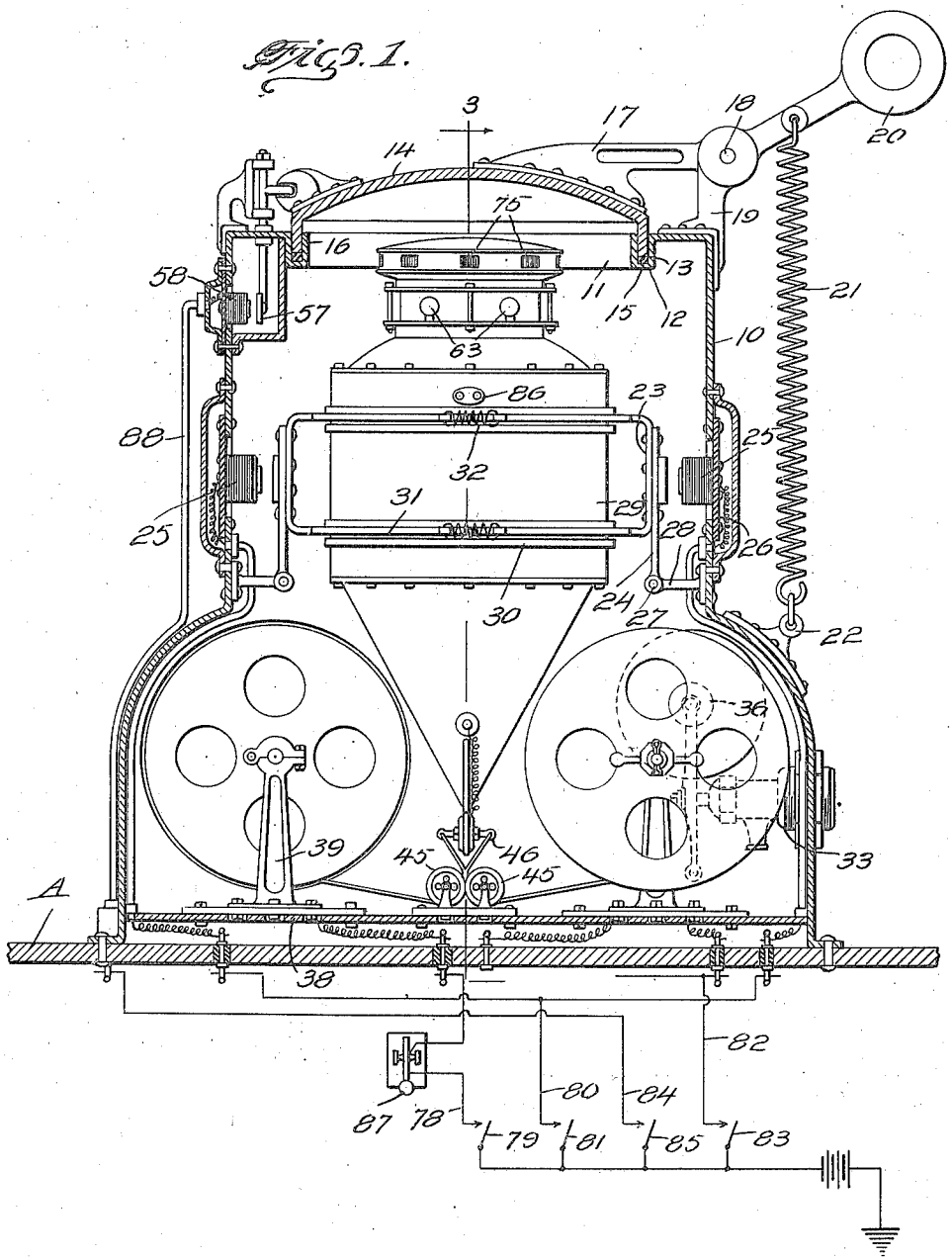
May 3, 1938. W. R. McKENNEY 2,115,996

SUNKEN VESSEL LOCATING APPARATUS

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Fig. 1.



William R. McKenney, INVENTOR

BY Victor J. Evans & Co.

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SUNKEN VESSEL LOCATING APPARATUS

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Fig. 2.

