fishermen, being short, waterproof, and durable, and is the acknowledged favorite among the discriminating New England fishermen. Price, \$15 per dozen."

## 4. FISHERMEN'S APRON TROUSERS.

"Used in connection with the jacket above described, and also independently while dressing fish in dry weather. This garment is an absolute necessity with fishermen. Price, \$15 per dozen."

## 5. SEAMEN'S STRING TROUSERS.

"Used by seamen proper, being very conveniently adjusted to the wearer, an item of vast importance to the sailors of the merchant marine. The waist is made adjustable in size by means of a draw-string running through the waistband; hence the derivation of the name of the garment. Price, \$14.50 per dozen."

## 6. FROCK OR HALF COAT.

"A medium length between the long coat and jacket, and used chiefly in connection with long (hip) gum boots, by oyster fishermen; also by sportsmen, with (hunting) gum boots; they are also used in connection with pants. Price, \$22 per dozen."

## 7. PETTICOAT BARVELL.

"A very useful garment to fishermen, better serving the purpose of pants in warm weather, by permitting the free circulation of air around the body of wearer, and at the same time affording complete protection from wet when used in connection with gum boots. Price, \$10.50 per dozen."

## 8. BARVELL OR APRON.

"Used chiefly by fish packers, pork packers, tanners, oystermen, and in fact any class of workmen at a bench where exposed to wet or oil. To leather dressers the barvell is indispensable, inasmuch as the waterproofing compound is unaffected by acids or chemicals. Price, \$9.50 per dozen."

## 9. SLEEVES.

"Used in connection with petticoat and apron barvelles, and are very convenient to fish packers in protecting shirt sleeves in winter, thereby obviating the necessity of turning shirt sleeves up, and exposing the bare arm in cold weather. Price, \$4 per dozen."

*b. Double goods, black. Fish brand.*

## 10. LONG COAT.

"Inside sleeves, patched elbow, epaulet on shoulder, &c., made of same material as the yellow coat of same style, and preferred by some for use on land on account of color. Price, \$30.50 per dozen."

## 11. JACKET.

"Used principally by fishermen and sailors; same style as the yellow jackets. Used also by miners. Price, \$15.50 per dozen."

## 12. FISHERMEN'S APRON TROUSERS.

"The same as corresponding pants in yellow before described; highly popular among fishermen. Price, \$15.50 per dozen."

## 13. STRING TROUSERS.

"Same as the yellow string pants. Used by sailors and miners."

## 14. PETTICOAT BARVELL.

"Differs from the yellow petticoat barvell only in color. Price, \$10.50 per dozen."

## 15. COMMON BARVELL.

"Same as the yellow barvell. Price, \$9.50 per dozen."

## 16. SLEEVES.

"Same as the yellow. Price, \$4 per dozen."

*c. Oiled hats.*

## 17. "CAPE ANN" SOU'WESTER.

"The most comfortable hat made for fishermen and seamen generally. No fisherman would be without one. It is provided with a neck piece and earlaps lined with flannel, and affords a complete protection for these members in severe weather. This hat is black, with a medium soft crown and stiff rim. Price, \$6.50 per dozen."

## 18. SOFT YELLOW SOU'WESTER.

"The same in shape as the "Cape Ann," and lined with flannel, with neck piece and earlaps. Crown and rim soft, and can be put in coat pocket. This cap is worn principally by officers. It is a favorite with seamen on the great American lakes. Price, \$6.50 per dozen."

## 19. SOFT BLACK SOU'WESTER.

"Made in shape more like a common soft felt hat, and designed for use on land, and more principally by truckmen, farmers, &c. The material is lighter than used in the previously mentioned styles. Lined with red flannel and provided with neck piece and earlaps. Price, \$6.50 per dozen."

## 20. YELLOW AND BLACK 'SQUAM SOU'WESTER.

"These hats are made to supply a cheap trade, and are worn principally by sailors. They are stiff crown and rim and lined with canton flannel. Provided with earlaps only. Price, \$3.50 per dozen."

## 21. MINERS' OILED HAT.

"This is a light-weight hat made in yellow and black, and worn exclusively by miners. It is provided with a leather on front, to which may be affixed the miner's lamp. The rim is straight and held in shape by reeds inclosed therein. The lining is of canton flannel and provided with earlaps. Price, \$3.75 per dozen."—(A. J. Tower.)

## RUBBER SOU'WESTER HAT.

Outside covering, brim, and strap of rubber cloth; inside of crown lined with flannel. Gloucester, Mass., 1883. 57,869. U. S. Fish Commission. Used chiefly in cold and stormy winter weather, but are not so generally used as the oil-cloth sou'westers.

**BARK CAPE.**

An article of dress worn by fishermen to protect the neck and shoulders from rain. Universally worn by all native fishermen and women in canoes, during wet weather. Length 14 inches. Makah Indians, Neah Bay, Washington Territory, 1883. 72,662. James G. Swan.

**BOOTS, SHOES, MOCCASINS, ETC.****GUM BOOTS.**

Made of the best quality of rubber, and lined with felt. In general use among fishermen. Gloucester, Mass., 1883. 102,139. U. S. Fish Commission.

**RUBBER BOOTS.**

Made of common rubber. Provided with heavy wooden soles and heels, fastened with heavy screws. This style was introduced about 1880, and is used chiefly by fish-packers. The fishermen object to using them on account of the stiffness of the sole and liability to slip on a vessel's deck. Gloucester, Mass., 1883. 102,138. U. S. Fish Commission.

**BLACK LEATHER BOOTS.**

Made of extra-heavy grained leather; soles of double thickness. Used extensively by fishermen. Gloucester, Mass., 1883. 102,140. U. S. Fish Commission.

**RED LEATHER BOOTS.**

Made of uncolored extra-heavy grained leather; soles double thickness. Used extensively by fishermen. Gloucester, Mass., 1883. 42,718. U. S. Fish Commission. A duplicate is numbered 42,727.

**LAMB-SKIN SLIPPERS.**

Made of thin (reddish-colored) lamb-skin. Gloucester, Mass., 1883. 57,872. U. S. Fish Commission. Worn over stockings inside of sea-boots.

**FELT SLIPPERS.**

Made of gray felt, moccasin-shaped. Gloucester, Mass., 1883. 57,887. U. S. Fish Commission. Worn over stockings inside of sea-boots in winter to keep the feet warm.

**LEATHER MOCCASINS.**

Made of red oil-tanned leather; the soles and uppers being formed of the same leather. Gloucester, Mass., 1883. 57,875. U. S. Fish Commission. These have recently come into use among the fishermen of New England, and are much worn in summer on board of vessels.

## CORK SOLES.

Soles made of thin pieces of cork covered with cloth, and shaped so as to fit inside of boots. Gloucester, Mass., 1883. 57,877. U. S. Fish Commission. Worn inside rubber boots.

## BED-CLOTHING, ETC.

## FISHERMAN'S BLANKET.

A single gray woolen blanket, with blue stripes; cheap quality. Used by the fishermen of New England in their bunks on fishing vessels. Gloucester, Mass., 1883. 102,079. U. S. Fish Commission.

