Sept. 19, 1939. F. CERMIN, JR 2,173,354

APPARATUS FOR LOCATING AND RAISING SUNKEN VESSELS

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Fig. 1.

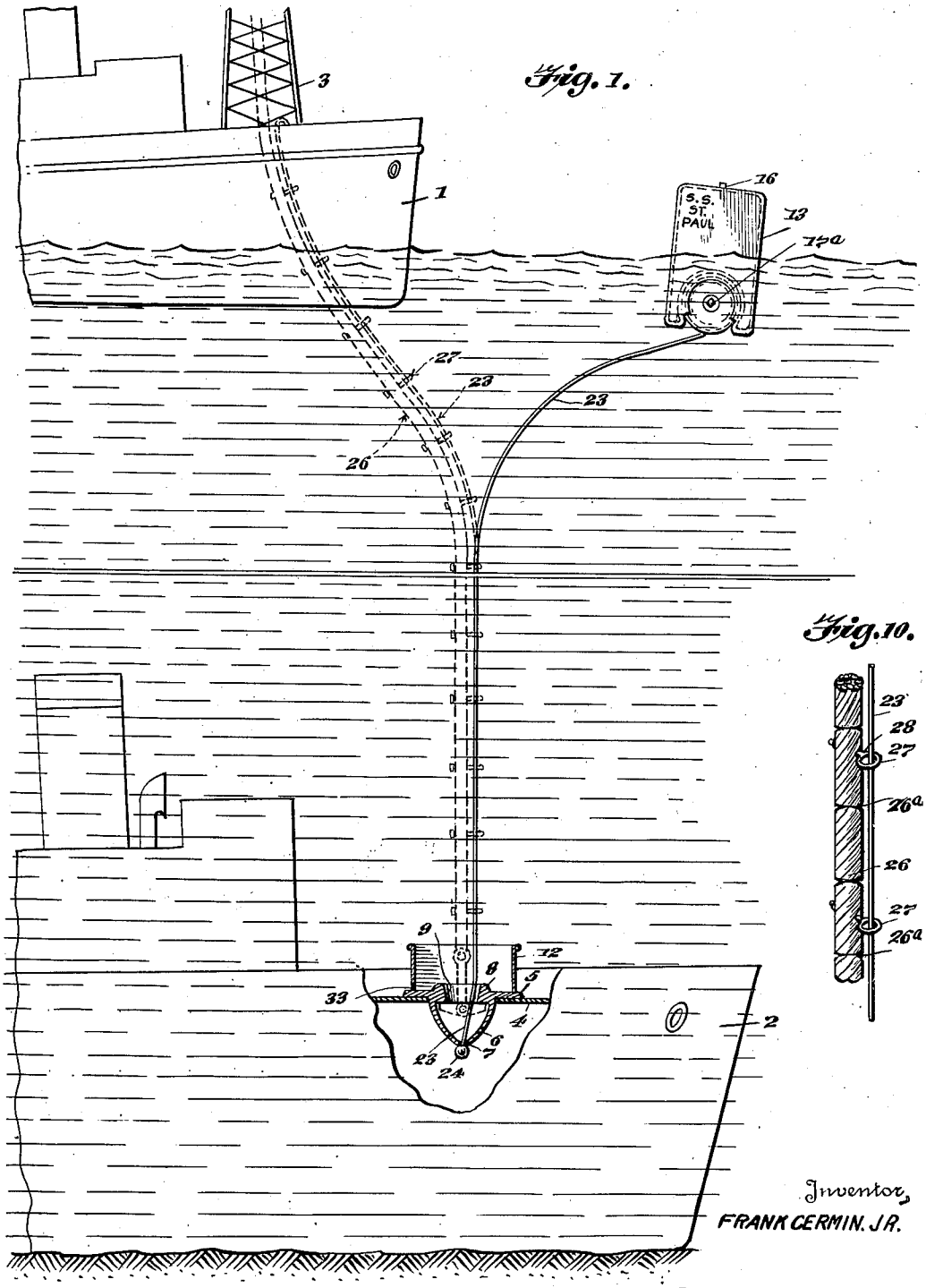


Fig. 10.

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Fig. 2.

