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FOLDING AND ANTIFOULING ANCHOR

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Fig. 1.

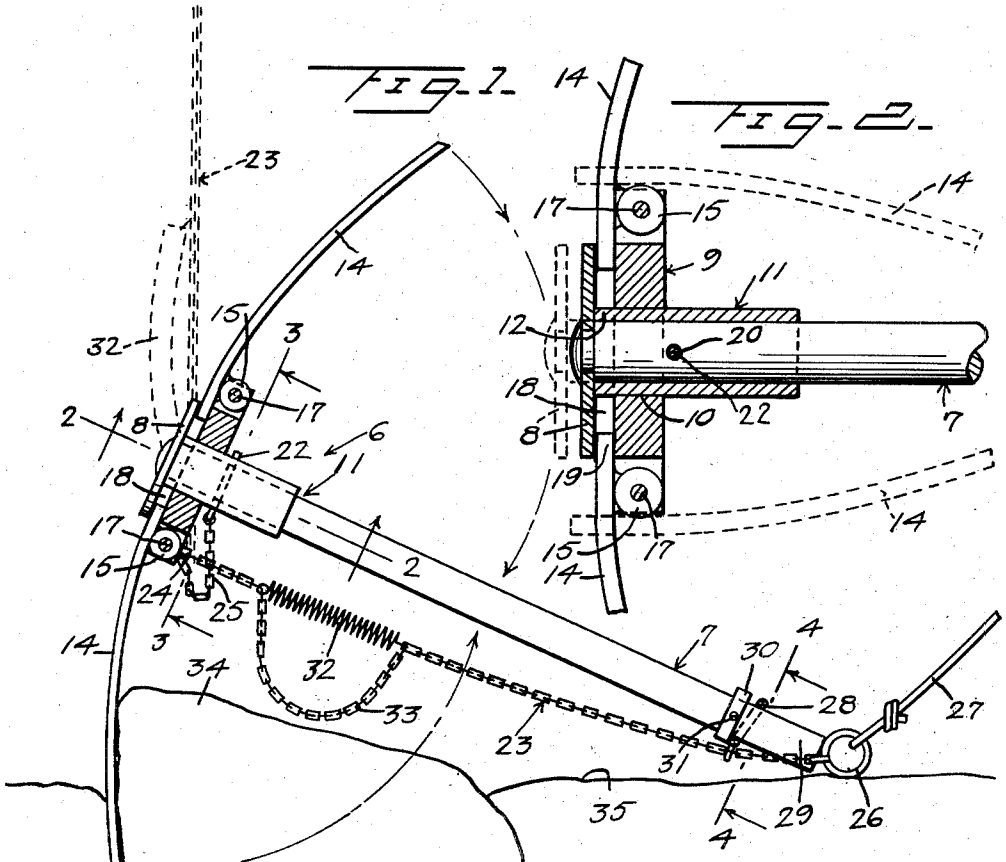


Fig. 2.

Fig. 3.

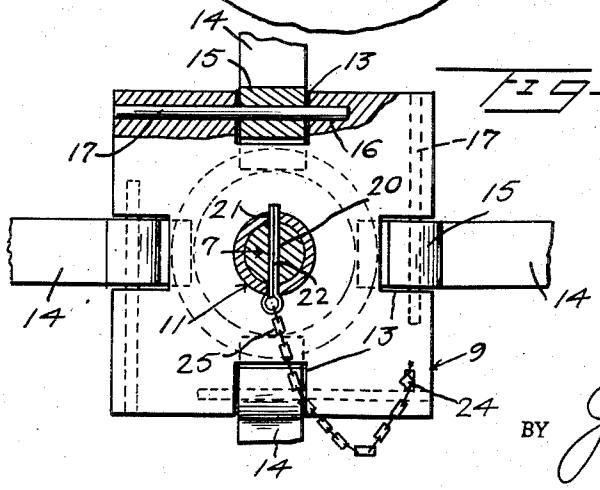
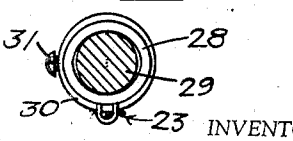


Fig. 4.



INVENTOR

R. C. Patton

BY John N. Randolph

ATTORNEY

United States Patent Office

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FOLDING AND ANTIFOULING ANCHOR

Robert C. Patton, Dover, Ohio

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8 Claims. (Cl. 114—208)

This invention relates to a boat anchor of extremely simple construction having flukes which may be readily folded against the anchor shank to enable the anchor to be stored conveniently and to occupy a very limited space.

