

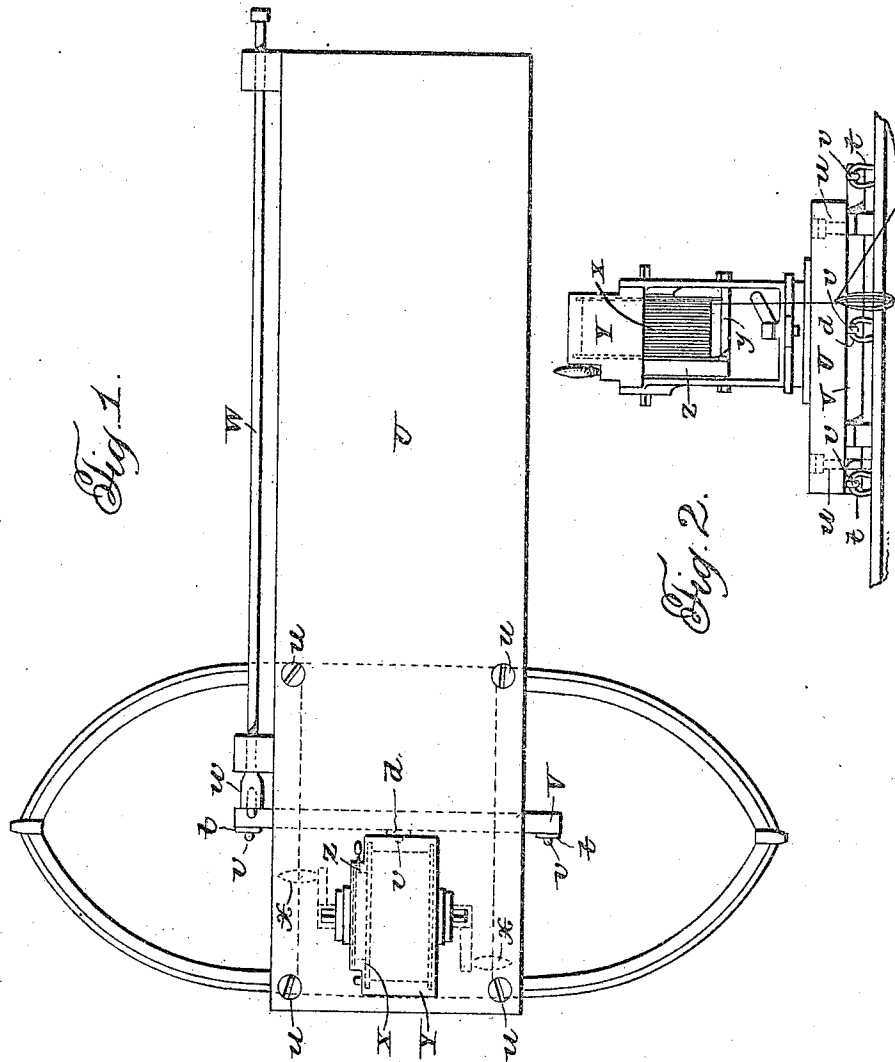
A. RUST.
REEL LIFE BUOY.

APPLICATION FILED SEPT. 2, 1904. RENEWED SEPT. 1, 1909.

951,846.

Patented Mar. 15, 1910.

3 SHEETS—SHEET 1.



Witnesses:

Jas. Hutchinson.
J. L. Lawlor.

Inventor:

