

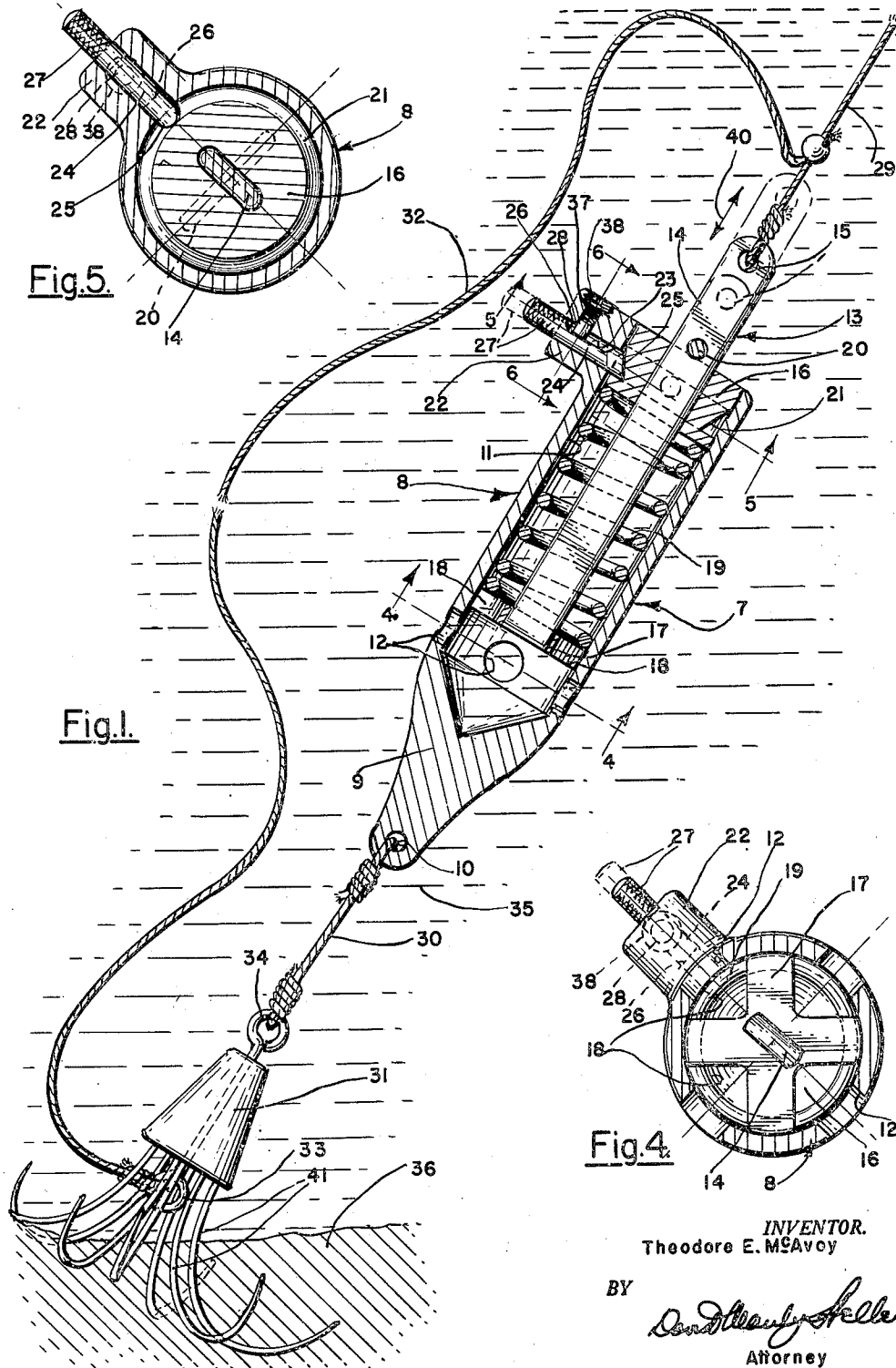
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T. E. McAVOY
RETRIEVABLE ANCHOR MEANS