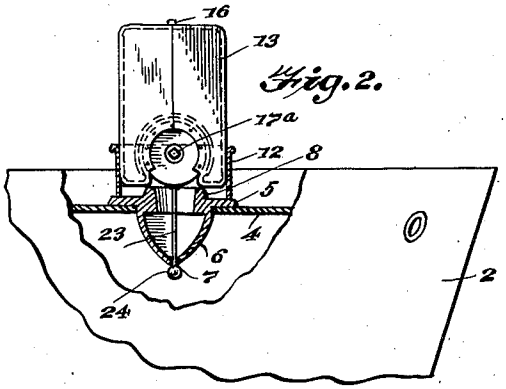


Fig. 3.

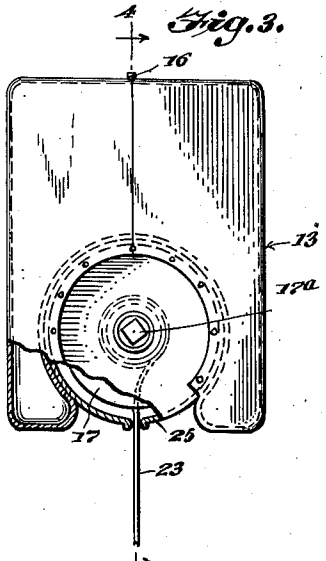


Fig. 4.

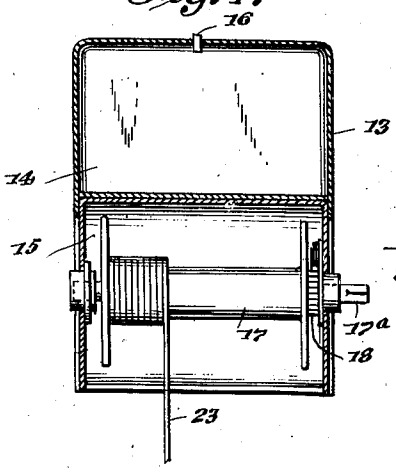


Fig. 8.

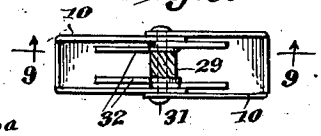


Fig. 7.

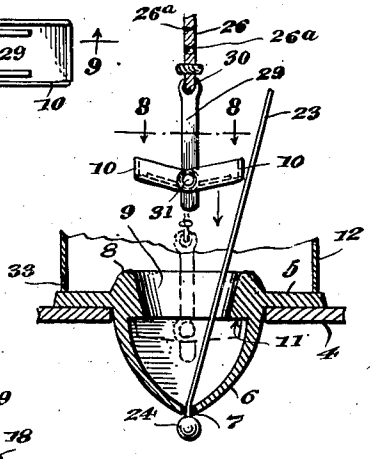


Fig. 5.

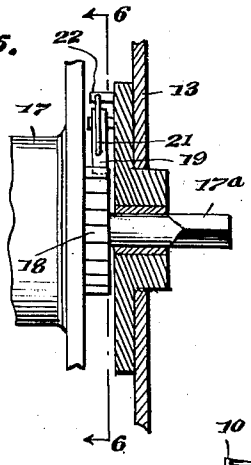


Fig. 6.

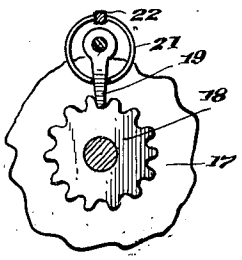
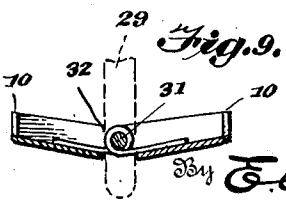


Fig. 9.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR LOCATING AND RAISING SUNKEN VESSELS

Frank Cermin, Jr., San Antonio, Tex.

Application September 19, 1938, Serial No. 230,666

5 Claims. (Cl. 114—16.4)

This invention relates to an apparatus for locating and raising sunken ships, submarines, airplanes, and the like.

An object of the invention is the provision of a novel buoy device carrying a line which is efficiently attached to the receiving device, whereby when the vessel or ship to which the receiving device is attached sinks the buoy device will rise and float on the water, in an exposed condition, thereby indicating the location of the sunken ship or vessel.

Another object of the invention is the provision of means whereby a grappling or tugger device can be guided by a signal cable to the sunken vessel or ship, to permit the tugger device to engage or hook upon the receiving device, so that the sunken vessel or ship can be readily and conveniently raised.

A still further object of the invention is the novel construction of a buoy device forming an essential unit of this invention.

Another object of the invention is the novel construction of the receiving device, which can be secured in any convenient manner to a support, and this support may constitute a part of any type of a ship, whether the ship is adapted to travel in the air, on water, or under water.

