Aug. 20, 1968 S. M. GITTENS 3,397,666

ANCHOR HOLDER

Filed Aug. 3, 1967

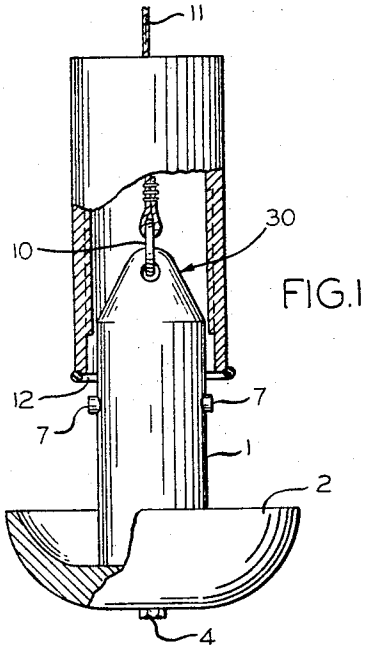


FIG.1

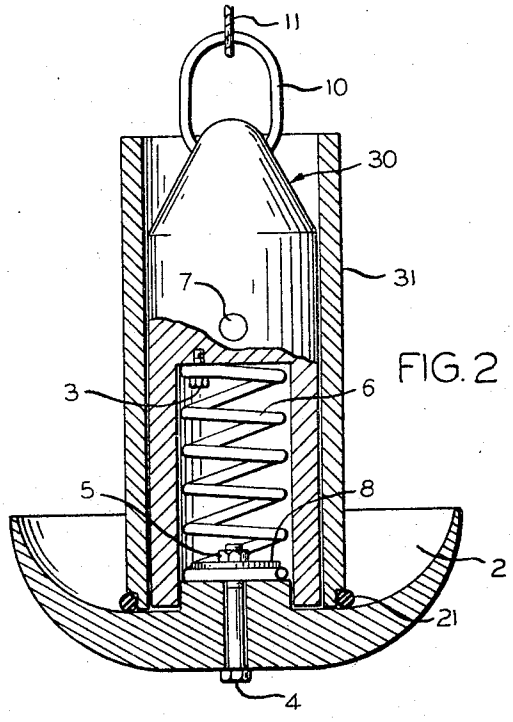


FIG. 2

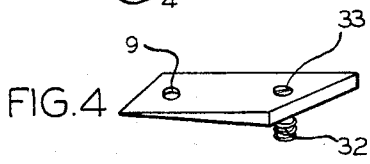


FIG.4

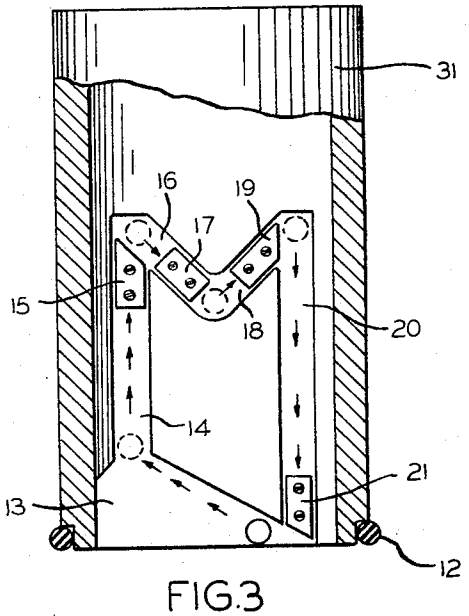


FIG.3

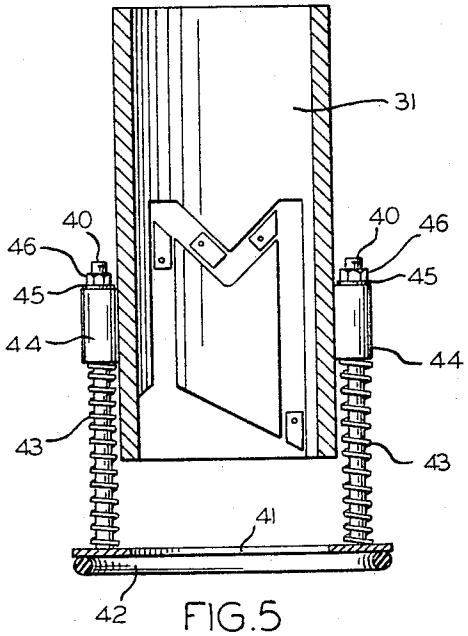


FIG.5

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ANCHOR HOLDER

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ABSTRACT OF THE DISCLOSURE

A combination of an anchor and a holder therefor in which the anchor is automatically pivoted into position for longitudinally traversing a substantial portion of the holder for storage therein. The stored anchor is held firmly in place through action of a spring which is extended by interaction between the flange or flukes of the anchor and the holder such that motion of the anchor within the holder is eliminated. Removal of the anchor is automatically effected by raising the anchor and subsequently allowing the action of the extended spring and of gravity to produce the required lowering. This concept of a holder for firmly securing an anchor may be used with specially designed anchors having a spring connection between the shank and the flange or flukes, and, alternatively, can be adapted for use with an anchor of conventional construction.

BACKGROUND OF THE INVENTION

(1) *Field of the invention.*—This invention pertains to the art of automatically positioning, making fast and releasing an anchor within a holder attached to small boats, particularly cruisers, runabouts and fishing boats.

(2) *Description of the prior art.*—Means for securing anchors within anchor holders on ships and boats frequently provide for insertion of the shank of the anchor into a cylindrical holder or hawse pipe, and for making the anchor line fast when the anchor is in its raised position to prevent its being cast loose. Because of the weight of the anchor, motion of the boat causes considerable movement of the anchor within the holder in this conventional arrangement. Further, varying with the fastening device employed, restriction of the downward motion of the anchor when it rests within the holder produces unusual stress upon the anchor line and shortens line life. Both the problem of motion and of shortened life line are especially pronounced in small boat anchors. The frequency of use of the device to hove up and cast loose the anchor is generally increased in smaller