2,490,460

Filed July 9, 1948

2 Sheets-Sheet 1



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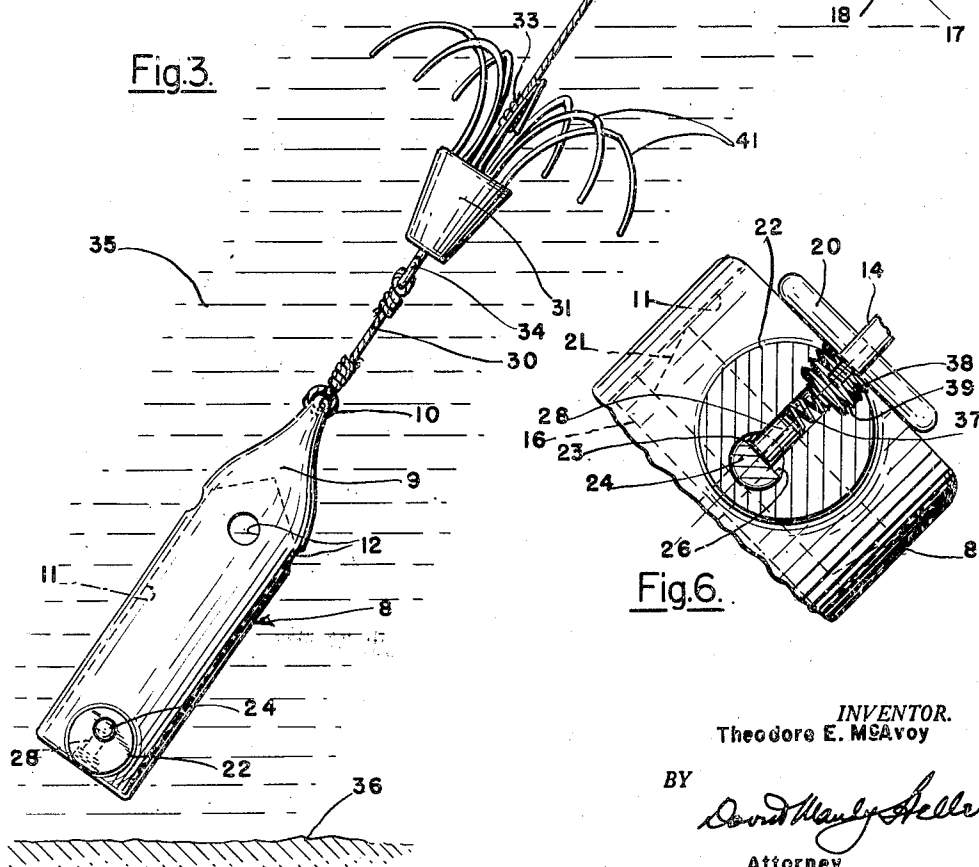
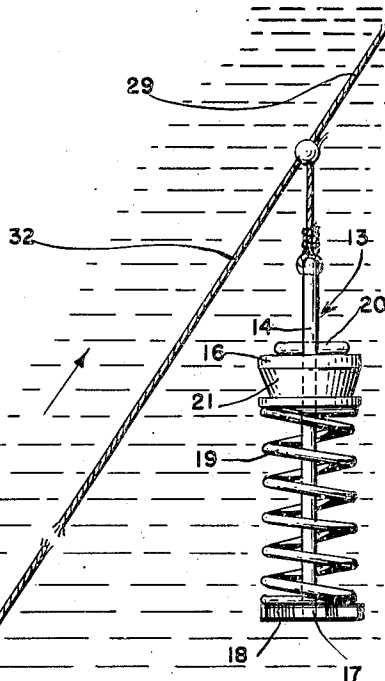
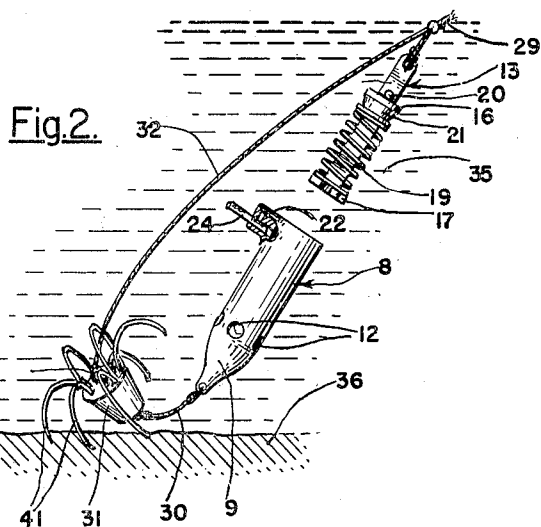
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RETRIEVABLE ANCHOR MEANS

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2 Sheets-Sheet 2



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RETRIEVABLE ANCHOR MEANS

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8 Claims. (Cl. 43-4)

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My invention relates to retrievable anchor devices and bears particular relation to use in connection with anchor lines used in fishing.