## FISHERMAN'S BLANKET.

A double gray woolen blanket, with blue stripes, of average quality. Used by fishermen of New England in their bunks on fishing vessels. Gloucester, Mass., 1883. 57,644. U. S. Fish Commission.

## EYE-PROTECTORS.

## GOGGLES.

Wood, with a continuous longitudinal slit in front and arch for the nose. Length,  $6\frac{1}{4}$  inches. Lower Yukon River, Alaska. 48,724. Collected by E. W. Nelson. Fastened to the head with a seal-skin thong, and used to protect the eyes from the glare of snow and ice.

## EYE-PROTECTOR.

A shade made of wood to screen the eyes from the glare of the water; seal-skin band or head-strap. Depth in front,  $3\frac{5}{8}$  inches. Cape Darby, Alaska, 1880. 44,144. Collected by E. W. Nelson.

## GOGGLES.

Wood, with longitudinal slit, ovate apertures at either end, and an arch for the nose. Length,  $6\frac{1}{4}$  inches. Kushunuk, Alaska, 1880. 36,352. Collected by E. W. Nelson. Fastened to the head with a seal-skin thong, and used to protect the eyes from the glare of the snow and ice.

## 63. RECEPTACLES FOR CLOTHING.

## BLACK CLOTHES-BAG.

Made of white cotton canvas, painted black; brass eyelet-holes around top for bag lanyard to reeve through. Length, 3 feet; width, 19 inches. Gloucester, Mass., 1883. 57,890. U. S. Fish Commission. In very common use on fishing vessels.

**WHITE CLOTHES-BAG.**

Made of white cotton canvas, circular bottom; brass eyelet-holes around the top for the bag lanyard to reeve through. Length of bag, 3 feet; width, 19 inches. Gloucester, Mass., 1883. 57,889. U. S. Fish Commission. Used for holding wearing apparel.

**WHITE CLOTHES-BAG.**

A canvas bag with brass eyelets for the bag-line to reeve through. Circular canvas bottom. Used by fishermen and sailors for carrying clothes when at sea. Length, 40 inches; width, 20 inches. Gloucester, Mass., 1880. 42,754. U. S. Fish Commission.

**HOME-MADE CLOTHES-BAG.**

Made of light canvas, with a hem at the top through which a string passes for closing the mouth of the bag. Used by fishermen and sailors of New England for holding their clothes on a voyage. Depth, 40 inches; width, 30 inches. Gloucester, Mass., 1883. 102,076. U. S. Fish Commission.

**CHEST.**

Elaborately carved and painted. Yellow cypress wood, commonly called "Sitka cedar." Made by a Haida Indian named "Bear Skin." Skidgate, Queen Charlotte Islands. Design on front, the raven, or "Hooyeh," with a sea-urchin in its beak. The painting and carving on the back is the totem of the bear; bear totems on each end; on top is the fish-eagle, or "Koot." Dimensions, 50½ by 27 by 23¼ inches. Port Townsend, Washington Territory, 1883. James G. Swan.

**64. ANGLERS' WEARING APPAREL, ETC.****ANGLER'S TROUSERS.**

Made of brown canvas; provided with side and hip-pockets; metal buttons. The legs are buttoned from the ankle up to the knee, so as to fit over top boots. New York, 1880. 102,134. U. S. Fish Commission.

**GUNNER'S REVERSIBLE VEST.**

Made of brown canvas, provided with cartridge-holders, with covers, to keep out moisture. On the lower part of the inside on either side is a large game-pocket, capable of holding 72 rounds of cartridges, in addition to the pockets for holding game and other things. New York, 1880. 102,136. U. S. Fish Commission.

**OIL-CLOTH HAT.**

Made of black glazed oil-cloth, lined with canton flannel; cotton ear-tabs. Back projects to protect the neck from rain. Used by anglers and sportsmen. New York, 1883. 102,133. U. S. Fish Commission.

**WADING-SHOES WITH HOB-NAILS.**

One pair. Heavy white canvas and leather tops, laced; leather tongues; low heels; heavy nails on heels and soles; size,  $7\frac{1}{2}$ . U. S. Fish Commission. 57,659. Made especially for anglers. "Do not harden, dry quickly, and prevent slipping on the rocks."

**ANGLER'S WADING-SHOES.**

Made of untanned cowhide; oil-dressed to render them water-proof; laced in front, the opening being protected by a leather piece which is sewed in along either side; heavy soles studded with hob-nails. Worn by anglers and sportsmen when wading about in rocky creeks. Bergen, N. J. 42,852. U. S. Fish Commission.

**BLACK RUBBER WADING-STOCKINGS.**

Made of a good quality of rubber cloth; hip stockings, with thin soles, to be worn on bare feet or over ordinary stockings. Used by anglers. New York, 1880. 42,846. U. S. Fish Commission.

**ANGLER'S CAMP-PILLOW.**

A rectangular, air-tight rubber-cloth bag, with metal mouth-piece, by means of which it can be inflated. New York, 1883. 57,648. U. S. Fish Commission.

**RUBBER BLANKET.**

Made of rubber cloth. Used by anglers and sportsmen for protecting their bedding from the rain and also for wrapping their clothing in transportation. New York, 1883. 57,647. U. S. Fish Commission.

**CANVAS COVER FOR BLANKETS.**

Water-proof. 42,865. U. S. Fish Commission. (C. B. & M.)

**RUBBER CAMP-BAG.**

Made of rubber cloth; two handles; brass eyelet at top, through which may be rove a string to close the bag. Depth of bag,  $2\frac{1}{2}$  feet; width, 19 inches. 57,662. U. S. Fish Commission.

**RUBBER CAMP-BAG.**

Same as 57,662, except smaller. Depth, 2 feet; diameter,  $10\frac{1}{2}$  inches. New York, 1883. 42,864. U. S. Fish Commission.  
2444—Bull. 27—51

**CAMP-BAG COVER.**

Made of brown canvas. A round-bottom bag, provided with leather straps. Used by anglers and sportsmen. Depth, 36 inches; width, 20 inches. New York, 1883. 57,663. U. S. Fish Commission.

**ANGLER'S BAG.**

Same as 57,663, but smaller. New York, 1880. 102,135. U. S. Fish Commission.

**OIL-CLOTH COVER.**

Piece of black oil-cloth used by anglers for wrapping up clothing and other material, to keep it dry in transportation. New York, 1883. 102,137. U. S. Fish Commission.

## E.—FOOD, MEDICINE, AND SHELTER.

### 65. FOOD USED BY FISHERMEN AND ANGLERS.

#### FRESH TOMATOES.

One case, two dozen 3-pound cans. Boston, Mass. Potter & Wrightington.

#### ROAST CHICKEN.

Two cases, each two dozen 2-pound cans. Boston, Mass. Potter & Wrightington.

#### ROAST MUTTON.

Two cases each, of 1-pound, 1½-pound, and 2-pound cans. Boston, Mass. Potter & Wrightington.

#### ROAST BEEF.

Two cases, each two dozen 2-pound flat cans. Boston, Mass. Potter & Wrightington.

#### ROAST BEEF.

Two cases each, of 1-pound, 1½-pound, and 2-pound cans. Boston, Mass. Potter & Wrightington.

