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A. F. NAIR ET AL

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RESCUE BELL FOR RESCUE WORK ON SUNKEN SUBMARINES

Filed Nov. 17, 1930

4 Sheets-Sheet 1

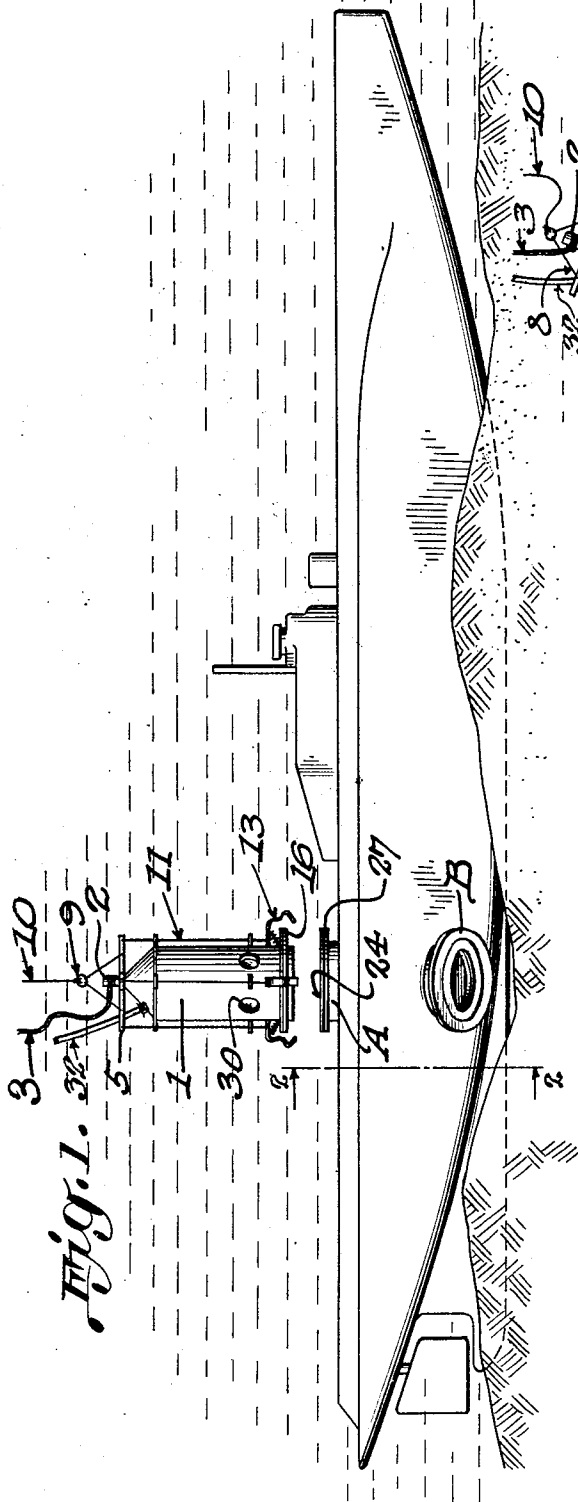


Fig. 1.

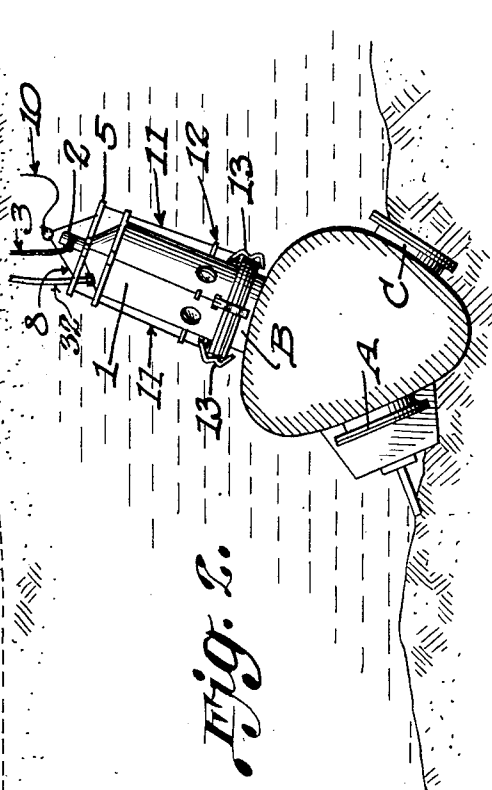


Fig. 2.

