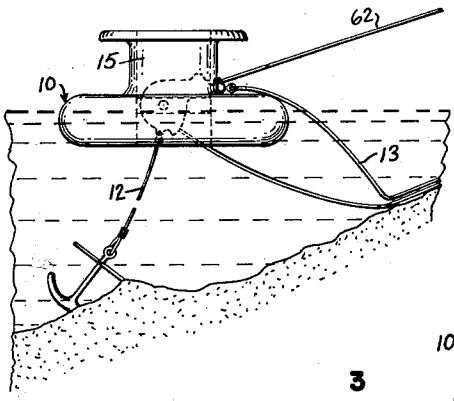
Sept. 25, 1962 H. E. COOK 3,055,336

BOAT MOORING DEVICE

Filed Feb. 4, 1959 2 Sheets-Sheet 1

FIG. 1



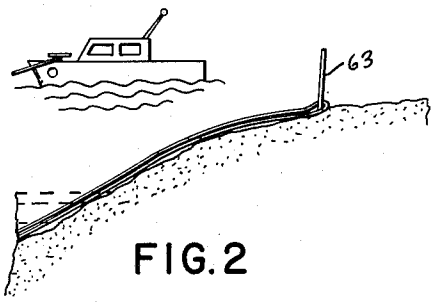


FIG. 2

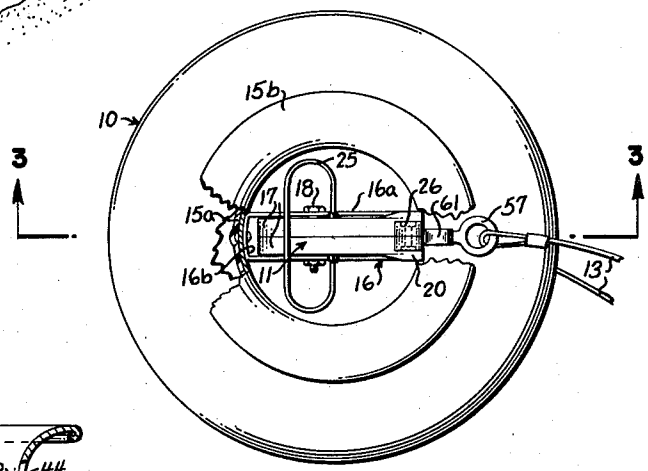


FIG. 3

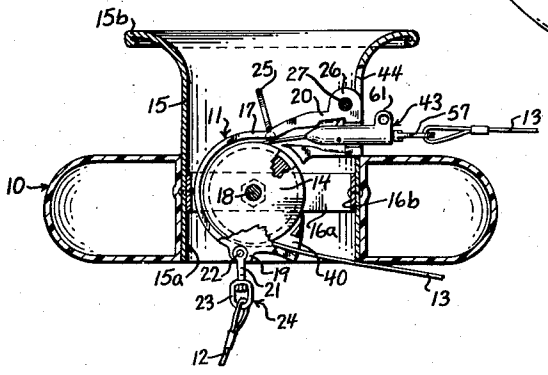


FIG. 4

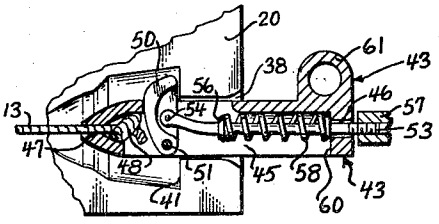
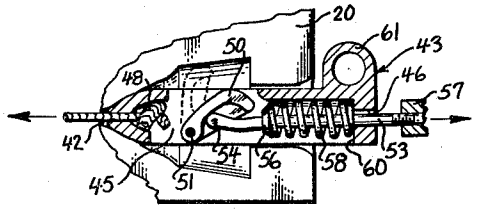


FIG. 5



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Sept. 25, 1962 H. E. COOK 3,055,336