With the foregoing and other objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings

Figure 1 is a diagram of the entire apparatus, including the receiving device, shown in vertical central section, the buoy device, shown in side elevation, and the sunken vessel and the salvage vessel.

Figure 2 is a view showing in vertical central section the receiving device, and a buoy device in side elevation, and resting on the receiving device.

Figure 3 is an enlarged view, partly in section and partly in side elevation of the buoy device.

Figure 4 is a longitudinal central sectional view of the buoy device.

Figure 5 is an enlarged fragmentary view of the buoy device, partly in elevation and partly in vertical section.

Figure 6 is a view taken on line 6—6, Figure 5, and looking in the direction of the arrows.

Figure 7 is a view of the receiving device and the tugger device, the tugger device being shown in side elevation and the receiving device in vertical central section.

Figure 8 is a top plan view of the tugger device taken on line 8—8, Figure 7, and looking in the direction of the arrows.

Figure 9 is a sectional view taken on line 9—9, Figure 8, and looking in the direction of the arrows.

Figure 10 is an enlarged fragmentary perspective view of the heavy lifting cable and the signal cable.

Referring to the drawings by numerals, 1 designates a salvage vessel of any type desired. The sunken ship 2 may be of any type, such as a motor vessel for use on the surface of the water, or a submarine, or an airplane, since my invention will efficiently operate in connection with any type of a ship. On the salvage vessel 1 is a suitable derrick 3, for the purpose hereinafter specified.

The apparatus includes the receiving device that can be secured upon any type of a support 4. This receiving device comprises a flat support-engaging plate 5 which has an integral depending hollow bulb-light body 6. This body 6 extends below the support 4 and is provided with an aperture 7. Extending upwardly from plate 5 is an annular thick or broad flange 8. The inner face of flange 8 and the contiguous part of plate 5 is bevelled, as at 9, forming a cone-like opening through which the tugger wings 10 pass, to the dotted position shown in Figure 7, below the support 4, whereby these wings 10 engage the horizontal shoulder 11 formed at the lower end of the flange 8. A rack 12 is secured upon the plate 5 for holding the buoy device, as shown in Figure 2.

The buoy device comprises a hollow casing 13, which casing is divided into a large air compartment 14, in its upper portion; this compartment 14 extends down at the sides of the casing 13 to its lower end, partly around a reel receiving compartment 15 (Fig. 3). The casing 13 is open the greater portion of its lower end. A suitable air-pressure valve 16 is placed upon the top of casing 13, whereby air can be forced into compartment 14 to cause the buoy device to have a high degree of buoyancy. A reel 17 is mounted on the casing 13 within compartment 15. This reel 17 is provided with a ratchet wheel 18. A pawl 19 is pivotally mounted on stud 20, and engages at one end the teeth of the ratchet wheel 18, Figures 5 and 6. A ring-like spring 21 is fastened upon lug 22; the ends of this spring pressing upon the sides of pawl 19, as clearly seen in Figure 6. This drag device, acts in the nature of a brake, because it creates approximately 15

pounds drag on the reel. Coiled around the reel is a signal cable **23**, the outer end of which is threaded through aperture **7**, and has fixed upon its end a ball **24**. This permits the signal cable **23** to have a swivel effect. A steel jacket **25** (Fig. 3) encloses the reel **17**, and this jacket fits within the compartment **15** of the casing **13**; this jacket **25** closes the open portion of the lower end of casing **13** (Fig. 3).

The lifting means of the apparatus comprises a heavy lifting cable **26** which cable **26** is attached in any suitable manner to the derrick **3** on the salvage vessel **1**. On the lifting cable **26** are a plurality of rings **27**; these rings **27** are shown in the present instance as the outer ends of bolts **28**; bolts **28** extend through lifting cable **26** and are secured permanently thereto. When a vessel sinks the buoy device rises to the surface of the water. The salvage vessel takes the signal cable **23** and threads this cable through the rings **27** of the bolts **28**. The tugger device is on the outer end of the lifting cable **26**. This tugger device has the outer end of the shank or bolt **29** fastened at **30** to the outer end of the lifting cable **26**. The tugger wings **10** are pivotally mounted upon a rivet-like fastener **31** which extends through the bolt **29**. Coiled springs **32** are around the rivet **31**, with their ends bearing downwardly upon the inner faces of the wings **10**. The outer ends of the wings **10** are open, so that the wings will be permitted to close up tight around bolt **29** as they pass through the cone opening **9** of the receiving device, and upon their complete passage, into body **6**, springs **22** will cause the wings **10** to open, whereby their outer ends engage shoulder **11**, thereby locking the tugger device in position upon the receiving device, whereupon a sunken ship can then be lifted by the salvage vessel to the surface. Therefore, it will be understood that the lifting cable and its tugger device is easily guided down the signalling cable to the sunken vessel.