#### VEAL CUTLETS.

Two cases, each two dozen 1-pound cans. Boston, Mass. Potter & Wrightington.

#### PICNIC BEANS.

Boston baked beans, two cases, each four dozen 1-pound cans. Boston, Mass. Potter & Wrightington.

#### BAKED BEANS.

Two cases, each two dozen 3-pound cans. Boston, Mass. Potter & Wrightington.

#### ROAST MUTTON.

In 2-pound cans. Boston, Mass. W. K. Lewis & Bros.

#### ROAST BEEF.

In 2-pound cans. Boston, Mass. W. K. Lewis & Bros.

#### ROAST TURKEY.

In 2-pound cans. Boston, Mass. W. K. Lewis & Bros.

**ROAST CHICKEN.**

In 2-pound cans. Boston, Mass. W. K. Lewis & Bros.

**BAKED BEANS.**

Half dozen 3-pound cans. Boston, Mass. L. Pickert & Co.

**BOILED DINNER.**

Prepared from beef and vegetables. Half dozen 3-pound cans.  
Boston, Mass. L. Pickert & Co.

**ROAST TURKEY.**

In 1-pound cans. Boston, Mass. Henry Mayo & Co.

**TOMATO SOUP.**

In round quart cans. Boston, Mass. Henry Mayo & Co.

**ROAST LAMB.**

In 1-pound cans. Boston, Mass. Henry Mayo & Co.

**ROAST BEEF.**

In 1-pound cans. Boston, Mass. Henry Mayo & Co.

**FRESH TOMATOES.**

In round quart cans. Boston, Mass. Henry Mayo & Co.

**FRESH SUCCOTASH.**

In round quart cans. Boston, Mass. Henry Mayo & Co.

**FRESH SQUASH.**

In round quart cans. Boston, Mass. Henry Mayo & Co.

**GREEN PEAS.**

In round quart cans. Boston, Mass. Henry Mayo & Co.

**GREEN CORN.**

In round quart cans. Boston, Mass. Henry Mayo & Co.

**GREEN LAWNDALE BEANS.**

In round quart cans. Boston, Mass. Henry Mayo & Co.

**GREEN LIMA BEANS.**

In round cans. Boston, Mass. Henry Mayo & Co.

**BAKED BEANS (bean-pot brand).**

In round cans. Boston, Mass. Henry Mayo & Co.

**PICNIC BEANS (bean-pot brand).**

In round cans. Boston, Mass. Henry Mayo & Co.

## ROAST CHICKEN.

In 1-pound round cans. Boston, Mass. Henry Mayo & Co.

## CHICKEN SOUP.

In round cans. Boston, Mass. Henry Mayo & Co.

## MACARONI SOUP.

In round cans. Boston, Mass. Henry Mayo & Co.

## BEEF SOUP.

In round cans. Roston, Mass. Henry Mayo & Co.

## OX-TAIL SOUP.

In round quart cans. Boston, Mass. Henry Mayo & Co.

## MUTTON SOUP.

In round quart cans. Boston, Mass. Henry Mayo & Co.

## PEA SOUP.

In round quart cans. Boston, Mass. Henry Mayo & Co.

## "EVAPORATED" FOODS:

Codfish cakes or mince fish; mince meat for pies; beef; carrots; beef hash; potatoes; oysters; beets; clams, &c., in  $\frac{1}{4}$  and  $\frac{1}{2}$  pound packages. The moisture is extracted from these articles by the "Alden Evaporating Process," and prepared in this manner the food will keep in any climate, and can be easily and quickly prepared for the table by simply adding a little water or milk, and allowing the articles to cook a few minutes. Charles Alden, Randolph, Mass.

## 66. FISHERMEN'S MEDICINES.

## FISHERMAN'S MEDICINE-CHEST.

This chest is filled and ready for use. The contents are: 1, sulphur; 2, cream of tartar; 3, epsom salts; 4, arrow root; 5, chamomile flower; 6, flax-seed; 7, flax-seed meal; 8, bicarbonate of soda; 9, Turner's cerate; 10, mercurial ointment; 11, basilion ointment; 12, simple ointment; 13, glycerine ointment; 14, extract of paragogic; 15, extract of vitriol; 16, laudanum; 17, Fryar's balsam; 18, essence of peppermint; 19, spirits of niter; 20, balsam copaiba; 21, sulphuric ether; 22, syrup of squills; 23, soap liniment; 24, spirits of lavender; 25, spirits of camphor; 26, spirits of hartshorn; 27, tincture of rhubarb; 28, tincture of bark; 29, wine of antimony; 30, mercurial solution; 31, muriatic tincture of iron; 32, Seidlitz mixture; 33, castor-oil; 34, purging pills; 35, gum arabic; 36, blue pills; 37, opium pills; 38, fever

## FISHERMAN'S MEDICINE-CHEST—Continued.

powders; 39, calomel and jalap; 40, Dover's powders; 41, quinine; 42, ipecac; 43, calomel; 44, tincture of myrrh; 45, rhubarb; 46, magnesia; 47, Peruvian bark; 48, tartar emetic; 49, powdered cubebs; 50, nitrate of potash; 51, sugar of lead; 52, white vitriol; 53, blue vitriol; 54, tartaric acid; 55, red precipitate; 56, alum; 57, gum camphor; 58, iodide of potash; 59, lunar caustic; 62, lancet; 63, syringe; 64, the Mariner's Medical Guide. Gloucester, Mass. 1880. U. S. Fish Commission. Some vessels carry smaller chests than the one exhibited, though this is about a fair average of those carried by the first-class fishing schooners.

## INDIAN MEDICINE.

Minnows (*Tigoma* sp.), called by the Indians, "shillah." Placer County, Cal. 21,423. Collected by S. Powers. It is pretended by the Indian doctor that this is a cure for diseases; so, after sucking the affected part a long time, he vomits up one of these minnows, and assures the patient that he will now recover. Nishimans Indians, Bear River.

## 67. PHOTOGRAPHS OF FISHERMEN'S HOUSES, BOARDING-HOUSES, FITTERS' AND FISH DEALERS' HOUSES, BETHELS, SCHOOL-HOUSES, VIEWS IN FISHING TOWNS, ETC.

## FISHERMEN'S DWELLINGS.

## FISHERMAN'S HOUSE.

View of a fisherman's house with fish-flakes, &c. Lubec, Me., 1882. (Photo. No. 1925.) U. S. Fish Commission.

## FISHERMAN'S HOUSE.

View of a fisherman's cottage, Squam River, on the road from Essex to Gloucester. Dimensions of photograph, 4 by 7 feet. Gloucester, Mass., 1882. (Photo. No. 1963.) U. S. Fish Commission.

## BOAT-FISHERMAN'S HOUSE.

View of the house of David Mahlman, East Gloucester boat-fisherman. Gloucester, Mass., 1882. (Photo. No. 2025.) U. S. Fish Commission.

## FISHERMAN'S HOUSE.

View of fisherman's cottage on Niles's Beach, Eastern Point. Gloucester, Mass., 1882. (Photo. No. 2035.) U. S. Fish Commission.