boats. This has a pronounced effect on line life. In addition, small boats frequently attain high speeds and require that passengers ride in close proximity to the carried anchor. This creates an extremely noisy condition which detracts substantially from the pleasure of the ride. In a conveyance where pleasure is a prime consideration, elimination of noise is of considerable importance.

SUMMARY OF THE INVENTION

The foregoing background illustrates that considerable progress is yet to be made in developing the anchor art such that small boats may be equipped with anchor holding and releasing devices which are truly an integral part of the boat and readily available for casting the anchor loose without substantial manipulation by the operator. The solution of the problems of the loosely secured anchor and of dependence on the anchor line for securing the anchor in a holder constitute the primary object of this invention. A further object of the invention is to provide an anchor and anchor holder which will enable the operator to secure and cast loose the anchor solely through application of tension to and release of tension on the anchor line, yet render the anchor substantially free from dependence on the anchor line and from movement relative to the boat when in the secured position.

In the attached drawings and the following description, the best modes presently contemplated for carrying out the invention are set forth. The manner and process of making and using the invention are described below in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention. It should be emphasized, however, that the subject matter regarded as the invention is not limited solely to the here described embodiment of it, but rather includes everything falling within the claims set forth at the conclusion of this specification.

FIGURE 1 is a side elevation of the first embodiment of the invention showing the anchor, partly broken away inserted in the holder, the latter shown in partial cross section.

FIGURE 2 is a side elevation of the first embodiment of the invention showing the anchor in secured position and partially in cross section and the holder in cross section.

FIGURE 3 is a side elevation of the holder in the first embodiment of the invention, partially in cross section.

FIGURE 4 is a perspective view of one of the compressible stops, illustrative of the general construction of all such stops, shown in plan view in FIGURES 3 and 5.

