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METHOD AND APPARATUS FOR RAISING ANCHORS

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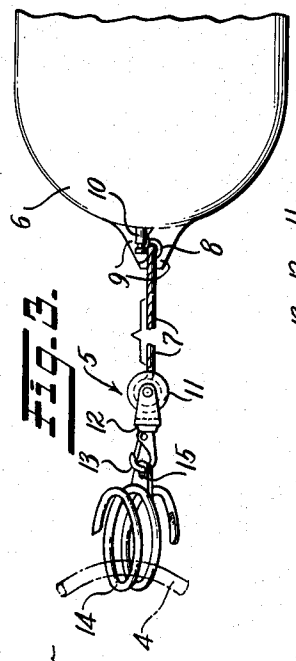


Fig. 3.

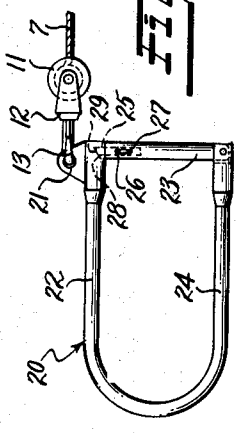


Fig. 4.

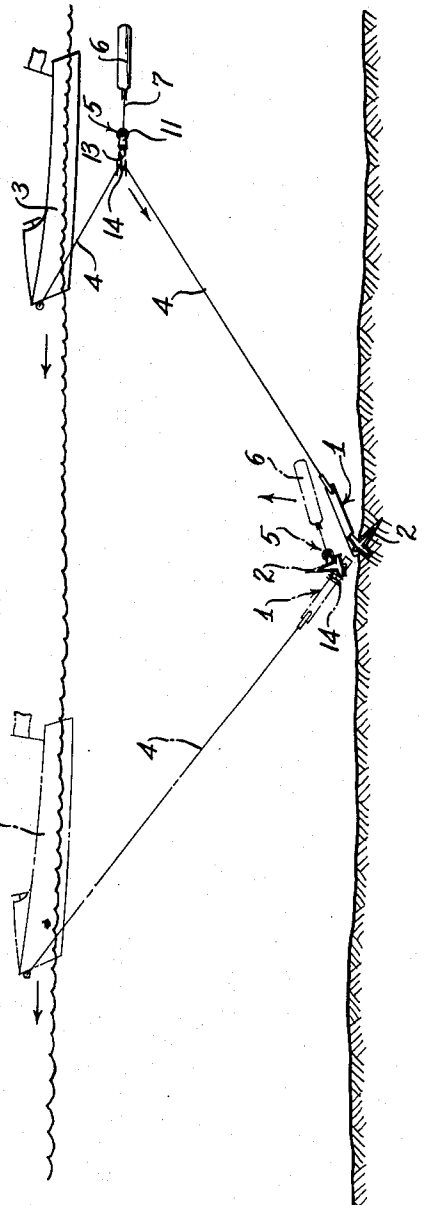


Fig. 2.

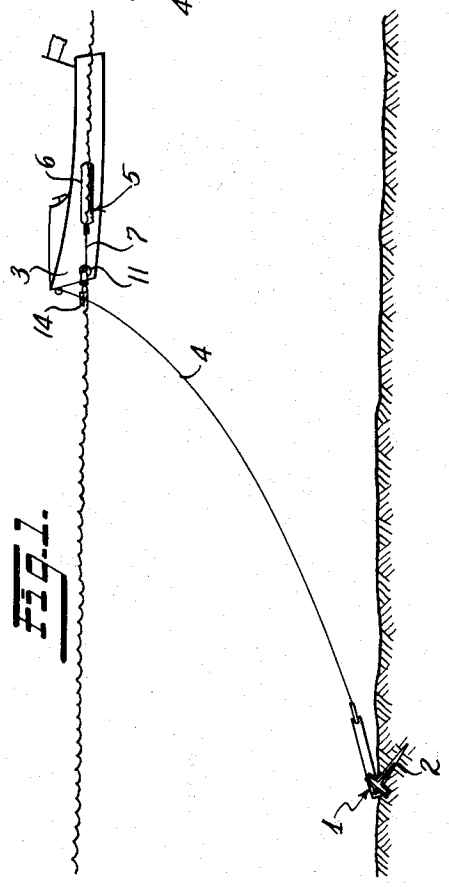


Fig. 1.