Armistead Rust,
by Prindle and Williamson, Attorneys

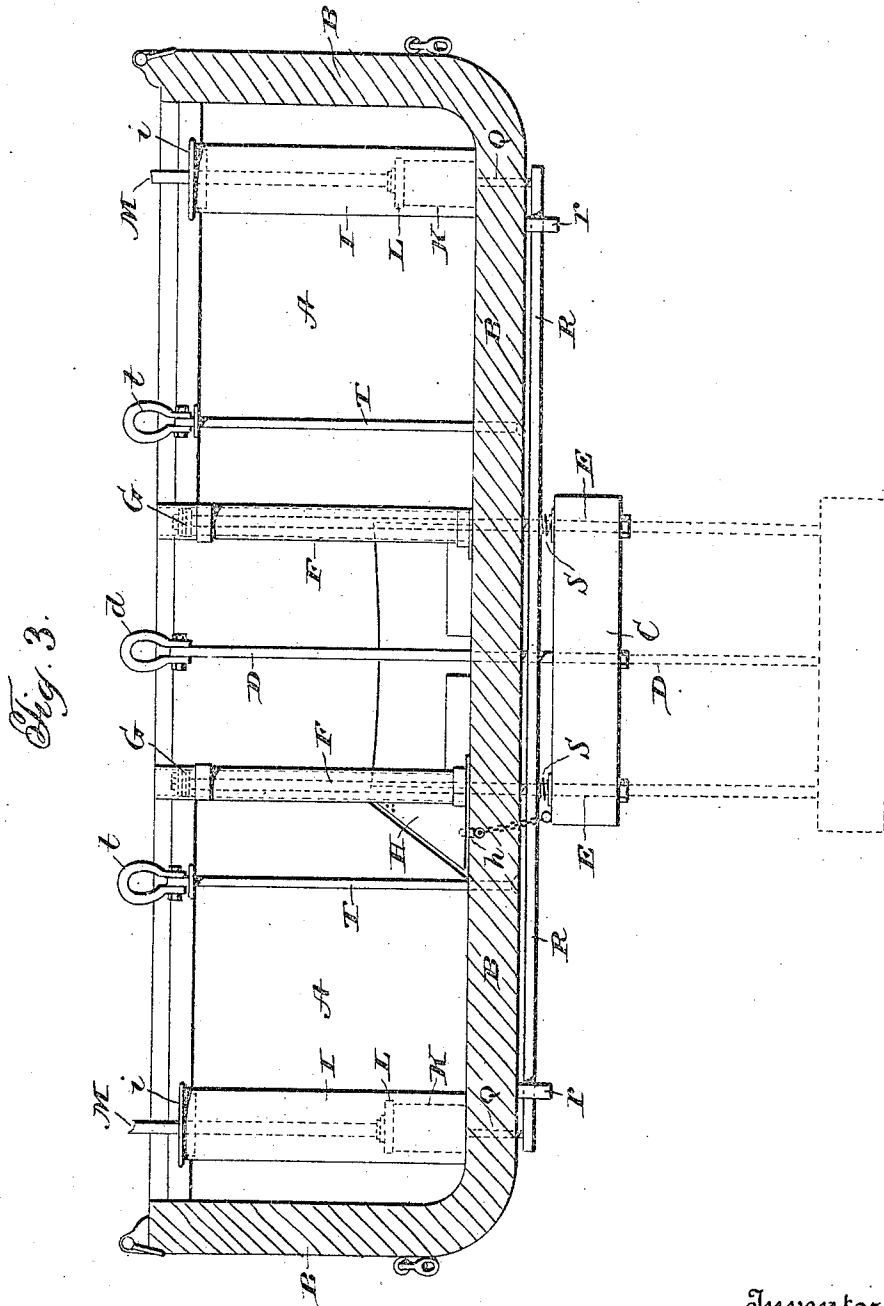
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3 SHEETS—SHEET 3.

Fig. 4.

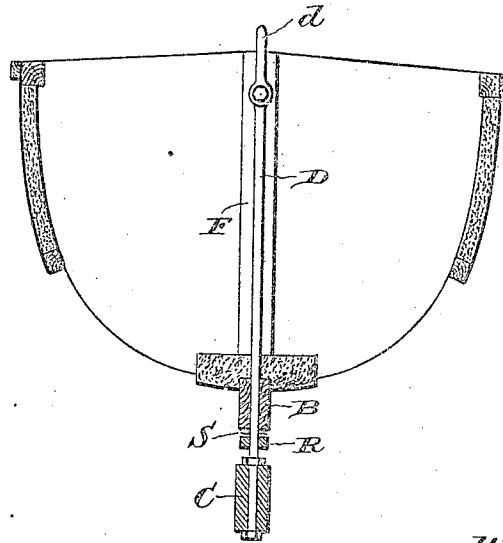


Fig. 6.

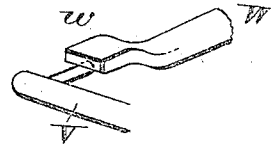
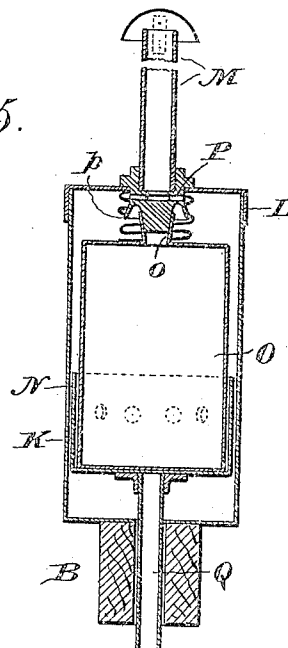


Fig. 5.