Inventors
A. F. Nair and
Robert Nair
by Lester Largent
Atty.

Dec. 1, 1931.

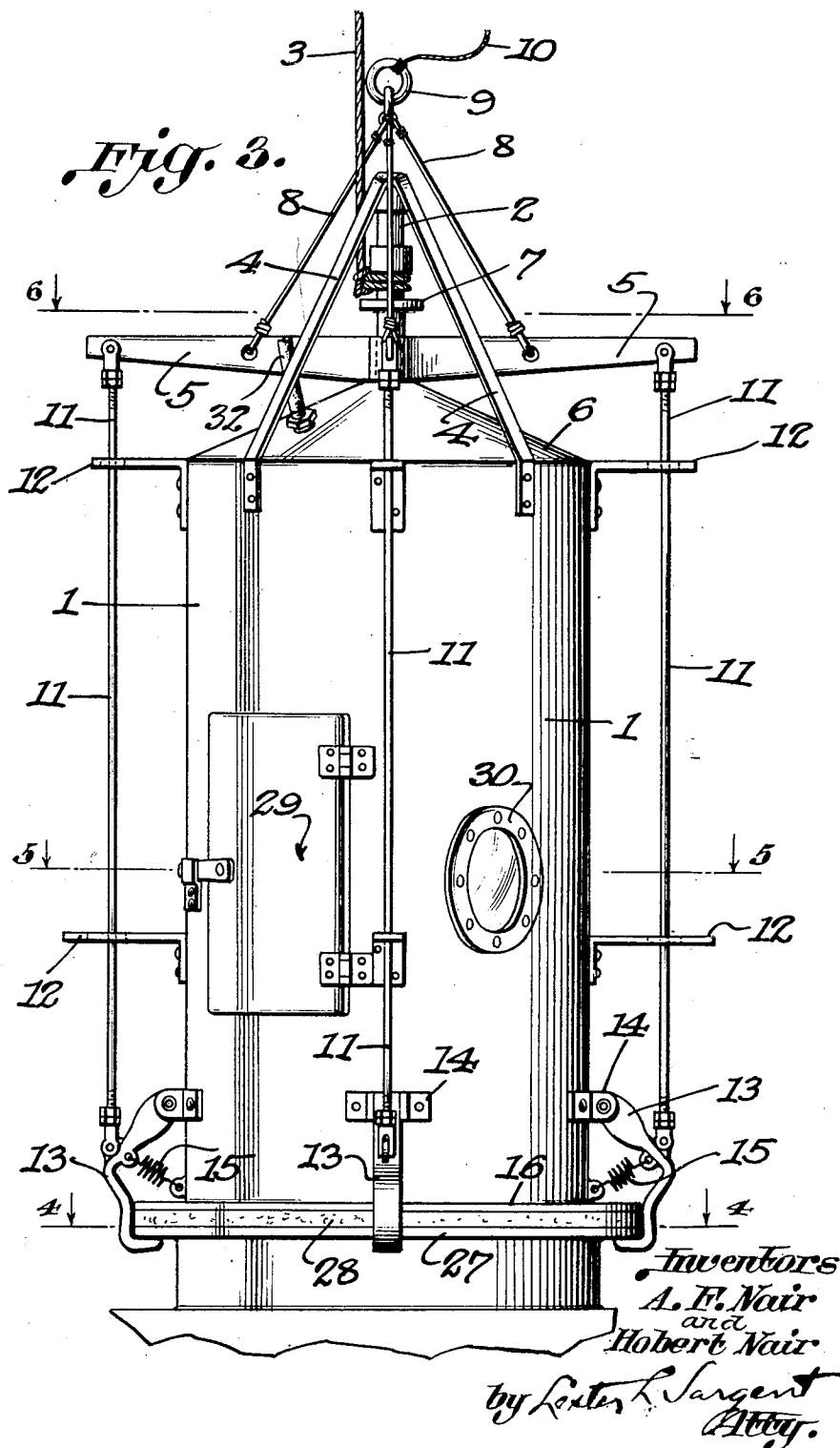
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Fig. 4.

