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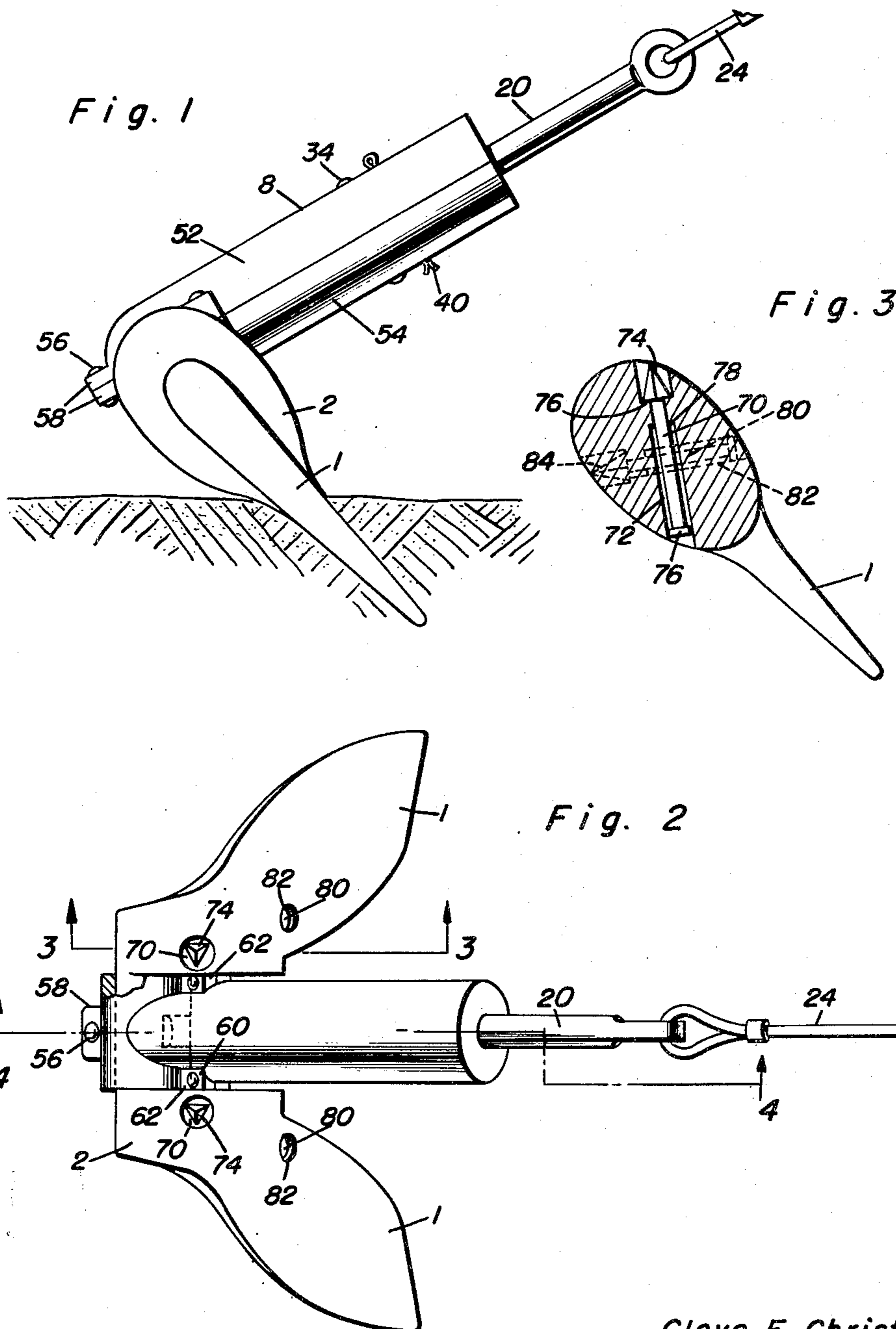
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ANTI-FOULING ANCHOR WITH FLUKE REVOLVING AND LOCKING MEANS