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UNITED STATES PATENT OFFICE.

ARMISTEAD RUST, OF THE UNITED STATES NAVY.

REEL LIFE-BUOY.

951,846.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed September 2, 1904, Serial No. 223,137. Renewed September 1, 1909. Serial No. 515,613.

To all whom it may concern:

Be it known that I, ARMISTEAD RUST, of the United States Navy, have invented a certain new and useful Improvement in Reel Life-Buoys, and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of a reel life buoy embodying my invention, shown suspended from the ship; Fig. 2, an end view of the platform and reel; Fig. 3 is a longitudinal section of the same; Fig. 4 a cross section; Fig. 5 a detail view of the calcium phosphid torch which I may use and Fig. 6, a detail view of the device for releasing the buoy.

My invention relates to life buoys of the class which forms the subject of my United States Patent No. 385,323, June 26th, 1888, which obviate the necessity of lowering a boat to rescue a man who has fallen overboard, and the object of my invention is to improve my said patented buoy, and to this end my invention consists in the buoy having the features of construction substantially as hereinafter specified and claimed.

As in the case of the buoy of my patent, the hull or body comprises two air tanks or compartments A, one at each end, that are connected by a stout keel B, preferably of wood, a well or space being left between the two compartments sufficiently large to hold a man, said well or space, as clearly shown in Fig. 4, opening through to the top of the buoy.

The hull or body is preferably constructed of sheet-metal, such as copper or galvanized iron, and a lining of cork for the sides. Preferably, the hull at opposite sides of the wall is cut-away practically the length of the well.

Beneath the buoy is a heavy weight C, which may consist of a mass of lead, and which is adapted to be dropped from a position close to the keel to one much lower down, so as to give great stability to the buoy when afloat. At the longitudinal center of the weight, and passing up through the center of the well is a rod D, by which the weight may be lifted and supported, said rod having on its upper end an eye or loop *d* for engaging the supporting means, as will be hereinafter described. Near each

end of the weight is a vertical rod E, which passes through a tube or cylinder F securely fastened at the end of the well, upon the upper end of which rod is a piston G. The pistons, sliding in the cylinders, guide and regulate the fall or descent of the weight and arrest its downward movement by striking the keel B. The air in the device cushioning the descent of the weight, prevents the shock or jar which might otherwise be caused by its descent. Of course, the pistons may be of any desired construction, but preferably each is of two parts with a sole leather washer between the two parts, and where the rods pass through the keel a brass bushing may be employed, if found desirable.

Adjacent to one of the tubes or cylinders F and attached thereto as a convenient means for supporting it, and just above the keel B, is a tank H, containing oil for smoothing the sea in rough weather. Said tank has in its bottom an opening which is closed by a plug *h* that is connected by a chain or lanyard to the weight C, the weight on descending thus pulling out the plug from the hole in the tank and permitting water to enter, a hole or holes being provided in the upper part of the tank for the outlet of oil forced out by the entry of water into the tank at the bottom. If desired, pipes may be run from the oil outlets to insure the delivery of the oil on the outside of the buoy.

Within each air tank, at or near the end thereof, is a vertical cylindrical chamber I that extends from the keel to a point slightly above the top of the air tank, its upper end being closed by a removable cap or cover *i*, said chambers being provided for the accommodation of torches for producing lights to show the whereabouts of the buoy. Of course, any desired automatically-lighting torch may be employed. Those shown are calcium phosphid torches, and each is constructed as follows:—Resting upon the keel, and within the chamber, is a casing K having a removable top or cap L, which may be either screwed to the casing or attached thereto by a bayonet joint, and from which rises a tube M that is carried to such height as it may be found desirable to have the light displayed.