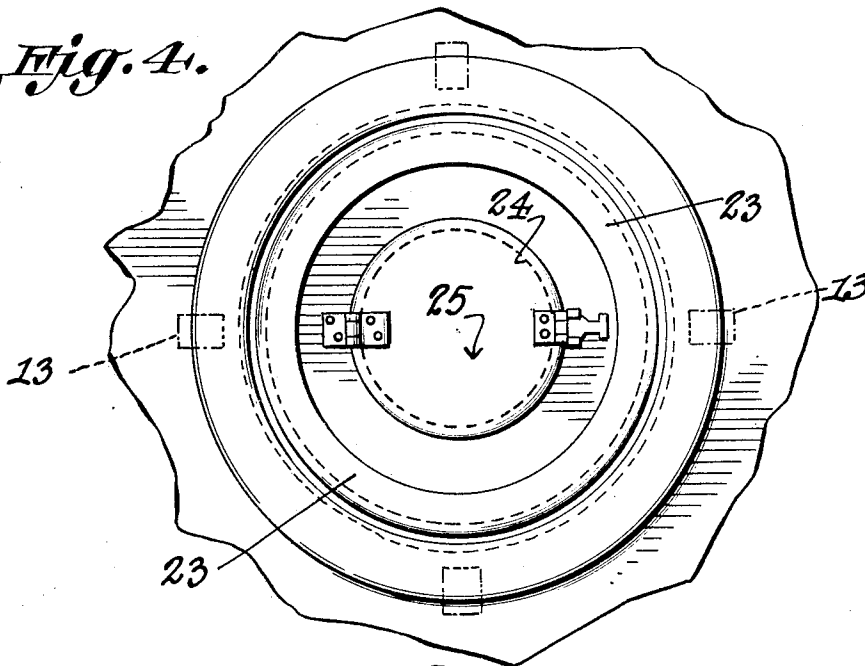
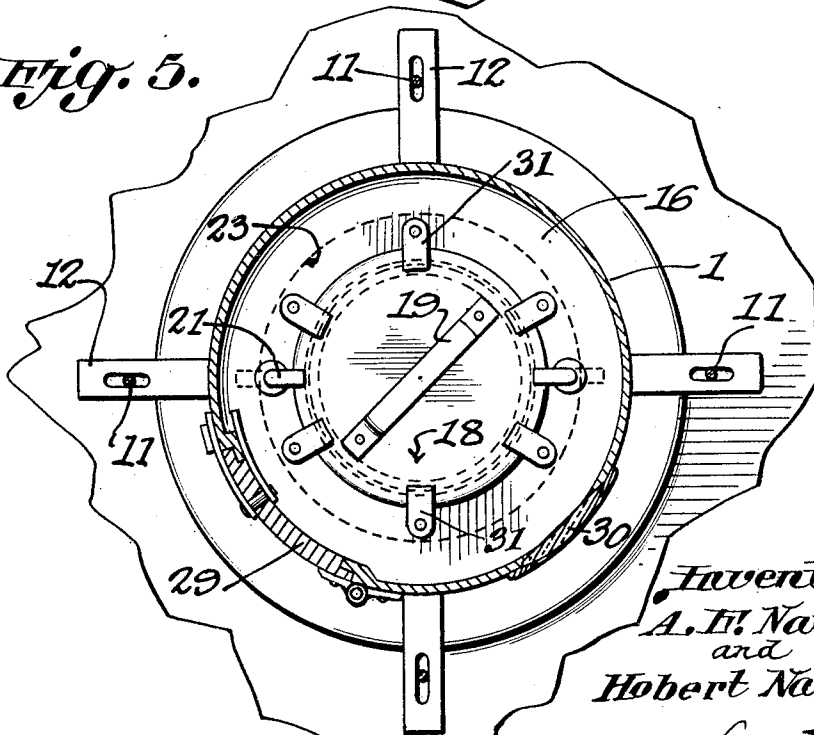


Fig. 5.