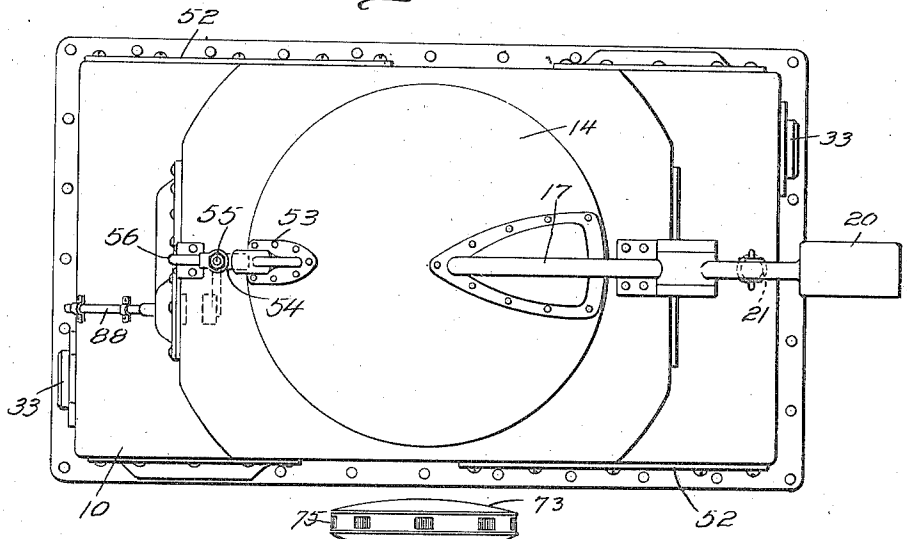
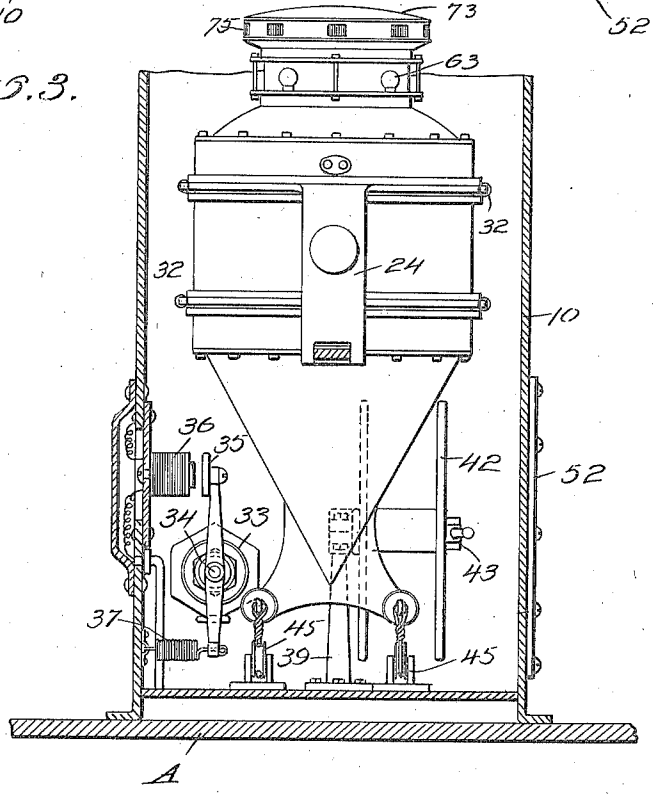


Fig. 3.



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SUNKEN VESSEL LOCATING APPARATUS

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Fig. 4.

