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COMMERCIAL SALMON TROLLING

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In the fifty years following the discovery that king or chinook, and silver or coho salmon would strike a moving lure or bait, the troll fishery has developed into one of the most extensive fisheries on the Pacific Coast. It now extends from central California to southeastern Alaska, and during recent years has involved as many as 3,400 United States trolling craft. Probably the most important reasons for this phenomenal growth are the sporting nature of the fishery, the relatively independent life lead by the troll fishermen, the fact that effective operations can be conducted either by an individual or, at most, a crew of two, and the fairly dependable financial return from the comparatively small investment required to outfit and operate a boat.

Essentially, troll fishing involves the use of a moving lure or baited hook at a desired depth in the water (Figure 1). Commercial trolling craft vary considerably in size and design but the usual length is from 30 to 60 feet. Whereas the earlier craft were generally of a double end design, i.e., both the bow and stern pointed, the recent trend has been toward the horseshoe type stern. Irrespective of size and design, however, a trolling craft can always be identified by the long upright poles which are used to keep the lines clear of the boat.

Commercial fishing regulations in Alaska permit a maximum of 4 trolling lines on a single boat. Elsewhere on the Pacific Coast more lines are permitted. The main poles, set amidships, are normally about the same length as the boat, while the bow poles are from 10 to 12 feet shorter. Formerly it was the practice to fasten the poles to the base of the foremast and mainmast respectively. However, modern trolling boats have dispensed with the foremast, and the main poles are fastened in a bracket on the gunwale (Figure 2). The brackets are 1/4 to 3/8 galvanized steel plate or cast bronze. Poles are of spruce, cedar, or fir, tapering from a 4 to 5 inch diameter at the butt, to about 2 inches at the tip. They are usually treated with linseed oil and painted. When not in use each of the main poles rests in a groove at the end of the crosstree on either side of the mainmast (Figure 3). This crosstree is set 2 or 3 feet below the top of the mast. The bow poles are laid aft and rest in spring clamps on the crosstree or stand upright in their brackets with the aid of the guy lines (Figure 4). The bow poles are guyed forward on or just behind the stem and aft on the outside of the gunwale. The main poles have two guys forward

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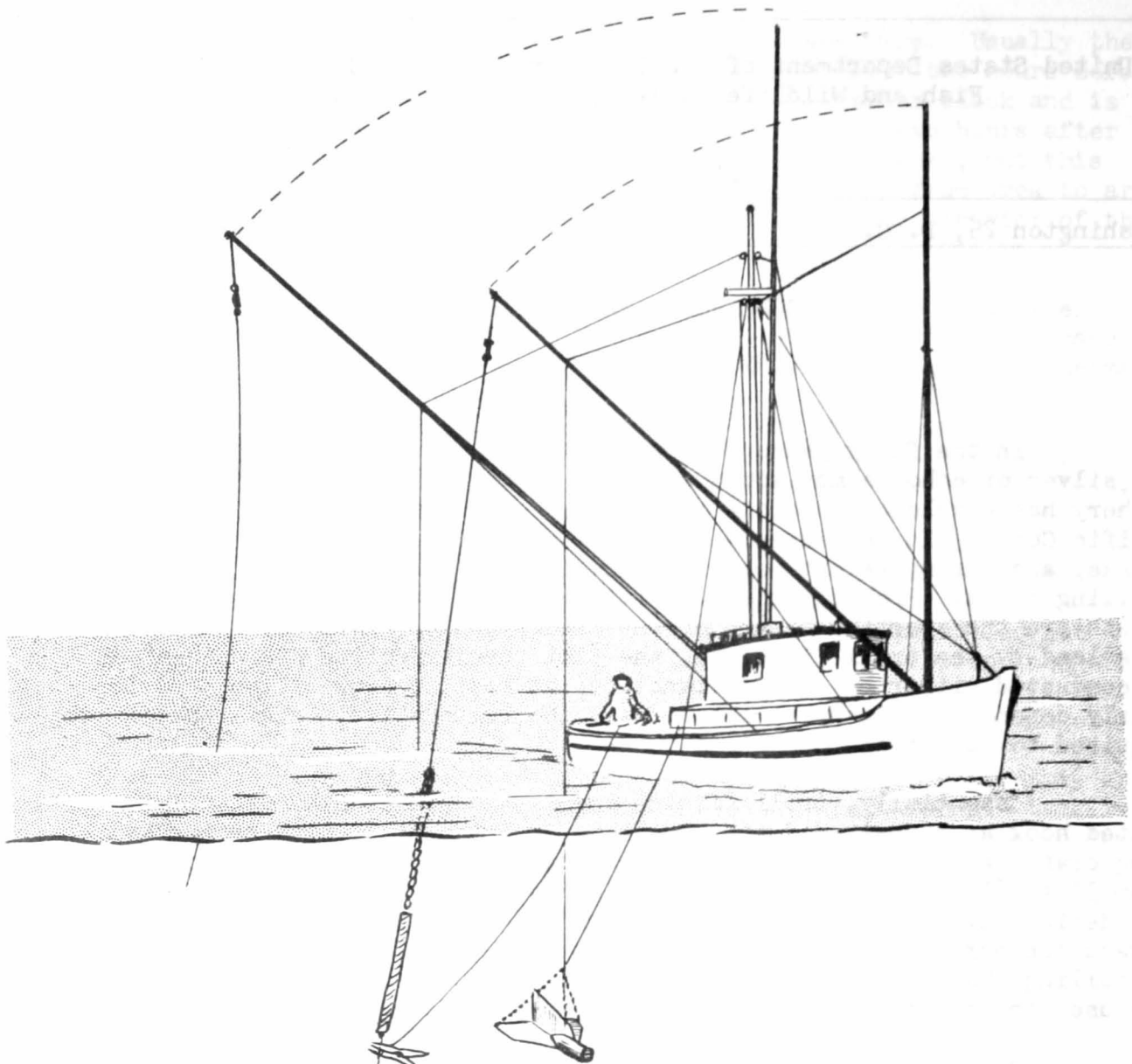