BOAT MOORING DEVICE

Filed Feb. 4, 1959 2 Sheets-Sheet 2

FIG. 6

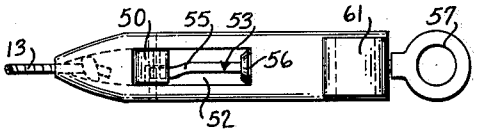


FIG. 7

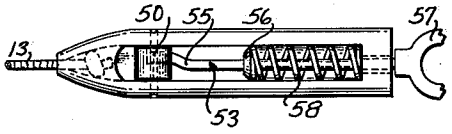


FIG. 8

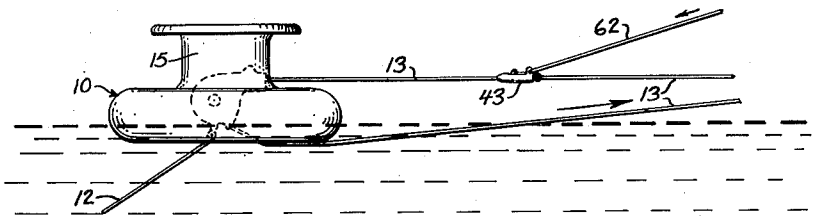


FIG. 9

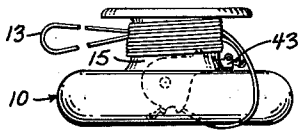
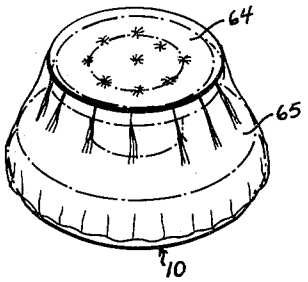


FIG. 10



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BOAT MOORING DEVICE

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Filed Feb. 4, 1959, Ser. No. 791,147
4 Claims. (Cl. 114—230)

The present invention relates to a mooring device particularly designed for use with boats too small to carry a dinghy, and is an improvement over that shown in my copending application Ser. No. 770,516, filed October 29, 1958.

Operators of such smaller boats frequently desire to picnic or camp on shore where there are no docking facilities and where the cruiser cannot be safely or conveniently moored for very long by beaching because of tidal changes, rocks, adverse wave conditions, etc. Yet, without a dinghy, heretofore the operator has not been able to conveniently take the only remaining alternative, and namely anchoring the boat off shore. Accordingly, the present invention aims to provide a device whereby such a boat, after being unloaded on the beach, can be pulled out and secured to a buoy anchored off shore by an operator standing on the beach, and can be readily retrieved from shore without disturbing the buoy and anchor.

As a further object the invention aims to provide such a mooring device which is of simple and economical construction and can be compactly stored.

The invention also aims to provide a mooring device which is not susceptible to fouling.

Still another object is to provide a buoy which also serves as a reel for the lines used in conjunction with the mooring device.

As a further object the invention aims to provide such a mooring device by which the moored boat exerts its pull on the buoy independently of any retrieving line.

Another important object is directed at an arrangement whereby the buoy does not have a tendency to tilt due to pull by the boat through its mooring line.

The invention further aims to provide a mooring device which can be a comfortable seat while not being used for its primary function.

Other and more particular objects and advantages will, with the foregoing, appear and be understood in the course of the following description and claims.

In the accompanying drawings:

FIG. 1 is a side elevational view of my device illustrating the manner of using the same.

FIG. 2 is a top plan view of the device with parts broken away.

FIG. 3 is a vertical sectional view taken along the line 3—3 of FIG. 2.

FIG. 4 is a detail view showing the locking device in locked position within the nose of the pulley unit, the locking device being shown in longitudinal vertical section.

FIG. 5 corresponds to FIG. 4 and illustrates the steps of releasing the locking device.

FIGS. 6 and 7 are top and bottom views, respectively, of the locking device.

FIG. 8 is a side elevational view illustrating my invention as a boat is pulled out to the buoy thereof.

FIG. 9 is a side elevational view showing the reel function of the buoy; and

FIG. 10 is a perspective view showing the device provided with a seat unit.

Referring to the drawings it is seen that my mooring apparatus includes a buoy 10 of generally ring-like configuration which has a pulley unit 11 centrally mounted therein and carrying an anchor line 12 at its lower end. The buoy is formed from any suitable floatable material such as wood, inflated rubber, cellular plastic, etc., and

preferably has a concave rim so as to be adapted to serve as a reel for a retrieving line 13 passing over the wheel 14 of the pulley 11. This reel effect may be provided as shown by a hub member 15 which has a bushing portion 15*a* bonded or otherwise secured to the inner face of the buoy proper and projects upwardly to terminate by an outwardly flared portion 15*b*.

A mounting bar 16 having a pair of cross-arms 16*a* joined at the ends by legs 16*b* traverses the hollow center of the buoy and has its legs riveted to the bushing portion 15*a*. The pulley 11 has a pair of oppositely dished cheek plates 17 encasing its wheel 14 and these are carried between the cross-arms 16*a* by a center axle bolt 18. This arrangement permits the pulley unit to swing in its entirety about the bolt 18 as an axis as well as making the wheel 14 rotatable thereabout. It will be noted that the cheek plates are shaped to collectively provide a forwardly projecting nose 20 at the top and an eye 19 at the bottom for receiving the pin 22 of a U-shackle 21. The latter together with a swivel-mounted eye 23 comprises a swivel fitting 24 making connection between the pulley unit 14 and the anchor line 12. A handle 25 is provided at the top of the pulley unit for lifting the mooring apparatus and the two halves of the nose 20 have tapped ears 26 for receiving a screw 27 to complement the cross-arms 16*a* in holding the cheek plates together on the axle 18.