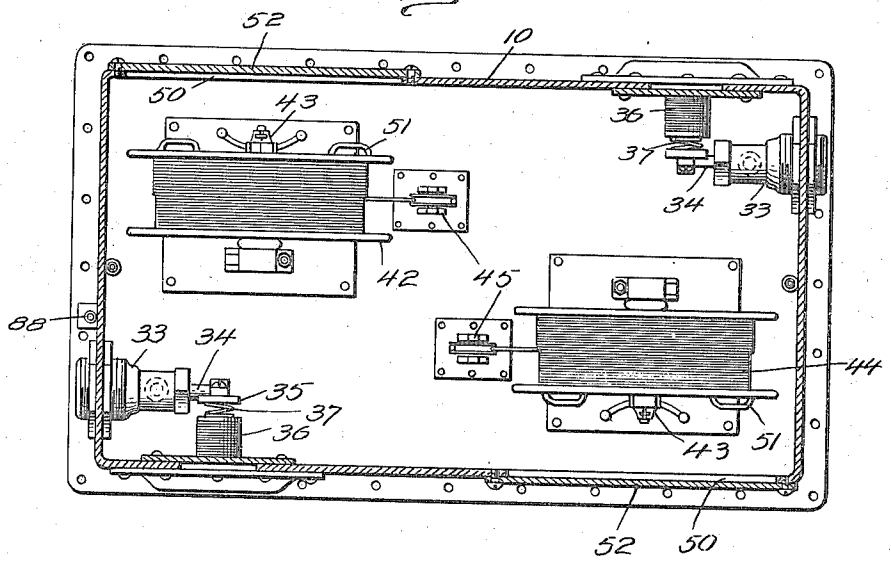


Fig. 5.

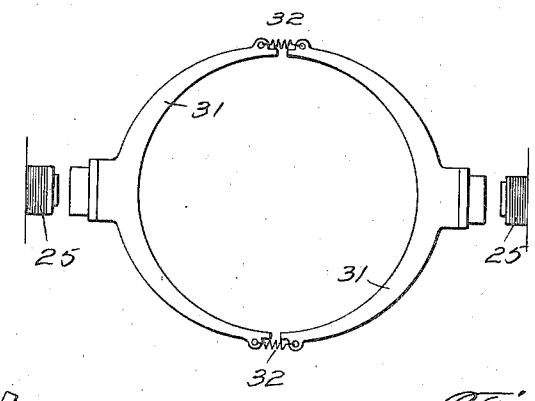


Fig. 6.

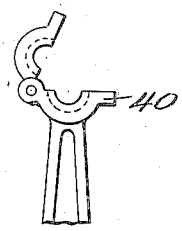
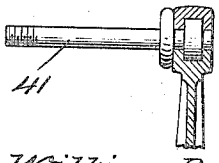


Fig. 7.



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May 3, 1938. W. R. McKENNEY 2,115,996

SUNKEN VESSEL LOCATING APPARATUS

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Fig. 8.

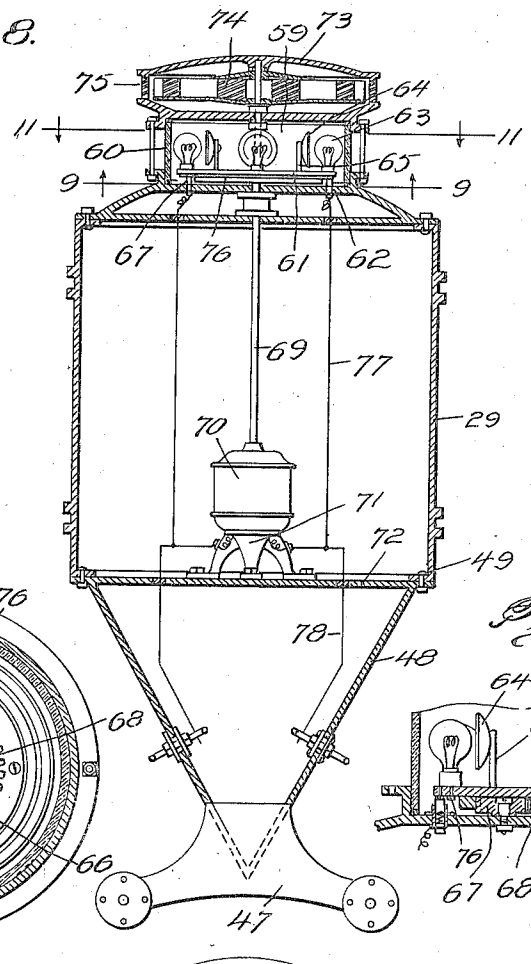


Fig. 9.