FIG. 1 - TROLLING CRAFT, SHOWING POSITION OF POLES WHILE FISHING AND WHEN UPRIGHT.

and one aft. The guy wires are $\frac{5}{16}$ inch 1 X 7 galvanized steel. A $\frac{3}{8}$ ths or $\frac{1}{2}$ inch line runs from each pole through a 4-inch diameter pulley at the crosstree to raise and lower the poles (Figure 3). Trolling gear consists of three main sections:

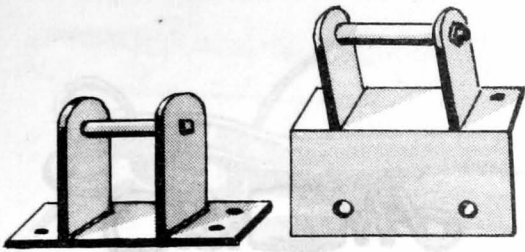


FIG. 2 - GUNWALE BRACKETS FOR ATTACHING TROLLING POLES.

1. A tag line, which is fastened a few inches from the tip of the trolling pole by a double seizing (Figure 5). The tag line is made up of a 1/2 inch manila line of about 2 feet in length, a heavy duty corkscrew swivel (Figure 6), a 1/16 to 1/4 inch stainless tag line wire with a 6 to 9 foot section of 1/4 to 1/2 inch brass pear-link chain (Figure 7), a 12 inch long leather thong or breaker line of 1/2 to 3/4 inch rawhide, and a nickel silver line clamp (metal clothespin) (Figure 8). The tag line varies in length with the size of the pole but the general measure is to permit partial exposure of the pear-link chain at trolling speed.

2. The main trolling line, which is usually of 1/16 inch stainless or bronze twisted wire. From 100 to 150 fathoms of this line is wound on each of the gurdy spools, one for each line. Gurdies are power reels each individually controlled by a clutch and brake and are made in sets of 2, 3, and 4 reels or spools. Power for the gurdies is derived through a take-off and shaft from the main engine. The shaft is connected to an ordinary automobile transmission either by a V-belt or sprocket chain, and the gurdies take off from the transmission. In recent years there has been a trend toward the use of electric motors and hydraulic drives for gurdy power. This latter type can also be adapted to provide reverse as well as direct

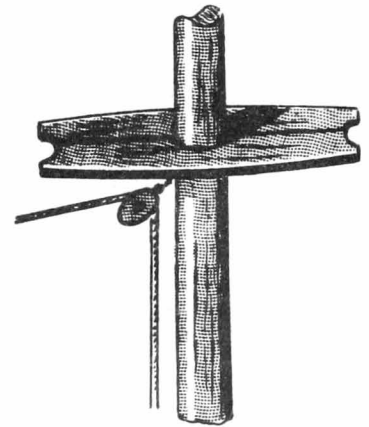


FIG. 3 - CROSS-TREE FOR RESTING POLES IN UPRIGHT POSITION.