**BOAT-FISHERMAN'S HOUSE.**

House of Robert Marston, East Gloucester boat-fisherman. This house is about ninety-six years old. Gloucester, Mass., 1882. (Photo. No. 2040.) U. S. Fish Commission.

**FISHERMEN'S DWELLINGS.**

Group of fishermen's houses on Babson's Hill. Gloucester, Mass., 1882. (Photo. No. 2051.) U. S. Fish Commission.

**FISHERMAN'S COTTAGE.**

Cottage of Capt. William Corliss, Forest street. Gloucester, Mass., 1882. (Photo. No. 2053.) U. S. Fish Commission.

**INTERIOR OF FISHERMAN'S COTTAGE.**

Parlor and dining-room in the house of Capt. William Corliss. Gloucester, Mass., 1882. (Photos. Nos. 2063 and 2064.) U. S. Fish Commission.

**FISHERMAN'S COTTAGE.**

House of Capt. Sewall Smith (haddock fisherman), Prospect street. Gloucester, Mass., 1882. (Photo. No. 2055.) U. S. Fish Commission.

**FISHERMAN'S HOUSE.**

House of Capt. Bernard A. Williams (Grand Bank fisherman), on Babson street. Gloucester, Mass., 1882. (Photo. No. 2047.) U. S. Fish Commission.

**FISHERMAN'S HOUSE.**

House of Capt. John Terry (mackerel fisherman), Hovey street. Gloucester, Mass., 1882. (Photo. No. 2048.) U. S. Fish Commission.

**FISHERMEN'S HOUSES.**

View of the cottages of Capt. Henry B. Thomas (on the left) and Capt. Levi McLain (on the right), on Mount Vernon street. Gloucester, Mass., 1882. (Photo. No. 2061.) U. S. Fish Commission.

**FISHERMEN'S DWELLINGS.**

Row of fishermen's cottages on Maple street. Gloucester, Mass., 1882. (Photo. No. 2062.) U. S. Fish Commission.

**WHALEMAN'S HOUSE.**

Residence of Capt. Humphrey Seabury. New Bedford, Mass., 1882. (Photo. No. 2138.) U. S. Fish Commission.

**WHALEMAN'S HOUSE.**

Residence of Capt. James V. Cox. New Bedford, Mass., 1882.  
(Photo. No. 2139.) U. S. Fish Commission.

**FISHERMEN'S BOARDING-HOUSE.**

The "Anderson House," Friend street, Gloucester. This is a fishermen's boarding-house, and is owned by Captain Anderson, himself a fisherman. Gloucester, Mass., 1882. (Photo. No. 2056.) U. S. Fish Commission. The prevailing rule in Gloucester is for all of the fishermen to stay on shore while the vessels are in port. Those who do not have homes go to boarding-houses, of which there is a large number in the port.

**FISHERMEN'S BOARDING-HOUSE.**

Fishermen's boarding-house at East Gloucester, kept by Mrs. Samuel Giles Wonson. Gloucester, Mass., 1882. (Photo. No. 2108.) U. S. Fish Commission.

**WHALEMEN'S BOARDING-HOUSE.**

Mariner's House. New Bedford, Mass., 1882. (Photo. No. 2135.) U. S. Fish Commission.

**HOMES FOR FAMILIES OF LOST FISHERMEN.****FISHERMEN'S WIDOWS TENEMENT HOUSE.**

View of the Gloucester tenement house for fishermen's widows. Built about 1870, on 'Squam River. It has ten tenements of three rooms each in five houses. Rent of each tenement, \$3 per month. Gloucester, Mass., 1882. (Photo. No. 2046.) U. S. Fish Commission.

**DWELLINGS OF OWNERS OF FISHING VESSELS, FISH-DEALERS, ETC.****VESSEL-FITTER'S HOUSE.**

House of William H. Jordan, Babson's Hill. Gloucester, Mass., 1882. (Photo. No. 2048.) U. S. Fish Commission.

**VESSEL-FITTER'S HOUSE.**

House of J. O. Proctor, jr., Babson's Hill. Gloucester, Mass., 1882. (Photo. No. 2050.) U. S. Fish Commission.

**VESSEL-FITTER'S HOUSE.**

House of Capt. Sylvanus Smith (formerly a fisherman), Prospect street. Gloucester, Mass., 1882. (Photo. No. 2059.) U. S. Fish Commission.

**FISH-DEALER'S HOUSE.**

House of Capt. Samuel Pool (formerly a fisherman), on Prospect street. Captain Pool is a dealer in fresh fish, halibut being a

## FISH-DEALER'S HOUSE—Continued.

specialty. Gloucester, Mass., 1882. (Photo. No. 2060.) U. S. Fish Commission.

## VESSEL-FITTER'S OFFICE AND DWELLING.

View of office of John Pew & Son, and residence of Capt. John Pew. Gloucester, Mass., 1882. (Photo. No. 2095.) U. S. Fish Commission.

## FISH-DEALER'S HOUSES.

Corner of Pleasant and Prospect streets, Gloucester; view of residences of George Perkins (on the left), B. A. Baker and George H. Perkins (on the right). Gloucester, Mass., 1882. (Photo. No. 2111.) U. S. Fish Commission.

## BETHEL'S.

## SEAMEN'S BETHEL.

New Bedford, Mass., 1882. (Photo. No. 2144.) U. S. Fish Commission.

## A GLOUCESTER GRAMMAR SCHOOL.

View of the Sawyer school-house on Friend street. This is one of the Gloucester grammar schools, attended chiefly by the children of fishermen. Gloucester, Mass. 1882. (Photo. No. 2057.) U. S. Fish Commission.

## VIEWS IN FISHING TOWNS.

## MAIN STREET, GLOUCESTER.

View, looking down Main street, southwest, from Fishing Insurance building. Gloucester, Mass., 1882. (Photo. No. 2098.) U. S. Fish Commission. This is the principal business street of Gloucester.

## MAIN STREET, GLOUCESTER.

Main street, looking westerly from the Belmont House. Gloucester, Mass., 1882. (Photo. No. 2112.) U. S. Fish Commission.

## BANK BUILDINGS, &amp;c.

Gloucester National-Bank building and adjoining buildings on Main street, from post-office. Gloucester, Mass., 1882. (Photo. No. 2099.) U. S. Fish Commission.

## MIDDLE STREET, GLOUCESTER.

View, looking east, on Middle street. Gloucester, Mass., 1882. (Photo. No. 2100.) U. S. Fish Commission.

## MIDDLE STREET, GLOUCESTER.

View, looking west, on Middle street. Gloucester, Mass., 1882. (Photo. No. 2101.) U. S. Fish Commission.

68. ANGLERS' TENTS AND PORTABLE HOUSES, AND THEIR EQUIPMENTS.

ANGLERS' TENT.

Heavy canvas drilling. Dimensions: Seven feet square, accommodating three men. Portable bamboo poles. Weight, with poles, 15 pounds. Value, complete (1882), \$12. Devised by Wakeman Holberton, esq., New York.

ANGLERS' TENT.

Portable shelter-tent, open front, with curtain. Dimensions, 6 feet by 7 feet. 42,834. U. S. Fish Commission.

SET OF TENT-POLES.