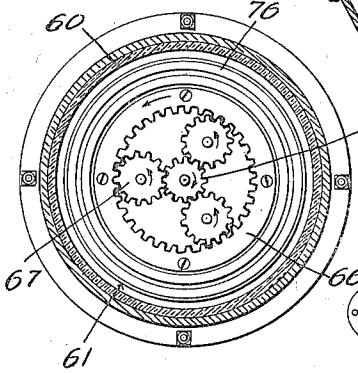


Fig. 10.

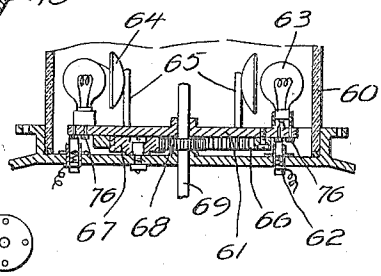
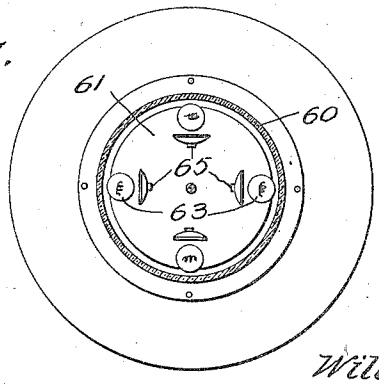


Fig. 11.



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Patented May 3, 1938 2,115,996

UNITED STATES PATENT OFFICE

2,115,996

SUNKEN VESSEL LOCATING APPARATUS

William R. McKenney, East St. Louis, Ill., assignor of one-half to George I. Biggs, East St. Louis, Ill.

Application January 5, 1937, Serial No. 119,142

6 Claims. (Cl. 114—16.5)

The invention relates to a distress signal buoy and more especially to a sunken vessel locating apparatus.

The primary object of the invention is the provision of an apparatus of this character, wherein through the use of a released buoy from a sunken vessel such as a submarine or the like, distress signals, both audible and visible, can be issued by a crew within the sunken vessel for attracting the attention of passing ships or aeroplanes so that aid can be obtained through which the sunken vessel may be promptly located to assure quick rescue and thereby avoiding any guess work as to the location of such sunken vessel by a rescue party or crew.

Another object of the invention is the provision of an apparatus of this character, wherein the buoy is carried by a vessel and is shielded from weather elements as well as sea or river water and is susceptible of being readily and easily released for the floating thereof at the top of the body of water on the sinking of the vessel carrying such buoy and therethrough signals can be issued from a crew within the sunken vessel so that aid may be quickly had and the locating of this sunken vessel discerned with dispatch, the buoy and adjuncts being of novel construction and thus the rescue work carried forth expeditiously.

A further object of the invention is the provision of an apparatus of this character, wherein the release of the buoy and the signal operation thereof are electrically controlled and under the command of the crew within a sunken vessel and thus enabling the obtaining of relief for the rescue of such crew as well as the quick locating of the sunken vessel.

A still further object is the provision of an apparatus of this character, which is comparatively simple in its construction, thoroughly reliable and efficient in its operation, affording safety to a crew within a sunken vessel for eliminating loss of life due to delayed rescue work resultant from the lack of knowledge where the place the vessel is located, and comparatively inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which discloses the preferred embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a vertical sectional view through the apparatus constructed in accordance with the invention and showing diagrammatically the circuits and switch layout for the signal action of such apparatus.

Figure 2 is a top plan view.

Figure 3 is a sectional view on the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a horizontal sectional view through the apparatus.

Figure 5 is a detail top plan view of the buoy release means.

Figure 6 is a fragmentary side elevation of one of the bearings for the reel or cable spool of the apparatus and such bearings being shown open.

Figure 7 is a vertical transverse sectional view thereof when closed and supporting the spool or reel spindle.

Figure 8 is a vertical longitudinal sectional view through the buoy.

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

Figure 10 is a fragmentary vertical longitudinal sectional view on an enlarged scale through the upper portion of the buoy.