Filed March 5, 1953

2 Sheets-Sheet 1



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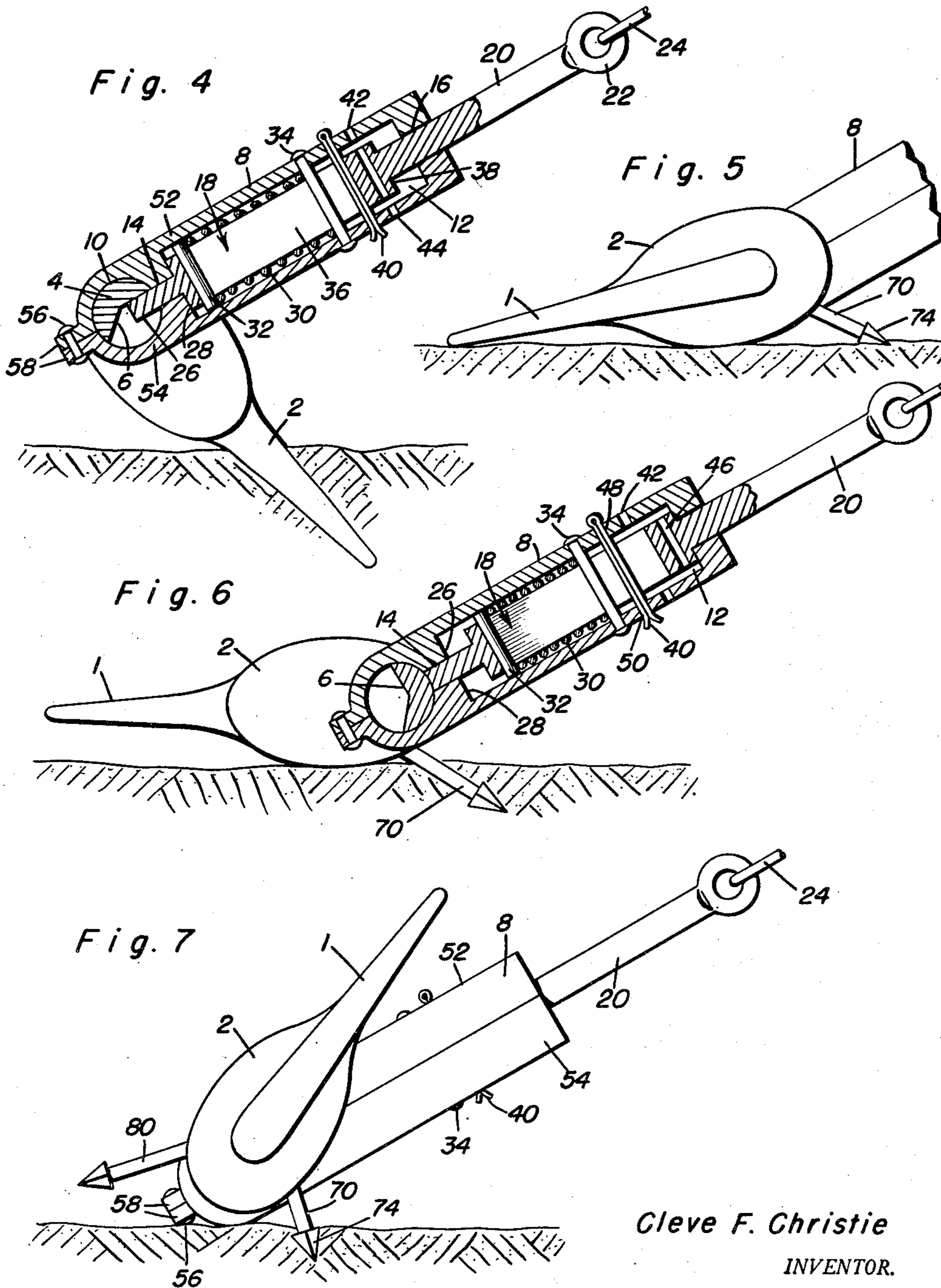
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## ANTI-FOULING ANCHOR WITH FLUKE REVOLVING AND LOCKING MEANS

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2 Claims. (Cl. 114—208)

My invention relates to improvements in anti-fouling anchors of the type in which a pair of flukes are pivoted on a shank and normally locked thereto in anchoring position but adapted to be unlocked by a sudden jerk on the anchor cable for pivotally revolving into release position if the flukes become fouled or snagged, against an immovable object on the bottom so that the anchor cannot be hoisted.

The primary object of my invention is to provide improved locking and releasing means for the flukes of such anchors adapted to hold the flukes locked for anchoring purposes under given pull of the boat against the anchor cable, but, which may be quickly and easily unlocked by a sudden, overload jerk, or pull, on the cable to release the flukes, or permanently locked to prevent such release of the flukes by pull on the cable.

Another object is to provide an anchor of the type and for the above purpose equipped with self-locking means and with bottom engaging means for revolving the flukes from released position into anchoring position for locking by the locking means, if the locking means is unlocked and the flukes released by increased or overload pull on the anchor cable, the bottom engaging means being rendered operative by dragging of the anchor on the bottom while the flukes are released.

Still another object is to provide in such an anchor for easy quick assembly of the locking means with the shank, and attachment of the shank with the flukes.