Five pieces, bamboo, pointed. Each section 3 feet 10 inches long. U. S. Fish Commission. 57,661. Used for supporting tent.

PORTABLE WOODEN HOUSE.

In three sections; adjustable. Dimensions: 7½ feet wide, 9 feet 10 inches long. U. S. Fish Commission. 57,629. Used for camping by lakes and streams.

CAMP-KETTLE AND CONTENTS.

Kettle: tin; tubular; flat-bottom; stout wire handles; tin cover. Contents: Inside pail (57,632); six tin plates (57,633); six knives (57,634); six forks (57,635); six tea-spoons (57,636); six table-spoons (57,637); one tin wash-basin (57,638). Height, 13 inches; diameter, 12½ inches. U. S. Fish Commission. 57,631 to 57,638.

CAMP-CHAIR.

Folding wooden frame, including back. Canvas seat. Height, 30 inches. U. S. Fish Commission. 57,639.

CAMP-LOUNGE.

A folding easy-chair. Wooden frame; blue and white striped canvas seat and back. Total height, 30 inches. U. S. Fish Commission. 57,640.

CAMP-STOOL.

Folding wooden frame, canvas seat. Height, 18 inches. U. S. Fish Commission. 57,641.

FOLDING CAMP-BED.

Wooden, adjustable frame; brown canvas cover. Length, 6 feet; width, 2 feet; height, 1 foot. U. S. Fish Commission. 57,642.

**POCKET HAMMOCK.**

Made of drab-colored linen twine. Screw-rings and lines for hanging hammock. Black enamel-cloth cover. U. S. Fish Commission. 57,643.

**WOOLEN CAMP-BLANKETS.**

One pair. Drab color ground-work, blue-striped border. Size,  $7\frac{1}{2}$  by 6 feet. U. S. Fish Commission. 57,644.

**RUBBER CAMP-BLANKET.**

Made of black rubber-cloth. Two eyelets at bottom; round neck. Size,  $5\frac{1}{2}$  by 4 feet. U. S. Fish Commission. 57,647.

**RUBBER AIR-PILLOW.**

Made of white rubber-cloth (No. 2, Standard Rubber Works, New York). Dimensions, 16 by 11 inches. U. S. Fish Commission. 57,648.

**BLANKET-RACK.**

A rack made of leather, stretched on wooden frame, with pads for shoulders and hips, and straps for holding blankets, &c. Height, 28 inches. U. S. Fish Commission. 57,669. Used by anglers and hunters for carrying blankets and clothing.

**POCKET-FLASK.**

Glass, covered with Russia leather. Tin cup fits on bottom of flask. Metal cover; screw held secure with metal in the neck of the flask without plaster or composition, prevents all leakage. M. V. Olney, patentee. Dimensions: Depth,  $7\frac{1}{4}$  inches; diameter,  $3\frac{3}{4}$  by  $1\frac{1}{2}$  inches. U. S. Fish Commission. 57,645.

**ANGLER'S LANTERNS.**

- No. 1. Excelsior jack, dash, fishing lamp, and hand lantern, for night fishing and hunting and other purposes, with cap or cover for obscuring the light when necessary; burns kerosene oil.
- No. 1 A. Socket attachment for adjusting the lamp to a stick or pole in the bow of a boat or canoe.
- No. 1 B. Fishing reflector for night fishing, and for reading and writing at night when in camp; is adjusted to the face of the lamp by the hinge pin, the cap or cover being first removed.
- No. 1 C. Adjustable dash attachment by which the lamp can be applied to any shaped leather wagon dash, and to any part thereof.
- No. 1 D. Adjustable bracket attachment used in place of the dash clamp, by which the lamp can be applied to a wooden wagon dash, pillar, or bow of a top vehicle, side of a house, &c.

## ANGLERS' LANTERNS—Continued.

- No. 2. Universal reflecting lamp, for night fishing and hunting and general illuminating purposes; combines head jack, boat jack, fishing lamp, camp lamp, dash lamp, belt lamp, and hand lantern, with cap or cover for obscuring the light when necessary; burns signal oil.
- No. 2 A. Socket attachment for adjusting the lamp to a stick or pole in the bow of a boat or canoe.
- No. 2 B. Fishing reflector for night fishing, and for reading and writing at night when in camp; is adjusted to the face of the lamp by the hinge pin, the cap or cover being first removed.
- No. 2 C. Head attachment for adjusting the lamp to the front of the head—worn over the hat.
- No. 2 D. Head attachment for adjusting the lamp to the top of the head—worn over the hat.
- No. 2 E. Adjustable dash attachment by which the lamp can be applied to any shaped leather wagon dash, and to any part thereof.
- No. 2 F. Adjustable bracket attachment, used in place of the dash clamp, by which the lamp can be applied to a wooden wagon dash, pillar, or bow of a top vehicle, side of a house, &c. By means of the folding handles at the back, this lamp can be used as a hand lantern, and by means of the loop as catch, above the handles, the lamp can be hung in any desired position.

Prices: Excelsior jack lamp, including reflector and attachments, \$7.75; universal lamp, with reflector and attachments, \$10.25.

Albert Ferguson, 65 Fulton street, New York City.

## DASH-LAMP. (Ferguson's Excelsior.)

Japanned tin; silvered reflector; wooden handle at top. Height (exclusive of handle), 1 foot; greatest width (including reflector), 11 inches. U. S. Fish Commission. 57,646.

## ANGLER'S COMPANION.

For salt-water fishing. Tin box, 8 by 4 by  $1\frac{1}{4}$  inches. Contents: 1 pair wire-cutters, 1 pair pincers, 1 corkscrew, 1 oil-feeder, 1 gimlet, 2 files. U. S. Fish Commission. 57,649.

## ANGLER'S COMPANION.

For fresh-water fishing, with tools complete. Tin box, 8 by 4 by  $1\frac{1}{4}$  inches. Contents: 1 pair nippers, 1 file, 1 oil-feeder, 1 gimlet, 1 pair scissors, 1 corkscrew. U. S. Fish Commission. 57,650.

**ANGLER'S SUN-SHADE.** (Ray's patent.)

Cloth (drab outside, green inside) stretched over a wire framework, forming a sort of inverted scoop-shaped shade, which is connected by cords and wire to a framework which is adjusted to the shoulders and body of the wearer. Dimensions, 26 by 16 inches. U. S. Fish Commission. 57,653. Used by sportsmen and anglers.

**TAR-OIL.**

In two-ounce vial. U. S. Fish Commission. 57,655. Used for repelling mosquitoes, &c.

**INSECT-REPELLANT.**

In two-ounce bottle. U. S. Fish Commission. 57,656. Used for repelling insects, mosquitoes, &c.

**BOX OF FERGUSON'S WATER-PROOFING.**

U. S. Fish Commission. 57,657. Used for boot and shoe dressing.

**CROSBY CAMP-AX AND BELT.**

Polished steel blade,  $4\frac{1}{2}$  by  $2\frac{1}{2}$  inches. Wooden handle, 13 inches long. Patent brass sheath attached to leather belt. U. S. Fish Commission. 57,658. Used by sportsmen to cut fuel for camp, and for various other purposes.