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METHOD AND APPARATUS FOR RAISING ANCHORS

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This invention relates generally to a method for raising boat anchors from a submerged anchoring position to a position on the surface of the water and to a novel device particularly adapted to perform this function.

More specifically, the invention relates to the method of raising boat anchors wherein a buoyant device is attached to the anchor line at a point adjacent the boat and is moved down the line to the anchor by the resistance of the water as the device is towed through the water, the anchor being released to the action of the buoyant device when the buoyant device reaches the bottom of the line.

At the present time relatively heavy anchors used with sizeable cabin cruisers and larger boats must be towed in by hand, which is a very difficult operation, or by hand or capstan methods, or by power winch installations which are quite expensive and bulky and which require a reliable source of electric power. The speed of recovery, even with power equipment, is only about twenty-five to thirty feet per minute or ten or twelve minutes to recover an anchor at the end of fifty fathoms of line.

It is a primary object of this invention to provide a method for raising boat anchors which can be readily performed without extraordinary skill and without the use of winches or other unduly bulky, expensive equipment.

A further object is to provide a method of raising the boat anchor which can be performed by one person, such as the operator of the boat.

Another object is to provide a device for use in the aforementioned method of raising boat anchors, such device being simple in construction, quick and convenient in operation, durable in use, economical in cost and capable of compact storage when not in use.

Other objects and advantages will be apparent from the following description when read in conjunction with the accompanying drawings, in which:

FIG. 1 is a diagrammatic elevational view illustrating a boat in conventional anchored position having a device incorporating the device of the instant invention secured to the anchor line thereof preparatory to raising the anchor by the novel method described and claimed herein;

FIG. 2 is a view similar to FIG. 1 showing here the boat and anchor-raising device in a second position during the process of raising the anchor and showing also, in phantom lines, the boat and anchor-raising device in a third position during this process;

FIG. 3 is a fragmentary enlarged view of the anchor-raising device; and

FIG. 4 is a similar view illustrating a modification of the connection between the anchor-raising device and the anchor line.

Referring now more specifically to the drawings, it will be recognized it is conventional to anchor a boat in the manner illustrated diagrammatically in FIG. 1. The anchor **1** has its flukes **2** embedded at a submerged point, and is connected to the boat **3** by an anchor line **4**. The boat **3** is situated on the surface of the water at a position laterally spaced from a point overlying the submerged anchor, normally being carried to this point by the stream or tide within the limitations of the slack in anchor line **4**.

The anchor-raising device **5** comprises an enlarged buoyant member **6**, which may be an inflated waterproof bag of the general type commercially available for use as buoys or the like. The bag is approximately two and one-

half feet long and a foot or more in diameter. It must be of great enough bulk to create, when moving through the water, a drag which is enough to overcome its buoyancy, but its buoyancy must be sufficient to be able to overcome the weight of the anchor.

A rope **7** may be secured at one end thereof by passing the end through eyelets **8** formed in a pair of ears **9** projecting from one end of the bag on either side of a conventional air inlet valve mechanism **10**. The other end of rope **7** is secured, in the preferred embodiment, around a pulley **11**, which is mounted in turn between the legs of a bifurcated portion at one end of a swivel connection **12**. The other end of the swivel connection comprises a conventional spring-latch hook member **13**. In this embodiment the hook member **13** is connected to a rigid coil **14** by passing through an eyelet **15**, secured as by welding or the like to the outer edge of a central convolution thereof.

The internal diameter of coil **14**, as well as the spacing between adjacent convolutions thereof, is greater than the diameter of the anchor line **4**. Thus, the coil **14** can readily be positioned on the line **4**, as by passing the line under one free end of the coil and wrapping it around until it has passed the opposite free end of the coil and can assume a generally axial position within the coil. The coil **14** is thus free to move along the length of the line **4** and when the buoyant member **6** it attached thereto and placed in the water, the boat **3** is moved from its initial position illustrated in FIG. 1 to the successive positions shown in FIG. 2 in full lines and phantom lines, respectively. The bulk of the buoyant member **6** effects a great deal of drag as it is being towed through the water by the anchor line **4**. This drag serves to move the buoyant member **6** downwardly to the particular point on the line **4** where the components of force which it exerts on the line are evenly divided. (See FIG. 2.) This force of the drag is sufficient to overcome the normal buoyancy of the inflatable member while the boat moves at any significant speed toward and beyond the position of anchor **1**.