Anchor prongs of anchor line often become so firmly embedded in the bottom or bed of the body of water, that they can not be released by direct pull on the anchor line; therefore, I have devised a retrievable anchor means, having an anchor retrieving line attached from the anchor line to the bottom end of the anchor, which will cause the said anchor means to be disengaged from the water bottom by changing the direction of the resultant pull on the anchor when connection between the top of anchor and the anchor line is separated.

An important object of my invention is to provide retrievable anchor means by virtue of which a sharp pull, quickly released on the anchor line will cause the tripping of a spring held locking plunger assembly means, to allow disengagement between the said locking plunger assembly means and a locking plunger body means; thus, separating the direct connection between the anchor line means and the anchor means, causing the anchor retrieving line to retrieve the said anchor means.

A further object of my invention is to provide frictionally held locking pin means to maintain the locking plunger body means and locking plunger assembly means in normal locking engagement when in use.

A further object of my invention is to provide compression spring and trip pin means, which when sharply activated will cause the disengagement of the locking means between the locking plunger and the said locking pin means.

A still further object of my invention is to provide water passage openings and relief passages in the retrievable anchor means to facilitate the spring urged piston action thereof.

A further object of my invention is to provide a workable retrievable anchor means of compact design that may be economically manufactured in large quantities.

Other objects and advantages embraced in my invention will be disclosed in the following description, and in the accompanying illustrations, in which:

Fig. 1 is a side view of my invention, partly in cross-section and showing an anchor embedded in the bed of a body of water, and connected by my retrievable anchor means to the anchor line.

Fig. 2 is a small perspective view of my retrievable anchor means showing its locking plunger body means and locking plunger assembly means separated, and the anchor being retrieved.

Fig. 3 is a side view of my retrievable anchor means, showing the separated positions of its

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various parts, as the anchor is being retrieved from the water.

Fig. 4 is a cross-sectional view of my invention, taken substantially on line 4-4 on Figure 1.

Fig. 5 is a cross-sectional view of my invention, taken substantially on line 5-5 on Figure 1, and showing the locking pin means thereof.

Fig. 6 is an enlarged fragmentary cross-sectional view taken substantially on line 6-6 on Figure 1, and showing the friction plug means of my invention.

Referring to the illustrations, my invention is generally designated 7, and consists of locking plunger body means 8, locking plunger assembly means 13, anchor means 31, and anchor line means 29. The said locking plunger body means 8 preferably has a tapered anchor attaching end 9, in which an eye 10 provides means for attaching the connecting line 30 to attaching eye 34 in anchor means 31. Said anchor means 31 is provided with multiple anchor prongs 41, which are shown in Figure 1, embedded in the bed 36 of a body of water 35.

The locking body means 8 is provided with a bored opening 11, to accommodate locking plunger assembly means 13, which is shown in locking position with locking plunger body means 8, in Figure 1 and in unlocked and separated positions in Figures 2 and 3. The said locking plunger assembly means 13 consists of a plunger shaft 14, having at its top end a line attaching eye 15 for attachment to the anchor line means 29.

A locking plunger 16 is slidably mounted on plunger shaft 14, and a piston head 17 is fixedly attached at the inner end of said plunger shaft 14. The outward movement of locking plunger 16 is limited by trip pin means 20 in plunger shaft 14, and it is held in place by a compression spring 19 coiled about plunger shaft 14, between piston head 17 and said locking plunger 16. The piston head 17 is provided with a number of piston head cut-outs 18, which together with a number of water passage openings 12 at the lower end of locking plunger body means 8, allows water 35 to flow freely into and out of bored opening 11 so that water pressure will not build up therein, to prevent the proper operation of locking plunger assembly means 13. Said locking plunger assembly means 13 is held locked in place within bored opening 11 by a lock pin element 24 together with a locking groove 21 about the circumference of locking plunger 16. The said locking pin element 24 is mounted within lock pin bore 23 in locking pin mounting lug 22, which is formed at the upper end of locking plunger body means 8. The said locking pin element 24 has a tapered cam surface 25 on its inner end, which engages the locking groove 21, when in locked position as shown in solid lines in Figure 1.