action. The trolling wire or line is run vertically from the gurdy spool through a 4 to 6 inch bronze block suspended, (Fig. 20), overhead and thence across to another block on a davit. This davit is usually of 1 to 1 1/2 inch galvanized steel pipe construction high enough to permit freedom of movement for the fisherman and extends at least to, or shortly beyond, the gunwale of the craft. The fisherman stands in a cockpit on the stern of the boat where he has a steering wheel, throttle, and gurdy controls. In fishing, the poles are set out at an angle of about 50° from the mast, and the trolling line is let out by releasing the brake on the individual reel. The fishing line, when in operation, is attached to a cannon ball type sinker (Figure 9). For the main lines an 18 to 22 pound sinker is generally used, whereas a 40 to 50 pound sinker is usually used for the bow lines. On the main line and starting slightly above the one fathom mark from the sinker, paired line stops or

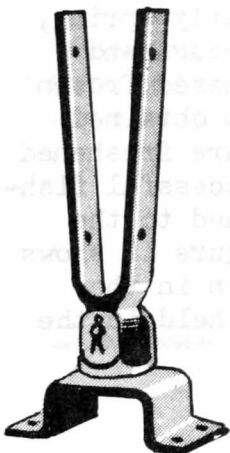


FIG. 4 - DECK BRACKET FOR BOW POLES.

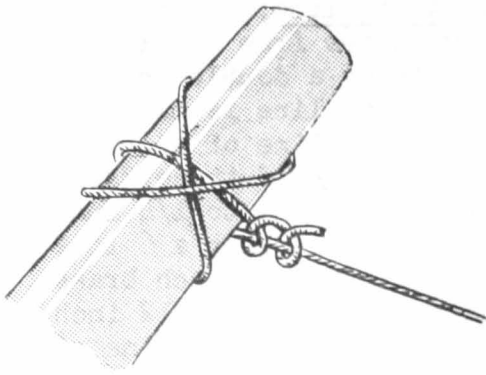


FIG. 5 - METHOD OF ATTACHING TAG LINE
TO TROLLING POLE.



FIG. 6 - CORKSCREW SWIVEL.

wrappings, (Figure 10), of 18 to 20 gauge monel wire, are placed every two to three fathoms to permit the connecting of up to 8 separate leaders. The line stops are usually placed from 2 to 3 inches apart which will form an upper and lower barrier at the connecting leader, thus permitting free action of the leader but controlling its position. Additional wrappings, generally of 9-ply linen salmon twine, are spaced 5 fathoms apart on the main line to measure the length of line that has been let out.

3. The leaders consist of a five inch snap on connector, (Fig. 11), a moulded trolling rubber or rubber tubing of about 1 1/4 inches, a small corkscrew connector, (Figure 6), 2 or 3 fathoms of 21 to 24 strand braided nylon cuttyhunk, another corkscrew connector, and an eye or loop on a stainless steel leader 3 to 5 feet in length (Figure 12). When bait is used, a number 9 or 10 (flat shanked) herring hook (Figure 13) is attached to the stainless steel leader by a double thickness of 9-ply linen salmon twine about 5 to 7 inches in length. The leaders are snapped on the main fishing line between the paired line stops by means of the spring wire connectors. (Figure 11).

Bait. A number of types of baits and lures are used by the commercial salmon trollers operating on the Pacific Coast. In the early spring, herring are used as bait. Later in the season metal spoons and wooden and plastic plugs are substituted. Herring for bait are usually purchased frozen in blocks at cold storage plants along the Coast where ice is also obtained and where the fishermen generally sell their catch. The herring are freshened and thawed as needed by submerging in a bucket of salt water. Successful fishing depends largely upon the manner in which the herring is attached to the hook, a number 9 or 10, and the wobbling action that results. Figure 14 shows a common method of hooking the herring to give it the proper action in the water so as to make it as lifelike as possible. With the herring held in the



FIG. 7 - PEAR-LINK CHAIN.

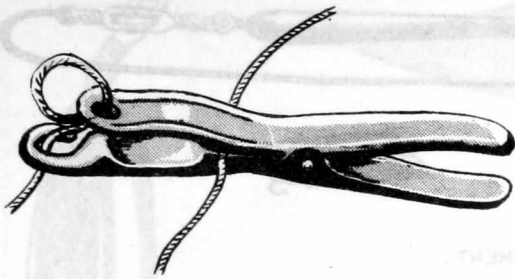


FIG. 8 - LINE CLAMP USED TO ATTACH MAIN TROLLING LINE TO TAG LINE.