**WATER-JUG.**

One gallon size. Earthenware. U. S. Fish Commission. 57,664. Used for holding supply of water for campers.

**DRAG-ROPE.**

Piece of rope 15 feet long, with three bamboo handles (16, 28, and 32 inches long, respectively) fastened to the rope at intervals of 4 feet. To one end of the rope is attached an iron-wedge  $5\frac{1}{4}$  inches long by  $1\frac{1}{4}$  inches wide. U. S. Fish Commission. 57,665. Used to haul logs for firewood into camp, the wedge being driven into the end of a log  $2\frac{1}{2}$  to 3 inches, and the handles being so arranged that several men can pull together.

**CAMP STOVE No. 0, COMPLETE, WITH EQUIPMENT.**

Stove of sheet-iron with handle; oval-shaped when packed; flat bottom. Height, 13 inches; diameter, 10 by 15 inches; weight, about 20 pounds. Boston, Mass. (H. H. Dunkle patent). 57,665. U. S. Fish Commission. Equipment or contents—1 tin boiler,  $8\frac{1}{2}$  inches deep, 12 inches wide, with wire handle; 1 tin pail, 9 inches deep, 12 inches wide; 2 broad oval-shaped pans,  $10\frac{1}{2}$  inches long, 8 inches wide, 2 inches deep; 1 coffee-pot, 6 inches deep,  $5\frac{1}{2}$  inches diameter at bottom,  $3\frac{3}{4}$  inches diameter

**CAMP STOVE NO. 0, COMPLETE, WITH EQUIPMENT—Continued.**

at top; 3 tin cups; 1 tea-kettle; 1 tin flange; 1 bread-toaster; 6 sections stove-pipe, 11½ by 3 inches; 3 stove lids; 3 pairs holders; 1 lifter.

**POCKET-FILTER.**

U. S. Fish Commission. 57,666.

**PACK-BASKET.**

Made of fibers of hard wood woven together; oval shaped, bulging sides, flat top and bottom. Leather shoulder-strap. Height, 20 inches; diameter of top, 18 by 10 inches. U. S. Fish Commission. 56,942. Used for carrying portions of camp outfit.

**TOBACCO.**

Four pieces McAlpin's tobacco for camp use. Length of pieces, 12 inches. Joseph Willits. 57,668.

**SKETCHES OF FISH ON BIRCH-BARK AND PAPER.**

New York. 57,667. Gift of Conroy & Bissett.

**ANGLERS' FOODS.**

Can of roast beef. 57,591. Can of roast veal. 57,592. Can of potted beef. 57,593. Can of potted ham. 57,594. Can of potted chicken. 57,595. Can of rolled ox-tongue. 57,596. Can of sugar-cured tongue. 57,597. Can of lunch ham. 57,598. Can of lunch tongue. 57,599. Can of roast chicken. 57,600. Can of whole roast duck in jelly. 57,614. Can of boned turkey. 57,615. Can of boned chicken. 57,616. Can of succotash, 57,617. Can of lobster. 57,618. Can of plum pudding. 57,619. Can of green corn. 57,620. Package of Hecker's self-raising flour. 57,621. Package of Hecker's self-raising buckwheat. Six pounds. 57,623. Package of Hecker's hominy. Three pounds. 57,624. Package of Hecker's oatmeal. Three pounds. 57,625. Package of wheaten grits. Three pounds. 57,626. Package of farina. One pound. 57,627. Can of baking powder. One pound. 57,628. U. S. Fish Commission.

## F.—VESSELS' PAPERS AND OTHER DOCUMENTS.

69. VESSELS' PAPERS, INSURANCE POLICIES, LOG-BOOKS OF FISHING VOYAGES; PAPERS OF GLOUCESTER SEAMEN'S AND FISHERMEN'S WIDOWS AND ORPHANS AID SOCIETY.

### FISHING SCHOONER'S PAPERS.

Copies of papers carried by the fishing schooner James A. Garfield, of Gloucester, Mass. Fishing shipping paper, containing crew list and agreement between owners and fishermen. Certificate of enrollment. License for enrolled vessel. Circular from the Treasury Department, containing steering and sailing rules, lights, torches, and fog-signals. Synopsis of laws regulating the coasting trade. Gloucester, Mass., 1883. 56,835, 56,839. Gift of Capt. Fitz J. Babson, collector of the port of Gloucester.

### INSURANCE POLICY.

Copy of policy of the schooner James A. Garfield, Gloucester, Mass., issued by the Gloucester Mutual Fishing Insurance Company. Gloucester, Mass., 1883. 56,840. Gift of Capt. Fitz J. Babson.

### BOX FOR VESSEL'S PAPERS.

Tin, unpainted; common form of box carried on fishing trips from New England as a receptacle for the vessel's papers. Dimensions:  $10\frac{3}{4}$  by  $4\frac{1}{2}$  inches. Gloucester, Mass., 1883. 56,834. Gift of Capt. Fitz J. Babson, collector of the port of Gloucester.

### INSURANCE OFFICE.

Photographic view of the Gloucester Mutual Fishing Insurance Company's building. Gloucester, Mass., 1882. (Photo. No. 2097.) U. S. Fish Commission.

## 70. LOG-BOOKS.

KEPT BY MASTERS OF NEW ENGLAND COD-VESSELS UNDER THE REQUIREMENTS OF THE OLD BOUNTY LAW.

### JOURNAL.

Journal of cod-fishing voyage to Western Bank in schooner Day-Spring, of Chatham, Mass., April 15 to September 9, 1853. By Capt. David T. Bassett. 56,846.

## JOURNAL.

Journal of cod-fishing voyage to Western Bank in schooner General Taylor, Capt. Levi Taylor, of Chatham, Mass., April 27 to September 11, 1860. By Capt. Levi Taylor. 56,844. Aggregate of fish taken 24,680; crew of eight men.

## JOURNAL.

Journal of cod-fishing voyage to Sable Island Bank (Western Bank), in schooner Mary A. Taylor, Capt. Henry D. Bassett, of Harwich, Mass., April 24 to August 31, 1860. By Frederick A. Harding. 56,845. A record of the number of fish taken gives the total of 33,255, with a crew of eight men, all told.

## JOURNAL.

Journal of cod-fishing trip to Nantucket Shoals in schooner R. Fowler, of Dennis, Mass., Capt. Isaac Bassett, from April 5 to April 15, 1854. By Watson Baker. 56,847.

KEPT BY FISHERMEN AT THE REQUEST OF THE UNITED STATES FISH COMMISSIONER.

## JOURNAL.

Journal of cod-fishing trip to Grand Bank in schooner Ocean King, of Gloucester, Mass., from Saturday, May 24, 1879, to Wednesday, August 27, 1879. By George W. Scott. 56,841. The incidents of the passages to and from the Bank, the daily catch of fish, &c., are given.

## JOURNAL.

Journal of a season's mackerel fishing in schooner Albert H. Harding, of Gloucester, Mass.; cruising ground from capes of Delaware to coast of Maine, from April 14 to October 22, 1880. By Edward O. Brown. 56,842.