Inventors
A. F. Nair
and
Robert Nair
by Lester L.argent.
Atty.

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Fig. 6.

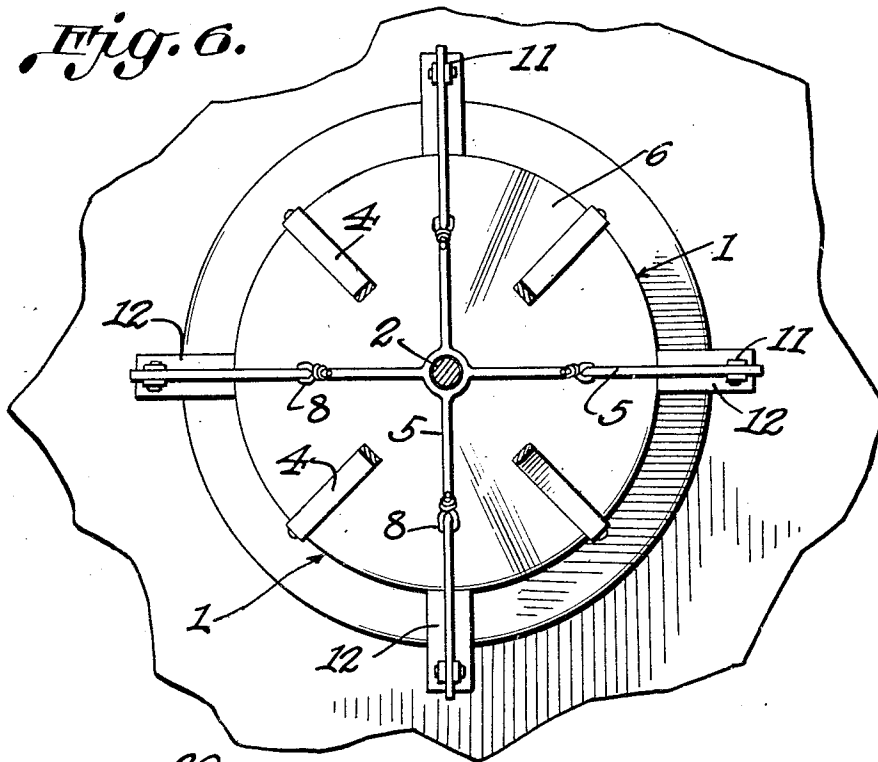
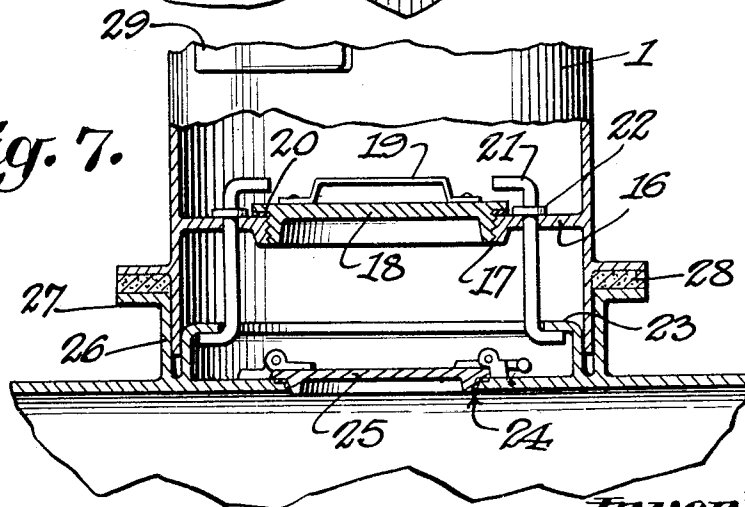


Fig. 7.



Inventors
A. F. Nair and
Robert Nair

by Lester L. Sargent
Atty.