Within the casing K is a cup N that forms a receptacle or support for a can O that contains the calcium phosphid, the upper end

of such can having an opening or mouth in the form of a flaring tube *o* which, when the can is in an elevated or raised position, is closed by a conical stopper or plug *P*, that projects downward from the cap or top *L* of the casing *K*. It will be seen that, so long as the can is supported with its mouth closed by the plug *P*, water cannot enter the can and act upon the calcium phosphid contained therein, and to hold the can in this position until the buoy is put in use the cup or support *N* has attached to its bottom a tubular rod or post *Q* that passes through a vertical hole in the keel *B*, and at its lower end rests upon, and the parts thus supported by, a rod or bar *R*, preferably of steel, that lies beneath the keel and is supported by the weight *C* when the latter is in its lifted position, the support by the weight being preferably through the intermediary of spiral springs *S* encircling the piston rods and lying between the top of the weight and the rod, said springs being preferably spiral, so that they will, when compressed, occupy but little room. It will be seen that when the weight descends from the buoy said rod will also descend, and the support being thus taken from the can *O*, it will be free to descend, and thus its mouth removed from the plug *P* and opened for the entrance of water. To supplement the weight of the parts to produce the descent of the can containing the calcium phosphid, a coil spring is interposed between the top of the can and the top of the casing *K*. The descent of the rod *R* is limited by straps *r* depending from the keel *B*. Concentric with the plug *P* is a downwardly and outwardly inclined flange *p* that overhangs the mouth of the can *O*, so as to prevent any water that might find its way through the tube leaking past the plug into the can. Holes are provided in the sides of the casing *K* to permit water to enter the can *O*, through its mouth *o*. It will be seen that the whole torch can readily be removed from its containing chamber *I* for recharging, when necessary.

Fastened to the buoy, a short distance on either side of the well, is a stout rod or bolt *T*, to the upper end of which is pivoted a loop or eye *t*, like the loop or eye upon the weight-supporting rod, and it is by means of these eyes that the buoy is suspended from the ship in readiness for use, the ship being provided with a platform *U* which where one buoy is employed extends out over the stern of the vessel, and on the underside of said platform is journaled a rock shaft *V*, having projecting from its side three lugs or hooks *v*, one for each of said eyes or loops. The rock shaft is secured in holding position by means of a rocking latch rod *W*, which is pivoted to the plat-

form, and at one end has a cranked or eccentric part *w* that engages a radial pin or lug *v* on the rock shaft *V*, and at the other end, in reach of a person on the deck of the ship, has a handle by which it may be revolved. To operate the latch rod from the bridge or other parts of the ship, bell-pulls may be connected to the handle and run to such parts of the ship. A coil spring is preferably attached to the handle to hold the latch rod in locking position. The rock shaft being released, the buoy will instantly fall. The buoy is held steady when it is suspended from the platform by some suitable means which, as shown, may consist of four bolts or pins *u* fastened to the platform and projecting below the same, so as to bear against the gunwale or against battens or blocks between them and the gunwale, at sufficiently separated points to prevent rocking of the buoy in a sea-way.

On top of the platform, *I* swivel a reel, comprising a drum *X*, upon which is wound the desired quantity of wire rope, and having two cranks *x* and a frame *Y* in which the reel is journaled. One side of the drum has a hub for a band-brake *Z* for controlling the rotation of the drum and which may be operated from the bridge or other part of the ship by a wire, chain, or other desired connection. Beneath the drum, and toward the rear or after-side thereof, a rod *y* is fastened to the frame to hold up the wire rope running from the drum and prevent it fouling. The rope is run from the reel to an eye or shackle at one end of the buoy, and preferably a coil of rope is provided that is stopped to an eye-bolt on the platform to allow the buoy, when dropped, to do so, and to get well astern, without the necessity of unreeling the rope from the reel, the sudden jerk which otherwise might be produced being prevented. The reel is provided with a suitable cover or housing. Trailing lines with cork floats are attached to eyes on the stem and stern posts, and such lines can be used for hoisting the buoy. When the buoy is not in use, the trailing lines will be coiled up and stopped to eye bolts on the platform.

The operation of my invention is as follows:—The rock shaft *V* being freed from the latch device, the buoy will instantly drop to the water, the weight *C* falling from the buoy and opening the oil tank and permitting the cans which contain the calcium phosphid to descend, and thus their mouths to be unstoppered, so that water can have access to the calcium phosphid, and thus cause the lighting of the torches. Should it be desired to slow or check the running of the buoy astern and tow it, this can be done by means of the friction-brake on the reel.