## JOURNAL.

Journal of a season's menhaden fishing in steamer George H. Bradley, of New Bedford, Mass., April 9, to October 15, 1880. By J. F. Fowles, engineer. 56,843. The cruising ground was chiefly in Long Island Sound.

71. PAPERS OF THE GLOUCESTER FISHERMEN'S AND SEAMEN'S WIDOWS AND ORPHANS AID SOCIETY.

## CONSTITUTION.

The constitution of the Gloucester Fishermen's and Seamen's Widows and Orphans Aid Society. Organized March 1865. Contains a preamble, fifteen articles, and the names of the officers. Gloucester, Mass., 1883. 76,028. Gift of J. O. Proctor.

## CERTIFICATE.

Sample of the certificates issued by the society in 1863. This certificate, which has a small engraving at its head, representing navigation, reads as follows: "This certifies that — — has paid for the year 186—, the sum of one dollar towards the fund for the relief of seamen's widows and orphans and disabled seamen. Issued by order of the Widows' and Orphans' Relief Committee. ———— treasurer. Gloucester, Mass." Gloucester, Mass., 1883. Gift of Joseph O. Proctor.

## ANNUAL STATEMENTS.

Showing the receipts, disbursements, and other business of the society. Statement for 1877. 76,024. Statement for 1879. 76,025. Statement for 1880. 76,026. Statement for 1881. 76,027. Gloucester, Mass., 1883. Gift of J. O. Proctor.

## G.—HABITS OF FISHERMEN.

### 72. MUSICAL INSTRUMENTS, GAMES, AND LITERATURE OF THE FISHERMEN.

#### MUSICAL INSTRUMENTS.

##### COLLECTION OF MUSICAL INSTRUMENTS, SONG AND MUSIC BOOKS.

Accordion, violin, harmonica; music book, and fishermen's ballads. This collection represents the musical instruments, &c., most commonly carried on fishing vessels.

#### GAMES.

##### CARDS.

Pack of cards which have been used on fishing vessel Reporter, of Gloucester, Mass., 1883.

##### FISHERMEN'S CHECKER-BOARD.

A half-barrel head, with checker-board marked with red chalk on one side. Checkers made of a piece of an old boot-leg. Gloucester, Mass., 1883. 57,949. Gift of Capt. J. W. Collins. These are easily improvised, and are the kind of checker-boards most commonly used.

##### CANVAS CHECKER AND BACKGAMMON BOARDS.

A piece of canvas, hemmed on the ends, with a checker-board painted on one side and a backgammon-board on the other. 22 inches square. Gloucester, Mass., 1883. 56,832. U. S. Fish Commission. Canvas checker and backgammon boards are often carried on fishing schooners.

##### FOX AND GEESE BOARD.

A plain, square piece of board, with 32 holes; 19 pegs for geese and 1 peg—the longest—for the fox. Board 9 inches square. Gloucester, Mass., 1883. 57,950. Gift of Capt. George Merchant, jr.

##### DIAMOND PUZZLE.

Six small pieces of wood notched so that when put together each binds all the rest. Gloucester, Mass., 1883. 56,831. Gift of Capt. George Merchant, jr. Used to pass away idle time on fishing vessels when making passages, &c. The puzzle consists in putting the blocks together in the right positions.

## CROSS PUZZLE.

Six oblong blocks of hard wood ingeniously notched so that they can be put together in such a manner that one binds the whole; the puzzle is to do this. Gloucester, Mass., 1883. 56,829. Gift of Capt. George Merchant, jr. This is considered one of the most difficult puzzles made or used on fishing vessels.

## ROW-GALLEY PUZZLE.

A frame-work of wood, consisting of two side-pieces and four cross-bars, the two end-bars having holes in them; rove through and hitched around these is a piece of double line. The puzzle is to unmoor or remove the line from the frame-work without using the free ends. This is called "unmooring the row-galley." Gloucester, Mass., 1883. 56,830. Gift of Capt. George Merchant, jr.

## RING PUZZLE.

Consists of an iron ring separated in one place, and having an endless string attached by a "round" turn around the ring. The puzzle is to get the string clear without unwinding it directly. Gloucester, Mass., 1883. 56,827. Gift of Capt. George Merchant, jr.

## WOODEN TOP.

Ash; pointed base; square sides in the middle; round handle at top. Letters A, N, P, and T. on the squares. Gloucester, Mass., 1883. 56,826. Gift of Capt. George Merchant, jr. This is used to play for buttons, cents, &c., by the crews of fishing vessels. Each player spins it in turn, and if it falls with "A" up he takes all the stakes; with "N" he gets nothing; "P" up he puts down; and with "T" up he takes the stake he ventured.

## RATTLE.

Several flat shells strung on a withe made of a cedar or spruce twig. Diameter of withe,  $7\frac{1}{2}$  inches. Neah Bay, Washington Territory. 1,034. Collected by James G. Swan.

## LITERATURE.

## FISHERMEN'S LITERATURE.

Collection of works of fiction. Loss of the Grosvenor, &c., by W. Clark Russel; Peter Simple, and other stories by Marryatt, &c. Gloucester, Mass., 1883. U. S. Fish Commission.

## FISHERMEN'S MEMORIAL AND RECORD BOOK.

The Fishermen's Memorial and Record Book, containing an account of the losses of fishing vessels and fishermen, hair-breadth es-

## FISHERMEN'S MEMORIAL AND RECORD BOOK—Continued.

capas, big fishing trips, &c. Gloucester, Mass., 1872. Proctor Brothers, Gloucester, Mass.

## FISHERMEN'S OWN BOOK.

The Fishermen's Own Book, of the same style as the Memorial and Record Book, contains in addition stories of thrilling experiences, poetry, &c., written by fishermen. Brings the record of the fisheries down to 1882. Gloucester, Mass., 1882. Proctor Brothers, Gloucester, Mass.

## NEWSPAPERS.

Collection of the local papers, Cape Ann Advertiser and Cape Ann Bulletin, published in Gloucester, also several of the Boston daily papers. Gloucester, Mass., 1883. U. S. Fish Commission.

## 73. FISHERMEN'S TOOLS AND OUTFITS.

## SAILMAKER'S PALM.

Leather, with steel thimble. Middletown, Conn. 54,736. Wilcox, Crittenden & Co. Used for sewing sails, &c.

## SAILMAKER'S PALM.

Leather strap to fit around the right hand and thumb, with steel thimble fastened on. Middletown, Conn. 54,737. Wilcox, Crittenden & Co. Used in making sails, &c.

## SAILMAKER'S PALM.

Leather and steel. Made to fit right hand. Middletown, Conn. 54,738. Wilcox, Crittenden & Co. Used on the right hand for forcing sail-needles through canvas when making sails.

## SAILMAKER'S BENCH HOOKS.

Old style of sailmakers' bench hooks (2 specimens). Middletown, Conn., 1882. 54,326. Wilcox, Crittenden & Co.

## SAILMAKER'S BENCH HOOK.

New style of sailmaker's bench hook. Middletown, Conn., 1882. 54,327. Wilcox, Crittenden & Co.

## COOK'S WHISTLE.

Gloucester, Mass., 1883. 54,696. U. S. Fish Commission. Used commonly by cooks of fishing vessels to call the fishermen to their meals.