UNITED STATES PATENT OFFICE

ARCHIE F. NAIR AND HOBERT NAIR, OF GLENDALE, CALIFORNIA

RESCUE BELL FOR RESCUE WORK ON SUNKEN SUBMARINES

Application filed November 17, 1930. Serial No. 493,294.

The object of our invention is to provide a rescue bell for rescue work on sunken submarines adapted to be lowered to the submarine and secured to a closed part of the submarine by distantly operated clamps and arranged to receive passengers from the submarine and then to permit of closing the port of the submarine and closing the bottom port of the rescue bell to permit of lifting the rescue bell to the surface of the water for discharge of the passenger or passengers in it; to provide novel means for controlling and operating such an apparatus; and to provide the novel combination and arrangement of parts disclosed in the accompanying drawings.

We attain these and other objects of our invention by the apparatus disclosed in the accompanying drawings, in which,—

Figure 1 is a side elevation of the invention as it is being lowered for attachment to the safety hatch on the deck of a sunken submarine;

Fig. 2 is a view on a plane at right angles to the plane in which Fig. 1 is taken on the section line 2—2 through the submarine the submarine being rolled on her port side and the rescue bell being attached to the starboard hatch;

Fig. 3 is a side elevation of the invention with the clamps in the position taken when the apparatus is clamped to the submarine;

Fig. 4 is a top plan view of the submarine on line 4—4 of Fig. 3;

Fig. 5 is a transverse section through the rescue bell on line 5—5 of Fig. 3, looking toward the bottom of the bell;

Fig. 6 is a section on line 6—6 of Fig. 3; and

Fig. 7 is a detail vertical section through the lower portion of the rescue bell and the adjacent portion of the wall of the submarine.

Like characters of reference designate like parts in each of the several views.

Referring to the accompanying drawings, we provide a suitably shaped rescue bell 1, preferably of the cylindrical form shown in the drawings, and having a dead head or post 2 to which may be attached a cable 3

which if necessary may be used to supplement the main operating cable 10 for raising and lowering the rescue bell. We provide suitable braces 4 extending from the top of the post 2 to the upper portion of the rescue bell 1, as shown in Fig. 3.

Slidably mounted on the rescue bell are a plurality of horizontal arms 5 slidably mounted on the post 2 between the top 6 of the rescue bell and the annular flange 7 on post 2. We provide rods or cables 8 extending from the horizontal arms 5 to a ring 9 to which an operating rope or cable 10 is attached, and which may also be used for raising and lowering the bell. Secured to the ends of the horizontal arms 5 are rods 11 which are pivotally connected to the upper supporting arms and are slidably mounted in spaced apertured braces 12 and pivotally connected at their lower ends to clamps 13, which in turn are pivotally mounted in a suitable manner, as by brackets 14, on the lower end of the rescue bell.

We provide suitable springs 15 arranged to exert resilient pressure down on clamps 13. Positioned near the lower end of the rescue bell is an annular platform or floor 16, as shown in Figs. 5 and 7, threaded as at 17 to releasably engage the circular screw threaded door 18. We also provide a plurality of clamps 31 releasably engaging the door 18 to give increased protection against deep water pressure. We provide a suitable handle 19 for operating door 18, and may provide a suitable gasket 20 to make a watertight closure.

We provide suitable and preferably approximately S-shaped locks or bolts 21, which may be provided with collars 22 resting on the floor 16. These locks are operable from within the rescue bell and are adapted to engage the annularly flanged anchoring ring 23 which is integral with or affixed to the outer wall of the submarine and which encircles the port 24 into the hull of the submarine. Port 24 is normally closed by a door 25. Spaced from the anchoring ring 23 is a second anchoring ring 26 having an outturned annular flange 27 adapted to be engaged by the hook ends of clamp 13.

We provide a suitable gasket or resilient ring 28 resting on the annular flange 27 of the anchoring ring 26. The ring 26 which is integral with or affixed to the hull of the submarine is spaced from the anchoring ring 23 sufficiently to just receive the lower end of the rescue bell in the manner illustrated in Fig. 7 of the drawings. We also prefer to provide a suitable door 29 to permit convenient access to the interior of the bell through the side wall thereof and we may provide one or more suitable ports or windows 30 in the wall of the rescue bell, as shown in Fig. 3. We provide suitable flexible air pipe or conduit 32 through which air may be pumped to the interior of the bell when the bell is long submerged.