As will be evident, the recovery of the buoy is effected by winding the rope on the reel. The buoy being lifted to position beneath the platform, the two eyes or loops *t* are engaged with their respective lugs or projections on the rock shaft V, and the weight C is lifted and the eye or loop *d* upon its supporting rod D engaged with its lug or projection on the rock shaft, this operation being facilitated by reason of the spiral springs S which permit such vertical play of the weight as may be necessary to enable the eye or loop *d* to be hooked over its rock shaft lug or projection.

It will be understood that the rock shaft is set in its holding position before the various loops or eyes are hooked over their respective projections, this operation being possible because of the pivoting of these eyes or loops to their respective rods.

The lifting of the weight, of course, lifts the rod by which the cans that contain the calcium phosphid are raised to position to have their mouths closed or stoppered.

My buoy and the operating mechanism are simple, and embody all the features essential to make the same perfectly efficient and reliable. Provisions may be carried into a water-tight receptacle fitted in one of the air tanks, if desired.

Having thus described my invention, what I claim is:—

1. The combination of a buoy, a weight that has a loose connection with the buoy that permits it to automatically descend from the buoy, means for suspending the buoy, a support for the weight independent of the buoy-suspending means, and means for releasing the buoy and the weight.

2. The combination of a buoy, a weight that has a loose connection with the buoy that permits it to automatically descend from the buoy, means for suspending the buoy, a support for the weight independent of the buoy-suspending means, and means for simultaneously releasing the buoy and the weight.

3. The combination of a buoy, means for suspending the same from a ship, a weight that has a loose connection that automatically permits its descent from the buoy, means for supporting the weight in its raised position independently of the buoy, and a common releasing device for the buoy and the weight.

4. The combination of a buoy, means for suspending the same from a ship, a vertically movable weight, rods for guiding and supporting the weight, and means coöperating with one of the rods to hold the weight in a raised position and also coöperating with the buoy-suspending means.

5. The combination of a buoy having a

keel, a vertically movable weight below the keel, guide rods passing through the keel, tubes in the buoy in which said rods are slidable, a rod adapted to support the weight in a raised position, and a latch device that co-operates with said rod.

6. The combination of a buoy having an oil tank or receptacle with an opening having a suitable closure, a vertically movable weight situated beneath the buoy, and a direct connection between the weight and the closure, whereby the descent of the weight opens the tank or receptacle.

7. A buoy having an oil tank or receptacle with water-admitting and oil-discharging openings at different levels, in combination with a closure for the water-admitting opening and a weight connected with said closure, whose descent opens the closure.

8. A buoy, having air tanks at opposite ends, a well between the air tanks opening to the top of the buoy to accommodate a person, and a vertically movable weight that is automatically lowered.

9. A buoy having air tanks at opposite ends, a well between the air tanks, and a vertically movable weight that is automatically lowered, in combination with means for suspending the buoy and said weight, and means for simultaneously releasing both the buoy and the weight.

10. A buoy having a torch or illuminating means, a rod for controlling the latter, and a vertically movable weight that coacts with the rod, said weight having a loose connection with the buoy and movable from the same to lower the center of gravity of the structure.

11. A buoy having a torch or illuminating means, a rod for controlling the latter, a vertically movable weight that coacts with the rod, and yielding means between the weight and rod.

12. A buoy having a torch or illuminating means, a vertically movable rod for controlling the latter, a vertically movable weight beneath the rod, and means for supporting the weight in its raised position, the weight, when in its raised position, holding the rod in its raised position.

13. A buoy having a torch or illuminating means, comprising an outer casing, a vertically movable chemical-containing can or receptacle within said casing having an opening in its top, and a plug in the casing that enters the can opening.

14. A buoy having a torch or illuminating means, comprising an outer casing, a vertically movable chemical-containing can or receptacle within said casing having an opening in its top, a plug in the casing that enters the can opening, and a hood or guard around the plug and opening.

15. A buoy having a torch or illuminating

means comprising an outer casing, a vertically movable support for a chemical-containing can, a rod projecting from the bottom of said support, and a movable device
5 in the path of said rod.

16. The combination of a buoy having loops or eyes, a rock shaft having projections to engage said loops or eyes, and a latch device to hold said rock shaft from turning.
10 17. The combination of a buoy having loops or eyes, a vertically movable weight

having a loop or eye, a rock shaft having projections to engage said loops or eyes, and a latch that holds the rock shaft from turning.

In testimony that I claim the foregoing I
have hereunto set my hand. 15

ARMISTEAD RUST.

Witnesses:

J. B. GAY,

E. LIEDRICK.