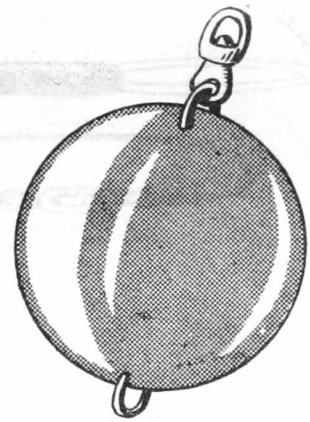


FIG. 9 - CANNON-BALL SINKER.

palm, the left hand is cupped to make a curve. The hook is inserted in the herring either through the right eye or right gill opening then pushed back through the body cavity and out at the right side about 1 1/2 to 2 inches from the tip of the tail. To prevent its tearing the mouth of the herring is then closed and tied with the linen twine, which is tied to the hook. A short wooden stick resembling a strong toothpick is generally inserted through the left gill and backwards through the body cavity to maintain the "kink" of the herring.

Early in the summer many trollers change to spoons and plugs as lures for kings. On a number 7 spoon, (Figure 15), hook sizes 7 and 8 are used. On number 8 spoons, hook sizes 8 and 9 are used. The most commonly used plugs (Figure 16) are the 4 and 6 inch size. Number 6 or 7 stainless steel or nickel plated hooks (Figure 17) are used with plugs. Wooden plugs are fitted with either 1 or 2 hooks depending on how the fish are biting. No more than one hook is used on plastic plugs. One hook on a plug is lighter and permits greater action in the water. The fishermen usually try some plugs with 1 hook and some with 2. As soon as they can tell, they change over to the set-up producing the best results.

For cohos or silver salmon the best lure seems to be a spoon called an egg wobbler (Figure 18), with which a number 6 hook is used. This spoon gets its name from the fact that it is shaped like an egg and about the same size.



FIG. 10 - LINE STOPS ON MAIN LINE.

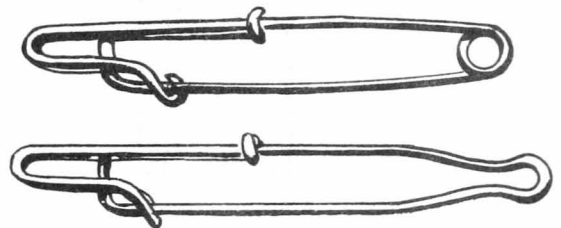


FIG. 11 - SNAP-ON CONNECTOR.

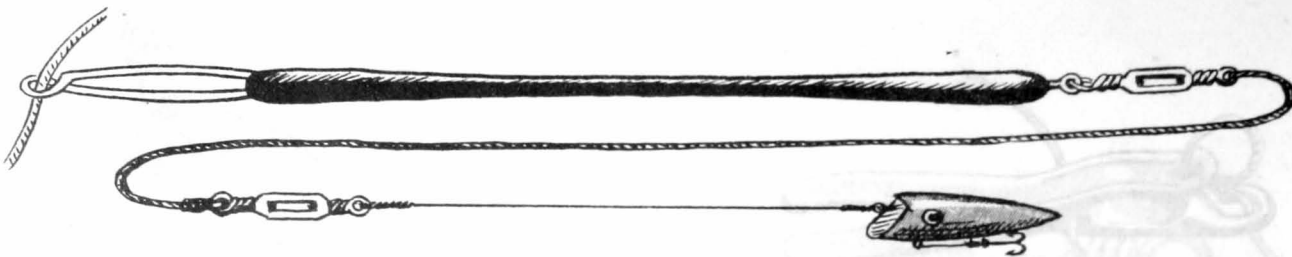


FIG. 12 - LEADER ARRANGEMENT.

Stabilizers. In recent years trollers have been using a device called a "stabilizer" (Figure 19) for reducing the roll of the boat in heavy seas. The device consists of two horizontal boards, one on each side of the vessel, carried 6 to 20 feet under water with the flat surface of the board parallel to the surface of the water. When the vessel rolls to one side, the flat upper surface of the opposite board partially checks the roll. This checking action is exerted even when the vessel is at anchor. The boards are usually hung from the main poles. The supporting line is run through a pulley on the mast then carried about $1/2$ to $2/3$ the way out on the pole. It is usually necessary for such vessels to outfit with heavier poles or support the poles with heavier guy-line braces.