Still another object is to accomplish the foregoing objectives in an anchor which is of simple construction and comparatively inexpensive to manufacture and safe to use.

Other and subordinate objects, together with the precise nature of my improvements and the advantages thereof, will become readily apparent when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in side elevation partly in section illustrating my improved anchor in the preferred embodiment thereof with the flukes locked in anchoring position;

Figure 2 is a view in plan of the same partly broken away and shown in section;

Figure 3 is a view in transverse section taken on the line 3—3 of Figure 2;

Figure 4 is a view in longitudinal section taken on the line 4—4 of Figure 2;

Figure 5 is a fragmentary view in side elevation illustrating one of the flukes in an unlocked released position;

Figure 6 is a view in longitudinal section similar to Figure 4 but illustrating the operation of the first pair of bottom engaging pins, and

Figure 7 is a view in side elevation illustrating the operation of the second pair of bottom engaging pins.

Referring to the drawings by numerals, my improved anchor, as shown therein comprises a pair of relatively

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diverging flukes 1 with enlarged substantially oval heads 2 integral with opposite ends of a cross connecting shaft 4 provided with a center notch 6 between said heads and forming part of the locking means to be further described.

The shank 8 is provided with a transverse bore 10 in the front end thereof in which the shaft 4 is journaled for pivotal revolving movement of the flukes 1 from anchoring to released position and back into anchoring position. The shank 8 is hollow and provides therein a cylindrical axial chamber 12, a reduced bore 14 at the front end of said chamber communicating with the bore 10, and a reduced bore 16 at the rear end of said shank, both bores 14 and 16 extending axially of the shank.

The locking means includes a relatively smaller cylindrical, locking plunger 18 in the chamber 12 endwise movable forwardly and rearwardly therein and having a reduced pull rod 20 formed on its rear end and which slidably extends out of the bore 16 and is provided with a terminal eye 22 to which the anchor cable 24 is suitably connected. A reduced, flat axial front end 26 on the plunger 18 is slidable forwardly in the bore 14 to enter the notch 6 and engage one side thereof, when the plunger 18 is moved forwardly, or advanced, and whereby to lock the flukes 1 in anchoring, or grappling position, in which the same are transverse and rearwardly and downwardly inclined relative to the shank 8.

The plunger 18 is spring loaded for movement forwardly into locking position against the front end 28 of the chamber 12 by a coil spring 30 circumposing said plunger in the chamber 12 and interposed between a cross-pin 32 in said plunger 18 adjacent its front end and another cross, guide pin 34 extending through the top and bottom of the shank 8 and through a longitudinal guide slot 36 in the plunger 18 to prevent rotation of the plunger 18 in the chamber 12, or shank 8. The cross-pin 32 and the bore 16 and pull rod 20 center the plunger 18 in the chamber 12 and the rear end 38 of the plunger 18 engages the rear end of said chamber 12 and limits rearward movement of said plunger 18. In its limit of rearward movement, the plunger 18 retracts the front end 26 thereof out of the notch 6 to unlock the flukes 1. The cross-pin 32 is fitted endwise in the bore 12 and extends through and bears against the front end of the slot 36.

A cotter pin 40 is provided for extension through top and bottom openings 42, 44 in the shank 8 and through a transverse bore 46 in the plunger 18 to lock said plunger in forward, advanced, locking position to permanently lock the flukes in anchoring position if that be desired. Normally the cotter pin 40 is stored in top and bottom openings 48, 50 in the shank 8 and is extended through the guide slot 36 for easy removal when it is desired to use the same.

Returning now to the shank 8, said shank, for assembly with the shaft 4 and the described locking means is formed of longitudinal half sections 52, 54 secured together by the guide pin 34 and by a pin 56 extending through ears 58 on said sections 52, 54 at the front end of the shank, and said sections 52, 54 are further secured together by pins 60 extending through side flanges 62 on opposite sides of said sections 52, 54 adjacent the front end of said shank. As best shown in Figure 2, the shank 8 is confined at its front end between the heads 2.

The bottom engaging means for revolving the flukes 1 back into anchoring position comprises a first pair of bottom engaging pins 70 slidably mounted in bores 72 in the heads 2 at opposite sides of the front end of the shank 8 and which, when the flukes 1 are in anchoring position are substantially vertical with enlarged sharp pointed ground engaging ends 74 uppermost, and enlarged tail ends 76 lowermost. In the anchoring position of the flukes 1 the ground engaging pins 70 gravitate slid-

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ably into the bores 72 with the ends 74 engaging stop shoulders 76 in said bores 72, but, are free to gravitate out of the bores 72 with the tail ends 76 engaging other stop shoulders 78 in said bores 72 when the flukes 1 are unlocked and in released forwardly extending position relative to the shank 8. A second pair of bottom engaging pins 80, like the pins 70, are mounted like said pins 70 in bores 82, like the bores 72, in the heads 2, but, the second pair of pins 80, in the anchoring position of the flukes 1, extend substantially horizontally and at right angles to the pins 70 with enlarged sharp pointed ground engaging ends 84 at the front of the flukes 1.