FIGURE 5 is a side elevation of the holder in the second embodiment of the invention, in cross section.

Referring now to the drawings in detail, anchor shank **1** on anchor **30** forms a cylindrical housing having lugs **7** fixed on opposite sides thereof, and ring **10** connected to the top thereof for attachment to anchor line **11**. Spring **6** is inserted in shank **1** and is fixed thereto with bolt **3**. Spring **6** is adapted at its lower end to receive washer **8**. Bolt **4** is inserted through anchor flange **2** and through washer **8** positioned on spring **6**, and nut **5** is applied such that shank **1** and flange **2** are joined.

Anchor holder **31** is a cylinder of sufficient lateral cross section to receive shank **1** and has at its lower end compressible ring **12** fixed thereto. The inside wall of said holder **31** has symmetrically arranged on opposite sides thereof, guide track means as shown in FIGURE 3. This guide track comprises depression **13** with sheer upper edges converging to the entrance ends of longitudinal tracks **14** in opposite halves of holder **31**. At the upper or exit end of said tracks **14**, and positioned from said end a distance at least as great as the diameter of lugs **7**, is compressible stop **15**, the first of a series of wedge-shaped flexible stops fastened to the bottom of the track at their trailing edges by screws **9** and having coil spring **32** fixed beneath their leading edges by screws **33**.

Tracks **14** terminate at their upper end in diagonal tracks **16** the latter having at their lower ends compressible stops **17**. Tracks **16** terminate in diagonal tracks **18**. Tracks **18** have at their upper ends compressible stops **19** and terminate at their upper ends in tracks **20**. Tracks **20** have at their lower ends compressible stops **21** which terminate at the edge of depression **13**.

As anchor **30** is hove up by tension on line **11**, the upper end of shank **1** enters holder **31**. Lugs **7** enter depression **13** and bear on the sheer upper edge thereof causing said lugs to enter tracks **14**. Tracks **14** then guide shank **1** to tracks **16** depressing compressible stop **15**. As lugs **7** pass over said stop **15**, said stop returns to its original position through action of spring **32**, locking lugs **7** from re-entering tracks **14**. When shank **1** is in this position, compressible ring **12** bears on flange **2** extending spring **6** and forcing said flange **2** away from the lower end of shank **1**. This extended position of spring **6** provides

energy to move lugs 7 along track 16 to the point of intersection with track 18.

When lugs 7 are at the point of intersection between tracks 16 and tracks 18, spring 6 is not fully retracted and compressible ring 12 continues to bear on flange 2 causing shank 1 and flange 2 to be securely held on holder 31.

When it is desired to remove anchor 30 from holder 31, tension is applied to anchor line 11 such that lugs 7 move along tracks 18 depressing stops 19 and entering tracks 20. Compressible stops 17 in track 16 prevent lugs 7 from re-entering tracks 16 when tension is so applied.

When lugs 7 enter track 20, the energy of extended spring 6 and the action of gravity combine to move anchor 30 out of holder 31 and the anchor is cast loose. In this manner, removal of anchor 30 is effected by applying tension to anchor line 11 when said anchor is in its secured position and subsequently releasing said tension, without requiring additional manipulation of the anchor or holder.

The foregoing describes the construction and function of the first embodiment of the invention. Said embodiment contemplates use of an anchor having a special spring connection between shank 1 and flange 2. Frequently it will be desired to use anchors of conventional construction in which the shank and flange are rigidly connected. In order to accommodate such anchors, the second embodiment of the invention is provided.

FIGURE 5 shows the anchor holder in the second embodiment. In this embodiment, bolt housings 44 are fixed to the sides of holder 31. Bolts 40 are secured at their lower ends to flat rigid ring 41, are inserted into springs 43, through bolt housings 44 and washers 45. Nuts 46 are then attached to the upper ends of bolts 40.