The boards, some of wood, others of metal, vary in size and shape but are roughly $1\ 1/2$ to 2 feet long, by 12 to 16 inches wide, with the forward edge rounded at the corners. Most boards are supported by 3 short bridle chains, two from the forward edge and one from the aft end. On the underside of the forward edge there is usually a lead weight to keep the board down in the water. On the upper surface is a vertical fin or vane which serves to keep the board headed on the course.

Fishing Operations. The usual commercial trolling speed is from one to two knots per hour, although this depends upon the season, locality, depth of fishing, and type of fish that are being sought. A strike is noted by a sharp, jerking motion at the end of the pole.

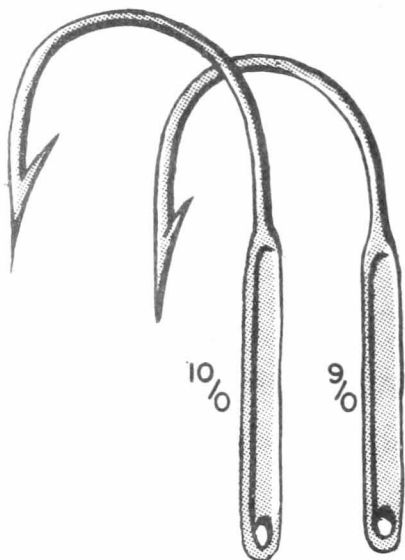


FIG. 13 - HERRING TYPE HOOKS.

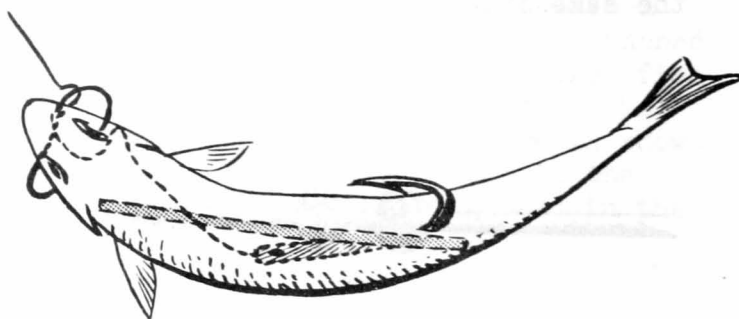


FIG. 14 - METHOD OF HOOKING HERRING FOR BAIT.

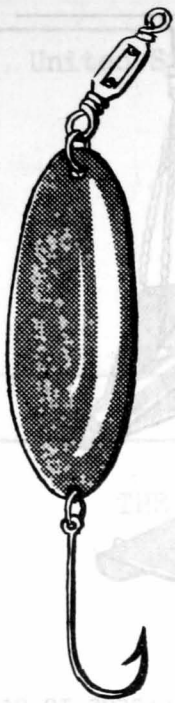


FIG. 15 - METAL SPOON.

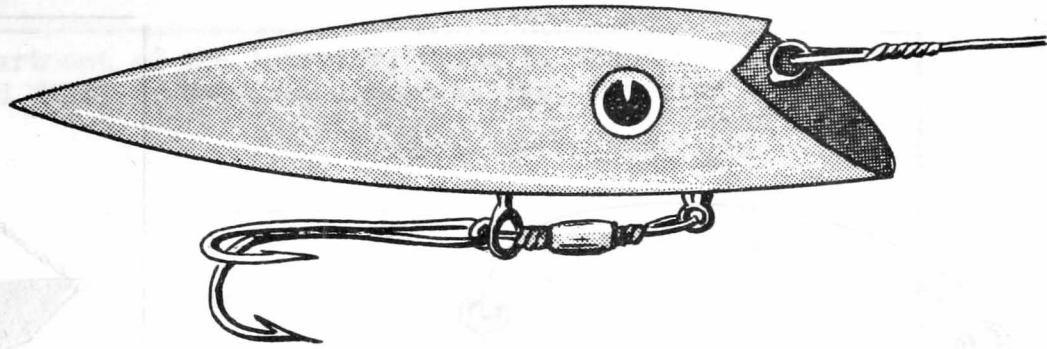


FIG. 16 - TYPICAL FISHING PLUG.