Figure 11 is a sectional view on the line 11—11 of Figure 8 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings in detail, A designates generally a portion of the hull or body of a vessel, for example, a submarine, and this portion is uppermost thereof when such vessel is afloat or sunken within a body of water. Rising from this upper portion A or the top of the hull of the vessel is a casing 10 formed at the top thereof with an open mouth 11, the closed bottom to this casing being constituted by the portion A of the hull of the vessel. Walling the mouth 11 is a channeled annular mouth rim 12, its channel 13 constituting a seat for a cover or lid 14, the channel being fitted with a sealing ring or gasket 15 contacting with the peripheral flange 16 of the cover or lid 14 when closed for sealing purposes so that the said casing 10 will be fluid tight. The lid or cover 14 is fixed to a counterblanced lever or arm 17 pivoted at 18 in a bracket 19 secured exteriorly to the casing 10 and in this manner the lid or cover 14 will be hinged for vertical swinging movements in the opening and closing thereof. For the counterbalancing of the lever or arm 17 its outer end is formed with a weight 20. Connected to the lever or arm 17 is one end of a coiled retractile spring 21, the other end of the latter being engaged with a fixed eye 22 exteriorly on the casing 10 and the purpose of the

said spring 21 is to urge the lid or cover 14 to an open position from a normal closed position.

Interiorly of the casing 10 at diametrically opposite sides thereof are double forked latching jaws 23 which are fixed to swinging armatures 24 of electric magnets 25 bracketed at 26 to the casing 10, the armatures 24 being hinged at 27 to hangers 28 therefor.

Arranged between the jaws 23 and releasably engaged thereby is a buoy 29 which externally thereof is provided with annular seating grooves 30 for the jaws 23 when closed about the said buoy 29. The forks 31 of the jaws 23 are connected together by coiled retractile springs 32 which close the jaws about the buoy 29 and maintain the said jaws seated in the grooves 30 in said buoy for the latching thereof within the casing 10.

Fitted in opposite ends of the casing 10 are valved water inlet faucets 33, the stem 34 for the valve of each faucet 33 being fixed to an armature 35 of an electric magnet 36 bracketed to the casing 10 and this armature 35 is tensioned by a coiled spring 37 acting thereon to hold the stem in a position for the normal closing of the faucet 33 by its valve therein. The faucets 33 when opened permit the entrance of water into the casing 10 when the vessel carrying the casing 10 has sunk so as to equalize the pressure of the water without said casing and within the same for assuring the opening of the lid or cover 14 under the action of the spring 21 when this lid or cover is in closed position and unlatched in a manner presently described.

Within the casing 10 and rising vertically from a flooring 38 thereto above the portion A of the vessel hull or body are diagonally disposed bearing legs 39 headed by releasable bearing caps 40 for detachable horizontally arranged spool or reel axles 41 on which are journaled cable carrying rotatable spools or reels 42, these being removably held thereon by winged nuts 43 threaded upon said axles 41. The spools or reels 42 have normally wound thereon let-out cables 44 which are trained over guide pulleys 45 attached to the flooring 38 and have their outer ends fastened to eyes 46 secured in a tail piece 47 joined with and extending from an outwardly tapered or conical shaped bottom 48 of the buoy 29. This bottom 48 is a separable unit and is bolted in place at 49. The cables 44 unwind from the reels or spools 42 which are free upon the axle 41 for rotation when the buoy 29 is released to be set adrift for the rise thereof in the body of water to the surface of the same for being afloat thereon. These cables 44 when the buoy 29 is afloat on the water afford a lead for a rescue crew or party to discern the location of the sunken vessel within the body of water.

The sides of the casing 10 are provided with suitable openings 50 affording access to the reels or spools 42 from without the casing 10 so that these spools or reels can be detached from the axles 41 for the winding of the cables 44 thereon when the buoy 29 is placed within said casing and latched interiorly of the same. The spools or reels 42 at the sides thereof next to the openings 50 are provided with suitable hand grips 51 for easy handling of the same. The openings 50 are covered and sealed by removable closure panels 52 suitably fastened to the sides of the casing 10.