Compressible ring 42 is attached to the lower side of rigid ring 41. It will now be seen that when anchor 30 is hove in, tension applied to anchor line 11 will pull shank 1 through ring 41 and into holder 31. Engagement between the anchor flange and compressible ring 42 will cause springs 43 to be compressed, and the compressed spring will perform a function identical to that performed by tension in spring 6 in the first embodiment, causing anchor 30 to be secured in holder 31 as outlined above.

Casting loose the anchor from holder 31 is likewise effected in identical manner as above.

It will be observed from the foregoing description that this combination of anchor and anchor holder is readily adaptable for manufacture with varying means for providing a friction lock between components of the anchor and holder such that the anchor will be held secure relative to the holder.

Likewise, the invention is adaptable to varying types of anchors having shanks and flukes of varying configurations. Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a combination of an anchor and an anchor holder, suspension means for suspending an anchor beneath said holder, an opening in said holder for receiving a portion of said anchor, means for positioning said anchor with respect to such holder when the anchor is hove up, locking means independent of said suspension means for locking said anchor to said holder when tension on said suspension means is released and means for casting loose said anchor from said holder through sequential application and release of tension on said suspension means.

2. In a combination of an anchor and an anchor holder as described in claim 1 in which said means for positioning said anchor with respect to such holder comprises a cylinder, symmetrically arranged longitudinal and diagonal tracks on the inner face of the wall of said cylinder, each said track having an entrance and an exit end and restraining means on either side, symmetrically arranged contiguous guides in the lower end of said inner wall, said guides being open on the lower side of their perimeters and having restraining means on their perimeters elsewhere except at the entrance ends of said longitudinal tracks, said restraining means approaching a line at the juncture between guides.

3. In a combination of an anchor and an anchor holder as described in claim 2 in which said tracks and said guides comprise depressions in said inner wall and said restraining means comprise sheer walls.

4. In a combination of an anchor and an anchor holder as described in claim 3 in which said diagonal tracks converge downward to a line of intersection located between said longitudinal tracks and said longitudinal and diagonal tracks and said guides form a continuous symmetrical depression within opposite inner sides of said cylinder.

5. In a combination of an anchor and anchor holder as described in claim 4 in which said anchor has lugs projecting therefrom and the exit end of each such track is equipped with a stop which is deformable by one of said lugs when moving from the entrance end to the exit end of said track thus allowing said lug to move through the exit end of said track, said stop being spontaneously expansible to form a barrier against re-entry of said lug into the exit end of said track.

6. In a combination of an anchor and an anchor holder as described in claim 5 in which each such stop comprises a flexible wedge-shaped plate fastened to the wall of said cylinder within said track, each said wedge having its thin edge most distant from the exit end of said track.

7. In a combination of an anchor and an anchor holder as described in claim 6 in which said locking means consists of an anchor having a shank with guide lugs on opposite sides thereof said shank being coupled to a fluke with an elastically extensible connection, and an anchor holder having a compressible ring fixed to the bottom thereof, said lugs being engageable with said longitudinal and diagonal tracks such that when positioned at the intersection of said diagonal tracks said elastic connection is in partially extended position.

8. In a combination of an anchor and an anchor holder as described in claim 6 in which said locking means consists of an anchor having a shank with guide lugs on opposite sides thereof and a fluke, said shank being rigidly fixed to said fluke, and compressible elastic means associated with said cylinder such that when said lugs are over the line of intersection of said diagonal tracks said compressible elastic means is partially deformed.

9. In a combination of an anchor and an anchor holder as described in claim 8 in which said compressible elastic means comprises a rigid ring, a compressible ring fixed to the bottom of said rigid ring, shafts fixed to the top of said rigid ring, guide means fixed to said cylinder through which said shafts are inserted, a compressible spring on each said shaft which is deformed when said rigid ring moves toward said cylinder and means at the upper end of said shafts to lock the shafts against withdrawal from said guide means.

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