The retrieving line 13 enters the front of the pulley 11 through an enlarged nostril 38 at the top and a port 40 at the bottom. It is seen that the nostril has a central expanded portion to provide a rearwardly facing annular shoulder 41 and then gradually tapers back to its entry size for a short distance from whence it bevels to a short passage 42. This passage continues into the cavity of the pulley above the groove of its wheel 14 and is large enough to freely receive the line 13.

As seen in FIGURE 3, the function of the nose 20 and its nostril 38 is to receive a tubular locking device 43 having a tapered tail for ease of entry into the nostril through a slot 44 in the hub member 15. This slot 44 is slightly wider than the nose 20 so that the nose can project slightly through the slot and use the lower end thereof as a stop to limit downwardly swinging movement of the pulley unit in the corresponding direction. The tapering of the tail of the locking device 43 is functionally complemented by flaring the mouth of the nostril 38. It will be noted that the locking device has a flat-sided cavity 45 extending for the greater part of its length and exposed to the ends of the device by front and back bores 46—47, respectively. One end of the retrieving line 13 passes through the back bore 47 and has a terminal knot 48 housed at the rear of the cavity 45 for securing the line relative to the locking device. The cavity is exposed at the bottom through most of its length for insertion of the knot 48 and for assembly access to a trigger 50 and its related parts. The trigger is pivotally connected by a pin 51 to the sides of the locking device and projects upwardly therefrom through a slot 52 into the cavity near the aft end thereof. For actuating the trigger there is provided a pull rod 53 having a pivotal connection 54 therewith at a laterally recessed portion of the trigger. From this connection the pull rod extends forwardly along the adjoining side wall of the cavity and then jogs at 55 to a laterally centered position within the cavity to present a collar 56. The pull rod then extends forwardly out through the front bore 46 and is threaded to receive an eye fitting 57 which has the other end of the retrieving line 13 connected thereto. A compression coil spring 58 is sleeved on the pull rod forwardly of the collar 56 and is seated on the latter and the shoulder 60 presented at the forward end of the

cavity. The locking device is completed by an eye **61** which extends laterally from the front end portion thereof to receive a boat line **62**.

It should be understood that the distance from the trigger **50** to the tapered rear end of the locking device is purposely made less than the distance between the nose shoulder **41** and the forward end of the passage **42**, and that the distance from the front of the nose to the shoulder **41** must be at least correspondingly less than the space between the trigger **50** and the eye **61**. The purpose is illustrated by FIGURES 4–5. In the first of these figures the trigger is in locking position under the influence of the spring **58**, and namely pivoted outwardly behind the shoulder **41** so that the locking device cannot be pulled out of the nostril **38** by a pull on the boat line **62**. Continuing to FIGURE 5, the locking device has been pulled by the rear knotted end of the retrieving line **13** to the back of the nostril **38** and for this reason the taper of the tail of the locking device matches that of the rear end portion of the nostril. The trigger is now spaced far enough behind the shoulder **41** to permit the trigger to be swung downwardly from the broken line position in FIG. 5 to the full line retracted position within the confines of the locking device. This retraction is accomplished by pulling the rod **53** forwardly by the upper run of the retrieving line while a rearward pull is maintained on the device by at the same time pulling on the lower run of the retrieving line. It is now possible to withdraw the device from the nostril by continuing the forward pull on the rod **53** and relinquishing the rearward pull.

As before mentioned, the buoy **10** is circumferentially grooved by the hub member **15** to also serve as a reel. This function is illustrated in FIG. 9 wherein it can be seen that the retrieving line **13** is wound in doubled relation around the buoy for storage. In the case of my invention an anchor is set in the conventional manner and its line **12** secured to the eye **23** of the swivel unit **24**. The free loop end of the retrieving line **13** is then grasped and the boat driven toward shore. During the travel to the beach the buoy **10** spins about the swivel unit **24** as the retrieving line is played out. After the boat is unloaded, if not already free the locking unit **43** is released from the pulley nose **20** by first pulling on the lower run of the retrieving line **13** from shore to pull the trigger **50** back from the shoulder **41** (FIG. 4), and then pulling on the upper run and releasing the lower run (FIG. 5). Continued pulling of the upper run brings the locking unit to shore so that the boat's line **62** can be hitched to the eye **61**. As shown in FIG. 8, the boat can then be pulled out to the buoy by pulling on the lower run of the retrieving line **13**. The resulting strain on the pulley **11** may cause the buoy to tip slightly but the axle **18** permits the pulley to swing as the upper and lower runs of the retrieving line seek to aline themselves with the anchor line **12**. In other words the manual pull on the retrieving line is transferred directly through the pulley unit to the anchor line independently of the buoy.