The lid or cover 14 has fixed thereto a keeper 53 releasably engaged by a latch 54 on a turning crank 55 pivoted in a bracket 56 fixed exteriorly on the casing 10 next to the mouth 11 of the same. This crank 55 is connected with an armature 57 of an electric magnet 58 bracketed in the casing 10 and the latch 54 is normally engaged with the keeper 53 for the locking of the lid or cover 14 closed. The magnet 58 when attracting the armature 57 thereof releases the latch 54 from its keeper 53 and thus freeing the lid or cover 14 which is adapted to move to open position under the action of the spring 21.

When the magnets 25 attract the armatures 24 thereof the jaws 23 will be opened for releasing the buoy 29 when latched within the casing 10. When the magnets 36 are energized attracting the armature 35 thereof the valves within the faucets 33 will be opened so that water may flow from without the casing 10 to within the same for the equalizing of pressure both outside and inside of this casing.

Formed at the upper end of the buoy 29 is a circular lamp house 59 having an annular glass paneled side window 60 for the projecting of light from within to without the lamp house 59. Arranged within the lamp house 59 and rotatable on a horizontal axis is a turn table 61 having at the upper side thereof diametrically opposed electric lamp sockets 62 fitted with electric light bulbs 63 with which are associated at the rear of each a reflector 64 on a supporting post 65 carried by said turn table 61. The under side of the turn table 61 has fixed thereto an internally toothed ring or annular gear 66 meshing with planetary speed reducing gears 67, these enmesh with a driven gear 68 fixed to a power shaft 69 of an electric motor 70 carried by a stand 71 centrally upon a horizontal support 72 interiorly of the buoy 29.

Superimposed on the lamp house 59 is a housing 73 in which is arranged a rotatable siren 74 centrally fixed to the power shaft 69 for operation thereby. This housing 73 has formed peripherally thereof screened or louvered sound emitting openings 75, the screens or louvers thereof being adapted to exclude fish or sea creatures from entering the housing 73 and interfering with the audibility of the siren 74 when operated.

Arranged with the sockets 60 within the lamp house 59 are wiper contacts 76 included in the light circuit 77 arranged in parallel with the motor circuit 78, the latter being completed through the cables 44 to a source of current supply interiorly of the hull or body of the vessel and this circuit includes a hand switch 79 which is conveniently arranged or disposed within said vessel for operation by the crew of the same. The turn table 61 revolves free of the shaft 69 while the siren 74 is operated directly from the said shaft 69. The turning of the table 61 causes the shift of the light beams when projected from the bulbs 63 as the said bulbs revolve with said turn table, the circuit 77 being closed as well as the motor circuit 78 simultaneously by the switch 79.

The circuit for the magnets 25 which are energized simultaneously is indicated at 80 and includes a hand switch 81 arranged adjacent to the switch 79 while the circuit for the magnets 36 which operate simultaneously is indicated at 82 and included in this circuit is the hand switch 83 which is adjacent to the switch 81 while the circuit for energizing the magnet 58 is indicated at 84 and included therein is the hand switch 85 grouped with the other switches hereinbefore mentioned.

Located on the buoy 29 is a telephone coupling 86 which through a circuit carried through the cables 44 to the interior of the vessel wherein a telephonic receiver and transmitter (not shown)

is arranged so that when an outside receiver and transmitter is hooked with the coupling **86** telephonic communications may be had between the crew within the sunken vessel and an outside rescue crew or party. Arranged conveniently within the sunken vessel is a light flashing key **87** which is arranged in the light circuit **77** so that the bulbs **63** on operation of the flashing key **87** will under a code system effect light flashes for signaling purposes. The electric wires of the circuit to the magnets **25**, **36** and **58** are confined within suitable conduits **88** so that the same will be protected from weather elements and water. It is also understood that suitable insulation is employed in the electrical arrangement to avoid short circuiting and to protect the arrangement from weather elements.