Another object of the invention is to provide an anchor having novel means whereby disengagement of the anchor rope from the anchor shank can be effected to enable a direct upward pull to be exerted on the head of the anchor for releasing the anchor when a fluke or flukes thereof are fouled on a submerged obstruction.

Still another object of the invention is to provide a boat anchor of extremely simple construction which may be very economically manufactured and sold, which will be durable and extremely effective in the accomplishment of its intended results.

Other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a vertical sectional view, partly in side elevation, showing the anchor in an operative position;

Figure 2 is an enlarged fragmentary sectional view taken substantially along a plane as indicated by the line 2—2 of Figure 1, and showing the anchor in dotted lines in a folded position;

Figure 3 is an enlarged cross sectional view, taken substantially along a plane as indicated by the line 3—3 of Figure 1, and

Figure 4 is an enlarged cross sectional view, taken substantially along a plane as indicated by the line 4—4 of Figure 1.

Referring more specifically to the drawing, the folding and antifouling anchor in its entirety is designated generally 6 and includes an elongated shank 7. A disc 8 may be secured in any conventional manner fixedly to one end of the shank 7 to provide a head for the shank at said end.

A plate 9, which is preferably of considerable thickness and square, has a central opening 10. A sleeve 11 extends through the opening 10 and is preferably secured therein so that an end portion 12 of the sleeve 11 projects only a short distance beyond one side of the plate 9, while the other end portion of the sleeve 11 extends a substantial distance from the other side of the plate 9.

As best seen in Figure 3, the plate 9 has recesses 13 opening outwardly of the edges thereof and which are preferably disposed midway between the corners of the plate. The anchor 6 includes four corresponding flukes 14 which are longitudinally curved. Each fluke 14 has a bearing element 15 suitably secured to the inner side thereof near an inner end of the fluke and with the axis of the bearing element disposed crosswise of the fluke. The bearing elements 15 are sized to fit loosely in the recesses 13. As seen in Figure 3, the plate 9 has bores 16 extending across the recesses 13 and each of which has an open end opening outwardly of an edge of the plate 9. Pins 17 are disposed in the bores 16 and extend across the recesses 13 and turnably through the bearings 15 for pivotally connecting the flukes 14 to the plate 9.

The shank 7 extends slidably through the sleeve 11 and the head or disc 8 normally abuts against the sleeve end 12 and is maintained thereby spaced from the plate 9 to provide an annular space 18 between the head 8 and plate 9. By sliding the plate 9 and sleeve 11 a short distance along the shank 7 away from the head or disc 8, the flukes 14 can be swung outwardly about their pivots 17 so that the inner ends 19 thereof, which are located adjacent the bearings 15, will abut against the side of the plate 9 which faces the disc 8. The shank 7 can then be slid through the sleeve 11 for moving the disc 8 toward the plate 9 and into engagement with the sleeve end 12, as seen in Figures 1 and 2, so that the inner fluke ends 19 will be confined in the space 18 between said disc 8 and plate 9. With the parts thus disposed, a transverse bore 20 of the shank 7 may align with openings 21 of the sleeve 11 to receive a retaining pin 22 which retains the sleeve 11 immovably on the shank 7. The openings 21 and pin 22 are disposed inwardly of and adjacent the plate 9.

A portion of a flexible member, such as a chain 23, is attached to the inner side of the plate 9, as by a headed fastening 24 which extends through a link of the chain 23 and is anchored in the plate 9, preferably adjacent one corner thereof. The fastening 24 engages a link of the chain which is spaced from the chain ends and a shorter end 25 of the chain extends from the fastening 24 and is connected to the pin 22 to prevent loss of said pin when removed from the openings 21 and bore 20. The remaining longer portion of the chain 23 extends from the fastening 24 to beyond the other end of the shank 7 and terminates in a ring 26 to which an end of an anchor rope is adapted to be secured, as seen at 27 in Figure 1. A ring 28 is secured to a link of the chain 23, near to but spaced from the end ring 26, and is sized to slidably engage the outer end 29 of the shank 7. A collar 30 is detachably secured adjustably on the shank 7 by a setscrew 31 and is disposed near to but spaced from the terminal of said outer end 29 to provide a stop for the ring 28, which is disposed on said end portion 29 between the terminal thereof and said collar 30. A tension spring 32 has its ends connected to spaced links of the chain 23, between the fastening 24 and ring 28, so as to provide a slack portion 33 in the chain between the links thereof engaged by the tension spring 32.