## COOK'S BELL.

An ordinary hand-bell with wooden handle. Height, 10 inches; diameter of mouth, 6 inches. Gloucester, Mass., 1883. 54,697.

**COOK'S BELL**—Continued.

U. S. Fish Commission. In common use on fishing vessels for calling the crew to their meals.

**SNOW CANE.**

A slender wooden staff about one inch in diameter, with a projecting handle-piece; a circular piece of bone interlaced and lashed with sealskin thongs fits over and is lashed to an ivory peg inserted in the recessed tip of the cane; the tip of cane is served with strips of seal-skin. Length, 48 inches. Cape Nome, Alaska. 45,424. Collected by E. W. Nelson. Used by travelers when walking with snow-shoes.

**DITTY-BOX.**

Pine wood veneered with walnut. U. S. Fish Commission. 57,893. This was the ditty-box of one of the crew of schooner *Grace L. Fears*, of Gloucester, Mass. The contents are shown with it from No. 57,894 to No. 57,923, inclusive. Contents of ditty-box: 1 broken dory-compass; 1 spray of tree coral; 1 bunch of buttons; 3 spools of thread; 2 thimbles; 1 account-book and pencil; 1 shark's tooth; 4 matches; 1 brierwood pipe; 1 broken clay pipe; 1 whetstone; 1 pair scissors; 1 suspender-buckle; 1 palm thimble; 2 rolls beeswax; 2 line-splicers; 2 "hurdy-gurdy" screws; 1 jig-rasp; 1 file for sharpening hooks; 2 needles for sewing gear; 1 piece of pipe-stem; 2 "lucky cents" (one American, one British Provincial); 1 clothes-hook; 2 tobacco-knives; 3 slot-swivels; 1 brass swivel; 1 mackerel-splitting knife; 1 piece cotton cloth for mending oil clothes; 1 ball woolen yarn and needle; lot of screws and tacks.

**IMPROVISED DITTY-BOX.**

A rough oblong wooden box without cover. This was improvised from some empty salt-box or something similar in which the cook had brought stores on board the vessel. Gloucester, Mass., 1883. 57,924. Gift of Peter Nelson, of schooner *Grace L. Fears*, Gloucester. The contents are shown with it, from No. 57,925 to 57,946, inclusive. Contents of ditty-box: 1 grommet-ring; 1 pair scissors; 1 suspender-strap; 2 pieces of rubber cloth for mending; 1 horn needle-case; 5 sewing-needles; 1 cod-hook; 2 shirt-buttons; 10 old nails, a screw and tacks; 5 broken clay pipes; 2 halibut trawl-hooks; 2 trawl-beckets; 1 thimble; 2 pieces pipe-stem; 2 line-splicers; 1 file; 1 spool black thread and needles; 2 "hurdy-gurdy" screws; 3 swivels for trawl and hand line; 1 bunch of buttons; 1 spray of tree coral; 1 palm for sewing.

## H.—LIFE-SAVING MATERIAL, ETC.

### 74. LIFE-BOATS, RAFTS, AND MATTRESSES.

#### LIFE BOAT.

Model of Higgins & Gifford's life-saving surf-boat; scale, 2 inches to foot. Sharp forward and aft; round bilge; carvel-built; good sheer; air-chambers forward and aft; air-tight cylindrical cases underneath thwarts on each side. Gloucester, Mass., Higgins & Gifford. This model represents a style of life-saving surf-boat built by Messrs. Higgins & Gifford, of Gloucester, Mass., which has been used with much success in rescuing crews and passengers from stranded vessels on the Great Lakes and along the Atlantic coast.

#### LIFE-RAFT.

Model. Patented April 26, 1881. Made of frames attached to empty casks, provided with oars, masts, tent, &c. "The strings attached to the man-holes are to be lashed across to prevent anything from coming out." Frederick S. Allen, Cuttyhunk, Mass. This invention is designed to be carried on board of vessels, and to be used in case of stranding or foundering at sea.

#### HOLMES'S LIFE-PRESERVING MATTRESS AND BERTH.

"A life-preserving mattress inclosed in a berth, which is movable, and answers the four functions of a bed, boat, life-preserver, and, when a number of them are lashed together, they make a very formidable raft. Each berth is supplied with an extra cord or line, to be thrown to any one in distress, or to lash the berths together when forming a raft, and each berth has a pair of oars for the purpose of propelling the same. In case of an accident the berth is drawn out with its contents and dropped or lowered overboard. The buoyancy is very great. The mattress, containing solid cork and cork shavings, will support the largest person in the water. There is also a central hole in the center of the mattress, through which the occupant can go and seat himself or herself on a saddle underneath, which throws all the upper part of the body out of the water and gives the person the free use of the oars, which are chained fast to the berth. The whole device weighs from 32 to 35 pounds; is the full size of a berth, and it slides on cleats in the state-room the same as a drawer. This invention has been adopted as a life-preserver by the United States Board of Supervising Inspect-

**HOLMES'S LIFE-PRESERVING MATTRESS AND BERTH—Continued.**

ors of Steamboats, and resolutions have been adopted by the boards of trade and chambers of commerce and maritime exchanges of the principal cities of the United States, among which are New York, Boston, Philadelphia, Chicago, Saint Paul, Cincinnati, Saint Louis, and Detroit, and has the hearty indorsement of practical vessel-owners in all of these cities."—*M. H. Holmes*, 226 N. Fourth street, Philadelphia, Pa.

**LIFE-SAVING MATTRESS.**

Ostermoor's life-saving mattress, for use on board of steamers, sailing vessels, &c. H. D. Ostermoor & Son, 36 Broadway, New York City.

**75. ILLUSTRATIONS, MEDALS, REPORTS.****SKETCHES.**

Original sketches from which were engraved the illustrations of the *The Century* article upon the United States Life-Saving Service: 1, Off to a wreck; 2, Life-saving station; 3, Drill, &c., in surf-boat; 4, Launching surf-boat; 5, Night patrol; 6, Burning a signal; 7, Hauling mortar-car; 8, Surfman with life-belt; 9, Firing the mortar; 10, Breeches-buoy in operation; 11, Breeches-buoy; 12, Self-righting life-boat; 13, Self-righting life-boat under sail; 14, Life-saving dress; 15, Tally-board and whip-block; 16, Resuscitation, ejecting water; 17, Resuscitation, restoring respiration; 18, Medicine-chest; 19, Mess-room.

Other sketches for illustration of marine subjects: 1, A glimpse of the sun; 2, Hove to for a pilot; 3, Launching the boat; 4, Taking a porpoise aboard; 5, Sebatis in a perilous condition; 6, Beaching the canoe; 7, Reefing the mainsail. (*The Century* Company, New York City, art department, A. W. Drake, superintendent.)

**PHOTOGRAPH OF RELIEF HOUSE.**

Building of the Massachusetts Humane Society, No. 5, Bearskin Neck. Rockport, Mass., 1882. (Photo. No. 1,834.) U. S. Fish Commission.

**MEDALS.**

Medals for life-saving service granted by the Massachusetts Humane Society. Boston, Mass.

**REPORTS.**

Reports of the Massachusetts Humane Society. Boston, Mass.