In the operation of the apparatus assuming that a boat having the same installed thereon has been sunk and unable to rise to the surface through its own resources, a member of the crew then operates the proper switch within the sunken vessel for completing a circuit to the magnets **36** so that the armatures **35** thereof will operate for the opening of the valves in the faucets **33** allowing water to flow within the casing **10** and in this manner the water pressure will be equalized both within and without the said casing. Thereafter the switch in the circuit to the magnet **58** is actuated so that through its armature **57** the latch **54** will be released to free the lid or cover **14** to the casing **10** and by the spring **21** this lid or cover will open. Now by operating the switch within the sunken vessel of the circuit to the magnets **25**, these will be energized to attract their armatures **24** so that the jaws **23** will open and thus the buoy **29** freed. Whereupon this buoy **29** will rise to the surface of the water. When the buoy **29** has reached the surface, the switch controlling the circuit to the motor **70** is actuated and thus the siren **74** will work for the issuance of an audible signal. Concurrently therewith the bulbs **63** will be illuminated and by the rotation of the turn table **61** flashes of light will be issued from the lamp house **60** for signaling purposes and in this manner attracting a rescue party or crew enabling the latter to quickly locate a sunken boat.

The coupling **86** by its arrangement, communication with persons on the surface of the water may be established by telephone or other communicating means. On the other hand, by the device **87** code messages from within the sunken boat may be had and thus in such manner the sunken boat can be conveniently located with dispatch for relieving distress and possible loss of life to those within the sunken boat as the signals issued therefrom will attract attention of passing ships or aeroplanes and in this manner avoiding searching in a haphazard way for such distressed boat and crew.

What is claimed is:

1. An apparatus of the kind described comprising an enclosure for a buoy and having an opening and closing cover for the release of the buoy from the enclosure, a buoy within the enclosure and having external annular seats therein, double forked jaws within the enclosure for engaging the seats and embracing the said buoy from opposite sides thereof, and an electric control for the jaws and operated remote thereto.

2. An apparatus of the kind described comprising an enclosure for a buoy and having an opening and closing cover for the release of the buoy from the enclosure, a buoy within the enclosure and having external annular seats therein, double forked jaws within the enclosure for engaging the seats and embracing the said buoy from opposite sides thereof, an electric control for the jaws and operated remote thereto, and electrically controlled means for equalizing water pressure within and without the said enclosure prior to the opening of said cover.

3. An apparatus of the kind described comprising an enclosure for a buoy and having an opening and closing cover for the release of the buoy from the enclosure, a buoy within the enclosure and having external annular seats therein, double forked jaws within the enclosure for engaging the seats and embracing the said buoy from opposite sides thereof, an electric control for the jaws and operated remote thereto, electrically controlled means for equalizing water pressure within and without the said enclosure prior to the opening of said cover, and electrically operated means latching the cover closed.

4. An apparatus of the kind described comprising an enclosure for a buoy and having an opening and closing cover for the release of the buoy from the enclosure, a buoy within the enclosure and having external annular seats therein, double forked jaws within the enclosure for engaging the seats and embracing the said buoy from opposite sides thereof, an electric control for the jaws and operated remote thereto, electrically controlled means for equalizing water pressure within and without the said enclosure prior to the opening of said cover, electrically operated means latching the cover closed, and means active upon the cover for the opening thereof on the release of the same.

5. An apparatus of the kind described comprising an enclosure for a buoy and having an opening and closing cover for the release of the buoy from the enclosure, a buoy within the enclosure and having external annular seats therein, double forked jaws within the enclosure for engaging the seats and embracing the said buoy from opposite sides thereof, an electric control for the jaws and operated remote thereto, electrically controlled means for equalizing water pressure within and without the said enclosure prior to the opening of said cover, electrically operated means latching the cover closed, means active upon the cover for the opening thereof on the release of the same, and yieldable means connecting the said forked jaws together for holding the same seated with respect to said buoy.

6. An apparatus of the kind described comprising an enclosure for a buoy and having an opening and closing cover for the release of the buoy from the enclosure, a buoy within the enclosure and having external annular seats therein, double forked jaws within the enclosure for engaging the seats and embracing the said buoy from opposite sides thereof, an electric control for the jaws and operated remote thereto, electrically controlled means for equalizing water pressure within and without the said enclosure prior to the opening of said cover, electrically operated means latching the cover closed, means active upon the cover for the opening thereof on the release of the same, yieldable means connecting the said forked jaws together for holding the same seated with respect to said buoy, and let-out cables within the enclosure and connected with the buoy.

WILLIAM R. McKENNEY.