The spring 32 is of sufficient strength so that when a pull is exerted on the anchor line 27 the anchor can be hoisted without the spring 32 stretching sufficiently to permit disengagement of the ring 28 from the shank portion 29, so that the upward pull on the anchor 6 will be from adjacent the shank end 29. However, should a fluke or flukes 14 become fouled by an obstruction 34 so that the anchor 6 cannot be hoisted from the bottom 35, when a sufficient pull is exerted by the anchor rope 27 on the ring 26, the spring 32 will be caused to stretch sufficiently to allow the ring 28 to be disengaged from the outer end 29 of the shank 7 so that the chain 23 can then swing upwardly to substantially a vertical position, as seen in dotted lines in Figure 1. In this dotted line position a direct upward pull can be exerted on the plate 9 for readily disengaging the fluke 14 from the obstruction 34 so that the anchor 6 can be hoisted. If considerable pull is required to dislodge the fluke 14 from the obstruction 34 the slack portion 33 of the chain will become extended when the spring 32 has been stretched sufficiently, to avoid stretching the spring 32 beyond its capacity.

When the anchor 6 is not in use the pin 22 can be removed from the openings 21 and bore 20 so that the disc or head 8 can be slid away from the plate 9 to release the fluke ends 19 so that the flukes 14 can be folded inwardly and against the shank 7, as indicated by the arrows in Figure 1.

Various modifications and changes are contemplated and may be resorted to, without departing from the function or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A boat anchor comprising a shank, a plate mounted on said shank adjacent one end of the shank, flukes connected to and projecting outwardly from the plate, a non-elastic flexible element, means anchoring a part of said flexible element to the plate, said flexible element having a portion extending from said means beyond the opposite end of the shank, the terminal of said portion being adapted to be connected to an anchor line adjacent said last mentioned shank end, a ring connected to said portion of the flexible element at a point spaced from the end thereof and slidably mounted on said shank at a point spaced from the last mentioned shank end, and tension means connected to spaced parts of the flexible element between said anchoring means thereof and the ring for forming a slack portion in the flexible element between said spaced parts sufficient to allow disengagement of the ring from the last mentioned shank end when the tension means is stretched to extend said slack portion.

2. A boat anchor as in claim 1, means pivotally connecting said flukes to the plate, said shank extending slidably through the plate and having a head on the first mentioned end thereof, means detachably securing said plate immovable relative to the shank and with the head spaced from an adjacent side of the plate, and said flukes having inner ends disposed adjacent the pivots thereof and engaging between said head and plate for locking the flukes in extended positions, said securing means being removable for displacement of the plate away from the head to release said inner fluke ends for swinging movement of the flukes inwardly and toward said last mentioned shank end to folded positions around the shank.

3. A boat anchor as in claim 2, a sleeve extending through and secured in said plate and in which said shank is slidably disposed, said sleeve having an end disposed between the plate and shank head for limiting movement of the shank head and plate toward one another and for maintaining a space therebetween to receive the inner ends of the flukes.

4. A boat anchor as in claim 3, said sleeve and shank having openings disposed to align when the head is in engagement with said sleeve end, and a pin forming said securing means extending through said openings.

5. A boat anchor as in claim 4, said flexible member including a short end portion having a terminal end connected to said pin and extending between the pin and said anchoring means.

6. A boat anchor as in claim 1, said flexible member comprising a chain, and a collar adjustably secured to the shank near said last mentioned shank end and forming an abutment for limiting sliding movement of the ring on said shank toward the plate.

7. In combination with a boat anchor comprising an elongated shank and flukes connected to and extending outwardly from said shank near one end thereof; a yieldably extensible member having a portion secured to the anchor adjacent said shank end and extending therefrom to beyond the other end of the shank and adapted to be connected to an anchor rope beyond said last mentioned shank end, a ring secured to said extensible member and slidably engaging said shank, said ring being disposed relative to said secured portion of the extensible member whereby said ring can be disengaged from said last mentioned shank end only when the part of the extensible member, disposed between said ring and said secured portion, is yieldably extended.

8. In combination with a boat anchor comprising an elongated shank and flukes connected to and extending outwardly from said shank near one end thereof; a non-elastic flexible element having a part secured to the anchor adjacent said shank end, said flexible element having a portion extending beyond the opposite end of the shank including a terminal part adapted to be connected to an anchor line, a ring connected to said portion of the flexible element at a point spaced from said terminal part thereof, said ring slidably engaging on said shank at a point spaced from the last mentioned shank end, and tension means connected to spaced parts of the flexible element between said secured part thereof and the ring for forming a slack portion in the flexible element between said spaced parts sufficient to allow disengagement of the ring from the last mentioned shank end when said tension means is stretched to extend said slack portion.

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