As the boat **3** continues to move toward the position shown in phantom lines in FIG. 3, the coil **14** passes down the line **4** and onto the anchor shaft. As the line **4** is pulled taut in the opposite direction, the anchor **1** is positively pivoted out of its embedded position and the coil **14** slides easily onto the anchor shaft. At this point, whether the boat **3** continues to move or is stopped, the buoyancy of the member **6** will go into effect and will raise the anchor **1** to the surface of the water. The anchor line **4** may be towed in by any known procedure, and the anchor **1** and buoyant member **6** can be readily lifted into the boat **3**. Preferably, the boat can be turned about and run slowly toward the buoyant member recovering the slack anchor line en route and pulling the anchor itself over the side of the boat. The entire operation normally takes little more than a minute.

An alternative form of the connection is illustrated in FIG. 4 and comprises a U-shaped frame member **20** having an eyelet **21** fixed on the end of one leg **22** thereof and an arm **23** hingedly mounted in a bifurcated section at the end of the other leg **24** thereof. The arm **23** is adapted to span the gap between the legs **22** and **24** and is provided with a cam-ended, spring-loaded latch **25**, telescopically received therein. Latch **25** is operable by a radially extending pin **26** projecting through a slot **27** in one side of the arm **23**. The slot **27** serves to limit the movement of latch **25**, and the force of the spring (not shown) tends to hold the latch **25** in its outer position subject to being cammed inwardly as the arm **23** is pivoted into closed position with the latch member passing into an inwardly facing slot **28** in the leg to be received in an opening **29** at the end of said slot.

It will be understood that numerous modifications may be made in the structure, material and arrangement of the elements described herein without departing from the spirit of the invention and the scope of the annexed claims. Similar modifications may be made in the specific method which has been described.

We claim:

1. A method of raising a submerged anchor which is secured to a boat by an anchor line, comprising the steps of: attaching a large buoyant member to said anchor line for movement along said line from a point of attachment, moving said boat from an initial position remote from a surface point overlying said anchor to a second position equally remote from said surface point by traversing a sufficient distance therebetween to permit the resistance of the water to move said buoyant member downwardly along said line to said anchor, and releasing said anchor by further moving said boat to overturn said anchor whereby said anchor is released to the action of said buoyant member and carried to the surface of the water.

2. The method of claim 1 wherein said buoyant member is secured to said line by an attachment which moves down said line into surrounding relation with respect to the shaft of said anchor, coming to rest against the flukes thereof.

3. An anchor raising device comprising a ring member adapted to be secured to an anchor line at a point intermediate the ends thereof for sliding movement along said line, said ring member having a central opening and means for providing access to said opening from a direction transverse to the axis of said opening to permit attachment and detachment of said ring on said anchor line at said point, a submersible enclosed buoyant member, and non-elastic connecting means secured at one end to said ring member and at the other end to said buoyant member at a centrally disposed point on the forward end thereof, said connecting means including a swivel connection to permit free spinning rotation of said buoyant member with respect to said ring member.

4. In combination, a boat, a flexible anchor line secured at one end thereof to said boat, a boat anchor having an anchor shaft with its outer end fixedly secured at the other end of said anchor line, ring means surrounding said anchor line for free sliding movement therealong, and along the shaft of said anchor, said ring having a central opening and means for providing access to said opening from a direction transverse to axis of said opening to permit attachment and detachment of said ring on said anchor line at an intermediate point along the length thereof, a submersible buoyant member having an enclosed air chamber therein, and non-elastic connecting means securing said buoyant member in spaced relation with respect to said ring means, said connecting means being secured at one end thereof to said ring means and at the other end thereof to said buoyant member at a centrally disposed point on the forward end of said buoyant member and including a swivel connection to permit free spinning rotation of said buoyant member with respect to said ring means, said ring means constituting the sole structure for connecting said buoyant member to said anchor line and said buoyant member having sufficient buoyancy to support the weight of said anchor in water.

5. The device of claim 3 wherein said ring member comprises a rigid coil having spaced convolutions.

6. The device of claim 3 wherein said ring member comprises a rigid element adapted to surround said anchor line, one portion of said rigid element being removable to permit said ring member to be mounted on said anchor line.

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