The rack **12** is provided with a water drain **33**, Figure 7.

If it is desired, the reel **17**, or the signal cable **23** may be so marked as to indicate the number of feet of the signal cable unwound, in order to show the salvage people the depth of the sunken ship. It is to be understood that the different units of this invention can be made of varying sizes and varying weights, for accommodating same to all conditions, without departing from the spirit and scope of the invention.

The large cable **26** (Figs. 7 and 10) has a number of knuckle joints **26***a* beginning immediately at the grappling or tugger device and extending along the cable **26** for approximately twenty feet. The joints **26***a* are close together in order to allow the head of the cable to bend more easily, thus making it more flexible to be guided by and to follow the contour of the smaller cable **23**.

The outside of the casing **13** of the buoy device is suitably painted on one side for daylight reading and on the other side an illuminated paint is used for night reading, the reading matter comprising principally the name of the ship, etc., as indicated on Figure 1. By this manner of decoration the position of the sunken ship can be easily discovered since the buoy device will be readily seen during daytime or night.

Reel **17** is provided with a crank-engaging end **17***a*.

By the novel construction of the upstanding flange **8**, with its cone-like central opening, the tugger device will very easily enter body **6**. This construction is very durable, as well as being efficient in operation. The receiving device and the buoy device, being made with respect to the ship carrying the same, consume very little space on the ship, yet they are ready to operate when the emergency arises.

While I have described the preferred embodiment of my invention and illustrated the same in the accompanying drawings, certain alterations or changes may appear to one skilled in the art to which this invention relates during the extensive manufacture of same, and I, therefore, reserve the right to make such changes or alterations as shall fairly fall within the scope of the appended claims.

What I claim is:

1. In an apparatus of the character described, a buoyant signal comprising a hollow casing having its lower section formed with a transversely extending pocket having its ends opening through opposite side walls of the casing and having a restricted mouth opening through the bottom of the casing, said casing defining a closed air chamber having depending extensions at opposite sides of said pocket, a cylindrical jacket fitting snugly in said pocket and having heads at its ends closing the openings in the side walls of the casing, said jacket having its lower portion closing the mouth of the pocket and formed with a longitudinally extending slot, a reel in said jacket having shafts at its ends journaled through the heads of said jacket, one shaft being adapted for engagement by turning means, a ratchet carried by said reel, a pawl engaging said ratchet to yieldably resist turning of the reel, a line wound upon said reel and extending outwardly through the slot in said jacket, and means to anchor the outer end of said line.

2. In an apparatus of the character described, a lifting cable, a tugger device secured to the outer end of said lifting cable, and guide members for engaging a guide line carried by said cable in spaced relation to each other longitudinally thereof, each guide member consisting of a ring bolt passing through the cable with its ring projecting laterally from the cable in position to slidably receive the guide line.

3. In an apparatus of the character described, a tugger comprising a shank, means at the upper end of said shank for engagement by a lifting cable, a pair of wings at opposite sides of the lower end of said shank open at their outer ends and having side flanges extending beyond inner ends of the wings to form hinge ears straddling the lower end of said shank, the ears of one wing overlapping the ears of the other wing, a pin passing through the shank and through said ears to pivotally mount the wings for swinging movement from an extended position to a folded position close against opposite sides of the shank, and springs coiled about the pin between the shank and said ears, said springs having arms extending from opposite sides of the shank and bearing against said wings between their flanges to urge the wings downwardly towards an extended position.

4. In an apparatus of the character described, a lifting cable, a tugger device secured to the outer end of said cable, said cable having its outer portion formed of sections, knuckle joints connecting said sections in end to end relation to each other, ring bolts carried by certain of

said sections and having shanks passing through the cable sections and rings projecting laterally from the cable for slidably engaging about a guide line for guiding movement of the cable and the tugger device downwardly along the guide line.

5. In an apparatus of the character described, a lifting cable, a tugger device at the outer end of said cable, and a plurality of guides carried by the outer portion of said cable in spaced relation to each other longitudinally thereof, said guides having portions extending laterally from the cable for engaging about a guide line, the said outer portion of said cable being formed of sections united in end to end relation to each other and movable laterally relative to each other.

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