Pull on the upper run of the line **13** is continued until the tapered tail of the locking unit enters the nose **20** and the trigger **50** is urged outwardly by the spring **58** to assume the locked position behind the shoulder **41**. At this time the retrieving line becomes completely free of strain from the boat. Hence, it is seen that the retrieving line can be considerably lighter than the boat line **62** and can, while the boat is moored, be permitted to sink to the bottom. So that it will not be washed out from shore, the shore end of the line **13** is usually tied to a log or tree, or looped over a driven stake **63** as illustrated in FIG. 1.

While the boat is moored to the buoy **10** the swivel unit **24** permits a free swinging of the boat, as induced by tide or wind changes, and a corresponding turning of the buoy. At the same time, since pull on the boat

line **62** is transferred to the anchor line through the engaged locking unit **43** and pulley unit **11** and the entire device has a low center of gravity, there is no danger of the buoy flipping over and fouling the boat and retrieving lines. To retrieve the boat it is only necessary to release the locking unit **43** by manipulating the runs of the retrieving line **13** as afore-described and then pull in on the upper run. When it is desired to pull up anchor, a simple procedure is for the operator, after going aboard, to pull the boat out to the buoy by use of the retrieving line **13**. Then, after releasing the boat line **62**, the retrieving line can be easily wound on the buoy **10** in doubled relation as shown in FIG. 9 by merely rotating the buoy in the water either before or after pulling up the anchor. The handle **25** can then be grasped to lift the device into the boat.

It will be noted that the pulley unit does not extend below the bottom of the buoy and hence my mooring device will sit flat in the boat. If desired it can constitute a seat while stored by placing a seat cushion on the hub member **15** or by providing, as shown in FIG. 10, a special seat unit **64** thereon having a depending skirt portion **65** to enclose the reel and shroud the wound retrieving line.

The advantages of the invention, it is thought, will have been clearly understood from the foregoing detailed description of the illustrated preferred embodiment. Minor changes will suggest themselves and may be resorted to without departing from the spirit of the invention, wherefore it is my intention that no limitations be implied and that the hereto annexed claims be given a scope fully commensurate with the broadest interpretation to which the employed language admits.

What I claim is:

1. In a boat mooring assembly, a buoy with a central cavity, a pulley operatively carried by said buoy within its said cavity, a locking unit with a spring-loaded trigger, a retrieving line working on said pulley and having its ends connected to said locking unit, a boat line fitting mounted on said locking unit, and means carried by said buoy for receiving said trigger in locking relation, said trigger being releasable from said means by manipulation of said retrieving line opposing the spring loading of said trigger.

2. In a boat mooring assembly, a buoy, a pulley unit operatively mounted in said buoy, a locking mechanism operatively associated with said pulley unit, a boat mooring line fitting carried by said locking mechanism, and a retrieving line operatively connected to said mechanism for selectively locking and unlocking it, said retrieving line movably passing into said buoy and around said pulley unit.

3. In a boat mooring assembly, a buoy, a pulley mounting unit in said buoy and having a nostril with an annular stop shoulder, a grooved pulley wheel rotatably mounted on said unit and having its groove exposed to said nostril, a retrieving line passing through said nostril, working on said wheel, and passing from said buoy, an anchor line swivel connected to the lower end of said unit, and an elongated locking assembly presenting an outwardly-urged spring-loaded trigger arranged to retract as it enters the nostril and to thereafter automatically spring out into a locking position behind said stop shoulder, a pull rod provided by said locking assembly and operatively connected by its ends to said trigger and to one end of said retrieving line for retracting said trigger responsive to a manipulation of such line, and a boat line connected to said locking unit.

4. In a boat mooring assembly, a rigid tubular member flared at one of its ends, a buoyant ring fixedly sleeved on said member and spaced from said flared end to define a reel portion between said ring and said flared end, a pulley mounted in said tubular member for turning about an axis transverse to such member and in which said reel portion has a radial opening therethrough, and a line

passing through said opening, over said pulley and out through the end of said member remote from said reel portion.

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