In taking in the line, power is applied to the gurdy and the brake is released on the one to be hauled. The clothespin, or tag line clamp, on the end of the tag line comes alongside as the line is hauled in and it is un-snapped and fastened to a bracket on the gunwale. The weight of the fishing line is then borne by the main instead of the tag line. As empty leaders come up they are un-snapped from the main line, fastened to a short wire alongside the cockpit, and laid out on the stern. The leader with the fish is also un-snapped, fastened on the wire alongside the cockpit, and the fish brought alongside by hand. If the hook is set firmly the fish is stunned by a sharp rap on the back of the head with the gaff handle and then brought aboard with a single sweeping motion of the gaff hook (Figure 20). Checkers, or partitioned holding bins, are arranged on the deck immediately forward of the cockpit where the fish are temporarily held before being dressed and packed in ice in the hold. Trolled salmon are sold by the fishermen by weight. In Alaska red king salmon are small from 6 to 12 pounds, large red kings are those over 12 pounds. White king salmon usually bring about 10 cents less per pound than reds. The larger red kings are filleted into "sides" and mild-cured. The other fish, smaller red kings, white kings, and silvers or cohos, usually enter the market fresh or fresh frozen.

The care with which the fish are dressed and handled, and the sooner the fish are cleaned and iced in the hold, reflects on the quality when delivered and on the price a buyer is willing to offer a fisherman. Fishermen quickly gain either a good or bad reputation among the buyers depending on how well they have taken care of their catch.

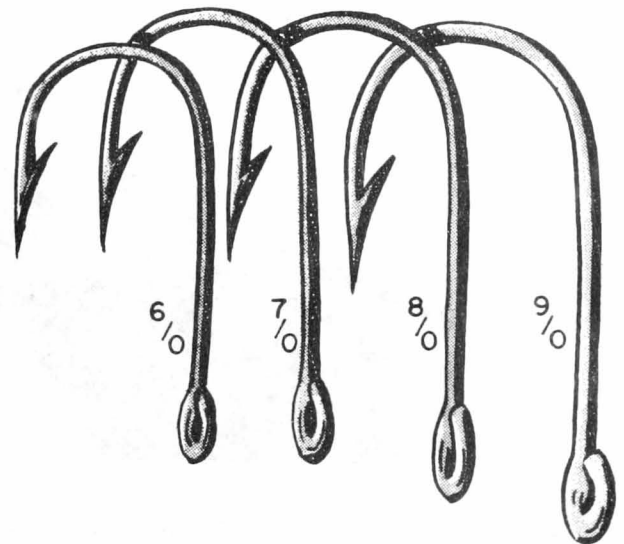


FIG. 17 - HOOKS USED ON SPOONS OR PLUGS.

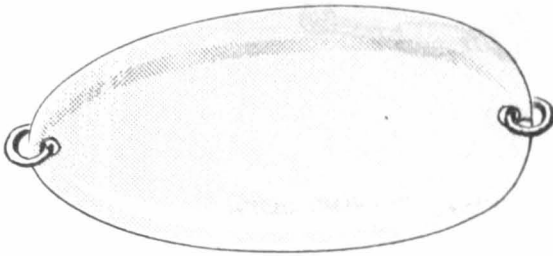


FIG. 18 - EGG WOBBLER.

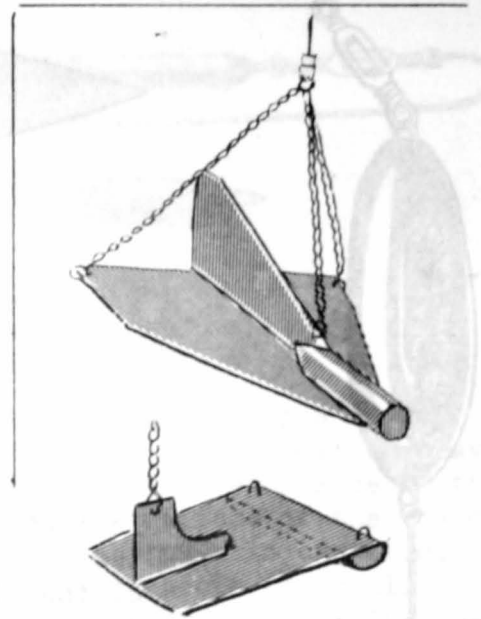


FIG. 19 - TYPICAL STABILIZERS TO REDUCE "ROLL OF BOAT" WHILE FISHING.



FIG. 20 - POWER GURDIES, OVERHEAD TROLLING BLOCK, DAVIT, CHECKERS, AND GAFFING ACTION.