The described invention operates as follows. The flukes 1 are normally locked in anchoring position as shown in Figures 1, 2, 3 and 4, by the locking means as described. The spring 30 opposes sufficient force against rearward movement of the plunger 18 to maintain the flukes 1 locked in anchoring position under a given pull, or load, on the anchor cable 24 whereby to hold a boat anchored. If the anchor cable 24 is subjected to a sudden overload jerk, or pull, by sudden violent pitching of the boat, such an overload pull or jerk on the cable 24 will retract the plunger 18 in opposition to the spring 30, whereupon the flukes 1 will become unlocked and released in the manner described, to be revolved by drag of the heads 2 on the bottom under further pull of the anchor cable 24. The flukes 1 will be revolved forwardly of the shank 8, as soon as released, as shown in Figures 5 and 6. When thus revolved, the first pair of bottom engaging pins 70 will be positioned in downwardly and rearwardly inclined position as shown in Figures 5 and 6 with pointed ends 74 lowermost and will slidably gravitate out of the bores 72, as shown in Figure 5, to bite into and be embedded in the bottom under continued pull on the anchor cable 24 and whereby said flukes 1 will be revolved upwardly and rearwardly to position the second pair of ground engaging pins 80 substantially vertical with pointed ends 84 lowermost so that said second pair of pins will gravitate out of the bores 82 and, under continued pull on the anchor cable 24, revolve the flukes back into anchoring position. At this point, the plunger 18 will be spring projected forwardly to again lock the flukes in anchoring position. The second pair of pins 80, as will be noted, become effective after the first pair 70 are revolved out of the bottom or out of bottom engaging position, as shown in Figure 7 so that said pairs of pins become effective successively to cause revolving of the flukes 1 from forwardly extending unlocked position back into anchoring position. By the described operation of the invention, snapping of the anchor cable and/or losing of the anchoring will be prevented particularly if the anchor has become fouled or snagged.

In the event that the anchor has become fouled or snagged so that it cannot be hoisted, a sudden jerk, or overload pull, on the anchor cable 24 manually will unlock the flukes 1 in the manner already described for release so that the anchor may be hoisted by direct lift with the flukes 1 hanging downward. When thus hoisted, the anchor may be cast while the flukes are unlocked

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and the drag of the heads 2 along the bottom will result in the described operation of the bottom engaging pins 70, 80 to cause locking of the flukes 1 in anchoring position. Obviously, the anchor may be cast with the flukes 1 locked.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly, the invention, as described, is susceptible of modification, without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

What is claimed as new is as follows:

1. An anchor comprising a pair of flukes for engaging the bottom of a stream, a hollow shank, a shaft cross-connecting said flukes and journaled transversely on one end of the shank so that said flukes are revoluble from and back into anchoring position, spring actuated locking means in said shank lockably engaging said shaft to lock the flukes in anchoring position, an anchor cable attached to said locking means to unlock the same by a given pull on the cable to release said flukes for revolving out of anchoring position by drag along said bottom under pull on the cable, and gravity actuated, slidable bottom engaging means in said flukes revolved into bottom engaging position by drag of said flukes along the ground and revolving said flukes back into anchoring position, and slidable into said flukes in the anchoring position of said flukes comprising pins having sharp pointed bottom engaging ends, and coacting devices in said flukes and on said pins limiting sliding of said pins.

2. An anchor comprising a pair of flukes for engaging the bottom of a stream, a hollow shank, a shaft cross-connecting said flukes and journaled transversely on one end of the shank so that said flukes are revoluble from and back into anchoring position, spring actuated locking means in said shank lockably engaging said shaft to lock the flukes in anchoring position, an anchor cable attached to said locking means to unlock the same by a given pull on the cable to release said flukes for revolving out of anchoring position by drag along said bottom under pull on the cable, and gravity actuated, slidable bottom engaging means in said flukes revolved into bottom engaging position by drag of said flukes along the ground and revolving said flukes back into anchoring position and slidable into said flukes in the anchoring position of said flukes comprising pins in said flukes in crossed relation for successive engagement with said bottom during revolving of said flukes from and back into anchoring position.

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