The mode of operation of the invention is illustrated in Figs. 1 and 2 of the drawings. The rescue bell is lowered by the operating rope or cable 10 which is attached to ring 9 to which in turn the rods or cables 8 are secured, these rods or cables in turn being secured to the horizontal arm 5 slidably mounted on the post 2, as shown in Fig. 3, and to the ends of which arms the rods 11 are pivotally attached, the rods 11 in turn being attached at their lower end to the pivoted clamps 13 which are held in a raised position so that when the rescue bell comes in contact with any one of the three safety ports A, B, or C, the bottom portion of the bell may seat over this port in the manner shown in Fig. 2, the operating rope or cable being lowered to allow the spring controlled clamps to engage under the annular flange 27 of the anchoring ring 26 which is integral with or affixed to the hull of the submarine. The S-shaped blocks or bolts 22 are swung into engagement with the inner anchoring ring 23, as shown in Fig. 7. The screw threaded door 18 is removed from its seat and the door 31 of port 24 is opened, thus affording access of the imprisoned passengers of the sunken submarine to the rescue bell. The door 31 may then be closed, the door 18 replaced, the locks or bolts 21 released and the rescue bell elevated by means of the main cable 3 which is attached securely to the post 2 at the top of the rescue bell.

It is our belief that three or four resting platforms A, B and C can be placed in such positions on the submarine so that in no matter what position the submarine might lie a contact could reasonably be made especially with the assistance of divers to assist in directing operations. It is within the contemplation of our invention that means for directing contact of the rescue bell with one of the resting platforms may be accomplished by a suitable means not disclosed in this specification, without the assistance of divers.

What we claim is:

1. In an apparatus of the class described adapted for use with a submarine having at-

tachment means on the hull thereof, the combination of a rescue bell, a cable, means for attaching the cable to the upper end of the rescue bell, spring actuated clamps mounted on the lower end of the rescue bell and adapted to engage suitable attachment means on the submarine, and means operatively connected with said clamps for controlling them from a point above the surface of the water.

2. A rescue bell for use on submarines, comprising a cylindrical structure having a post on the upper end thereof to which a cable may be attached, pivoted spring actuated clamps mounted on the lower end thereof and adapted to engage an attachment member on the hull of the submarine, rods attached to said clamps, and means operatively connecting said rods with a cable adapted to be operated from a point above the surface of the water to control the action of the clamps, and a water-tight door in the lower portion of the rescue bell adapted to be opened from within the rescue bell after it has been attached to the hull of the submarine over a port thereof.

3. In an apparatus of the class described, the combination with a submarine of means for securing a rescue bell to the hull of same over a port of the submarine, said means comprising an inwardly turned L-shaped ring encircling the port and having an annular flange, an outwardly turned L-shaped ring encircling the first ring and spaced from it a sufficient distance to snugly receive the lower end of the rescue bell therebetween and adapted to be engaged by clamping means carried by the rescue bell.

4. In an apparatus of the class described, the combination with a submarine of means for securing a rescue bell to the hull of same over a port of the submarine, said means comprising an inwardly turned L-shaped ring encircling the port and having an annular flange, an outwardly turned L-shaped ring encircling the first ring and spaced from it a sufficient distance to snugly receive the lower end of the rescue bell therebetween, each of said elements being adapted to be engaged by fastening means carried by the rescue bell.

5. In a rescue device for use on sunken submarines comprising a rescue bell, means for lowering the rescue bell, reversely faced L-shaped rings spaced apart to receive the lower end of the rescue bell, said rings being affixed to or integral with the hull of the submarine and encircling ports thereof, and means carried by the rescue bell and operable from a point above the water for clamping the rescue bell to the outer ring, and means operable from within the rescue bell for attaching it to the inner ring, and an airtight door in the bottom portion of the rescue bell.

ARCHIE F. NAIR,
HOBERT NAIR.