Friction plug means 28 having a screw plug 38

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and spring 37 is mounted in enlarged threaded bore 39 in lock pin mounting lug 22 and serves together with slotted locking and pin retaining portion 26 of lock pin element 24 to frictionally maintain the said locking pin element 24 in either a depressed locked position, or a raised unlocked position, as shown by solid and dotted lines in Figure 1. The said slotted pin retaining portion 26 prevents the pin element 24 from being pulled out of bore 23 and lost. The outer end of lock pin element 24 may be knurled as at 27 for easier manipulation thereof, when necessary.

An anchor retrieving line 32 is connected to the anchor line 29 and to the eye 33 at the bottom of anchor 31. It should be noted that the said retrieving line 32 is long enough to permit uncoupling of the component elements of the locking plunger body means 8, and also to be ineffective to pull of anchor line 29 in an upwardly direction when the anchor 31 is in suitable anchorage with the bed 36.

To use my retrievable anchor means, the locking plunger body means 8 is attached to anchor means 31, while anchor line 29 is attached to the eye 15 on the end of plunger shaft 14. Locking plunger assembly means 13 is inserted into bored opening 11 and locked in place by depressing lock pin element 24, and the retrievable anchor means is properly anchored in a desirable place on the bed 36 of a body of water designated 35. To retrieve the anchor, a steady pull is first exerted on anchor line 29. If the anchor does not become disengaged a sharp pull and a quick release is effectuated on anchor line 29. This causes plunger shaft 14 to first move sharply outward and then sharply downward in the direction of arrows 49 in Figure 1, during which action trip pin means 20 will strike locking plunger 16, causing it by the return pull of compression spring 19 to depress locking plunger 16, to a point far enough within bored opening 11 to push lock pin element 24 out of locking groove 21. Since locking pin element 24 is frictionally held, it will therefore remain in this unlocked and disengaged position, allowing locking plunger assembly means 13 to be drawn from bored opening 11 as shown in Figure 2. Since there is no longer a locking connection between locking plunger body means 8 and locking plunger assembly means 13, a continued pull on anchor line 29 will through anchor retrieving line 32 cause the disengagement and retrieving of anchor means 31, as best shown in Figures 2 and 3.

A principal advantage of my retrievable anchor means resides in its simple fool-proof construction, which may be used over and over indefinitely without the replacing of parts as is required by most anchor retrieving means in present use, which depend upon the breaking of a weak breaking line to retrieve the anchor, which line has to be replaced each time.

Although my invention has been described, the terms used are to be deemed terms of description rather than terms of limitation, my intention being to retain the right to all mechanical equivalents of the structural elements depicted, provided they fall within the purview of the appended claims.

Having thus disclosed and revealed my invention, what I claim as new and desire to secure by Letters Patent is:

1. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting

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the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, and anchor retrieving line means connected to the said anchor line means and to the bottom of the said anchor means and having a length exceeding the combined lengths of the said locking plunger body means, the said locking plunger assembly means and the said flexible means.

2. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, and anchor retrieving line means connected to the said anchor line means and to the bottom of the said anchor means and having a length exceeding the combined lengths of said locking plunger body means, the said locking plunger assembly means and the said flexible means, the said locking plunger body means including a bored opening, lock pin mounting lug means adjacent the top thereof and in transverse relation thereto, lock pin means slidably positioned in said lock pin mounting lug means, and friction plug means mounted in said lock pin mounting lug means adapted to maintain the said lock pin means in operative and inoperative positions.

3. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, and anchor retrieving line means connected to the said anchor line means and to the bottom of the said anchor means and having a length exceeding the combined lengths of the said locking plunger body means, the said locking plunger assembly means and the said flexible means, the said locking plunger assembly means including plunger shaft means, piston head means secured to the lower portion thereof, locking plunger means slidably secured on the said plunger shaft means, resilient means coiled about the said plunger shaft means and confined between the said piston head means and the said locking plunger means, and trip pin means secured to the said plunger shaft means adapted to trip and disengage the said locking plunger assembly means from the said locking plunger body means.

4. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, anchor retrieving line means connected to the said anchor line means and to the bottom of the said anchor means and having a length exceeding the combined lengths of the said locking plunger body means, the said locking plunger assembly means and the said flexible means, the said locking plunger body means including a bored opening, a lock pin mounting lug means adjacent the top thereof and in transverse relation thereto, lock pin means slidably positioned in said lock pin mounting lug means,

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and friction plug means mounted in said lock pin mounting lug means adapted to maintain the said lock pin means in operative and inoperative positions, the said locking plunger assembly means including plunger shaft means, piston head means secured to the lower portion thereof, locking plunger means slidably secured on the said plunger shaft means, resilient means coiled about the said plunger shaft means and confined between the said piston head means and the said locking plunger means, and trip pin means secured to the said plunger shaft means adapted to trip and disengage the said locking plunger assembly means from the said locking plunger body means.

5. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, and anchor retrieving line means connected to the said anchor line means and to the bottom of the said anchor means and having a length exceeding the combined lengths of the said locking plunger body means, the said locking plunger assembly means and the said flexible means, the said locking plunger body means being provided with water passage openings, the said locking plunger assembly means comprising a piston head having cut-out portions to facilitate the release of the said locking plunger assembly means from the said locking plunger body means.

6. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, and anchor retrieving line means connected to the said anchor line means and to the bottom of the said anchor means and having a length exceeding the combined lengths of the said locking plunger body means, the said locking plunger assembly means and the said flexible means, the said locking plunger body means including a bored opening, lock pin mounting lug means adjacent the top thereof and in transverse relation thereto, lock pin means slidably positioned in said lock pin mounting lug means, and friction plug means mounted in said lock pin mounting lug means adapted to maintain the said lock pin means in operative and inoperative positions, the said locking plunger body means being provided with water passage openings, the said locking plunger assembly means comprising a piston head having cut-out portions to facilitate the release of the said locking plunger assembly means from the said locking plunger body means.

7. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, and anchor retrieving line means connected to the said anchor line means and to the bottom of the said

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anchor means and having a length exceeding the combined lengths of the said locking plunger body means, the said locking plunger assembly means and the said flexible means, the said locking plunger assembly means including plunger shaft means, piston head means secured to the lower portion thereof, locking plunger means slidably secured on the said plunger shaft means, resilient means coiled about the said plunger shaft means and confined between the said piston head means and the said locking plunger means, and trip pin means secured to the said plunger shaft means adapted to trip and disengage the said locking plunger assembly means from the said locking plunger body means, the said locking plunger body means being provided with water passage openings, the said locking plunger assembly means being provided with piston head cut-out portions for the piston head to facilitate the release of the said locking plunger assembly means from the said locking plunger body means.

8. Retrievable anchor means comprising, anchor means, locking plunger body means, locking plunger assembly means releasably secured to the said body means, flexible means interconnecting the top of said anchor means to the bottom of the said locking plunger body means, anchor line means secured to the free end of the said locking plunger assembly means, anchor retrieving line means connected to the said anchor line means and to the bottom of the said anchor means and having a length exceeding the combined lengths of the said locking plunger body means, the said locking plunger assembly means and the said flexible means, the said locking plunger body means, including a bored opening, lock pin mounting lug means adjacent the top thereof and in transverse relation thereto, lock pin means slidably positioned in said lock pin mounting lug means, and friction plug means mounted in said lock pin mounting lug means adapted to maintain the said lock pin means in operative and inoperative positions, the said locking plunger assembly means including plunger shaft means, piston head means secured to the lower portion thereof, locking plunger means slidably secured on the said plunger shaft means, resilient means coiled about the said plunger shaft means and confined between the said piston head means and the said locking plunger means, and trip pin means secured to the said plunger shaft means adapted to trip and disengage the said locking plunger assembly means from the said locking plunger body means, the said locking plunger body means being provided with water passage openings, the said locking plunger assembly means being provided with piston head cut-out portions for the piston head to facilitate the release of the said locking plunger assembly means from the said locking plunger body means.

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