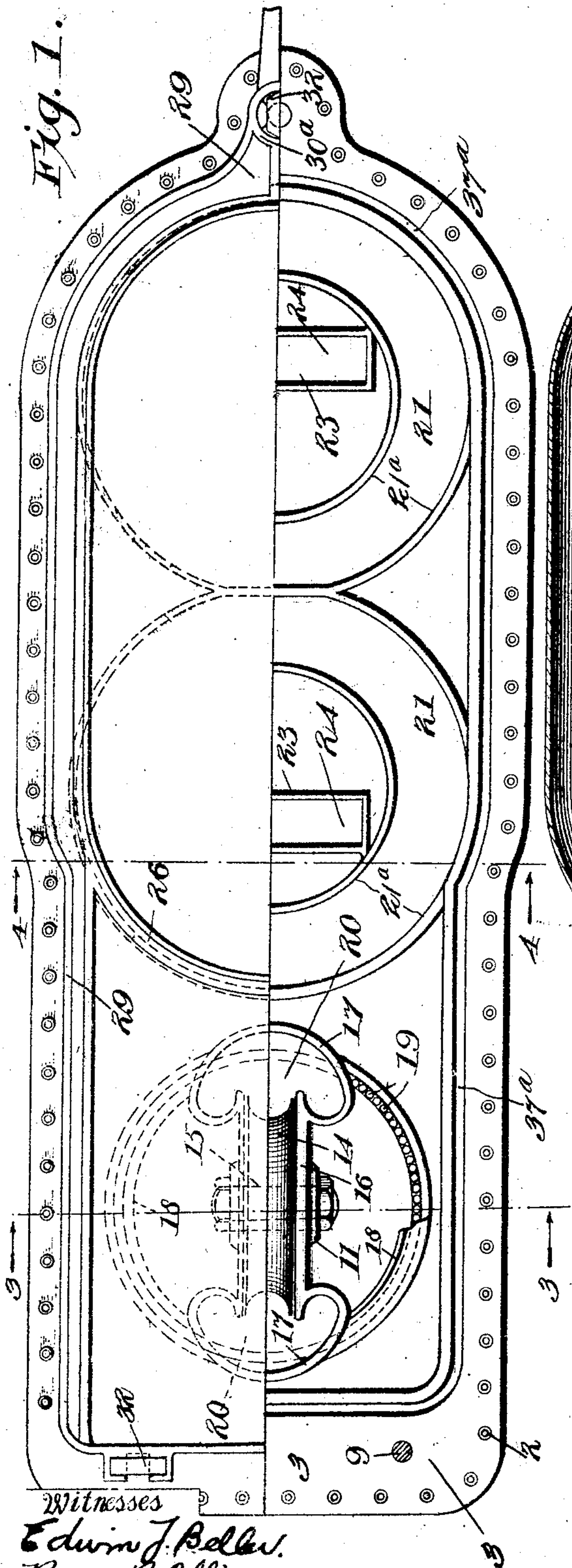


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 MEANS FOR INDICATING AND RAISING SUNKEN BOATS.
 APPLICATION FILED NOV. 16, 1910.

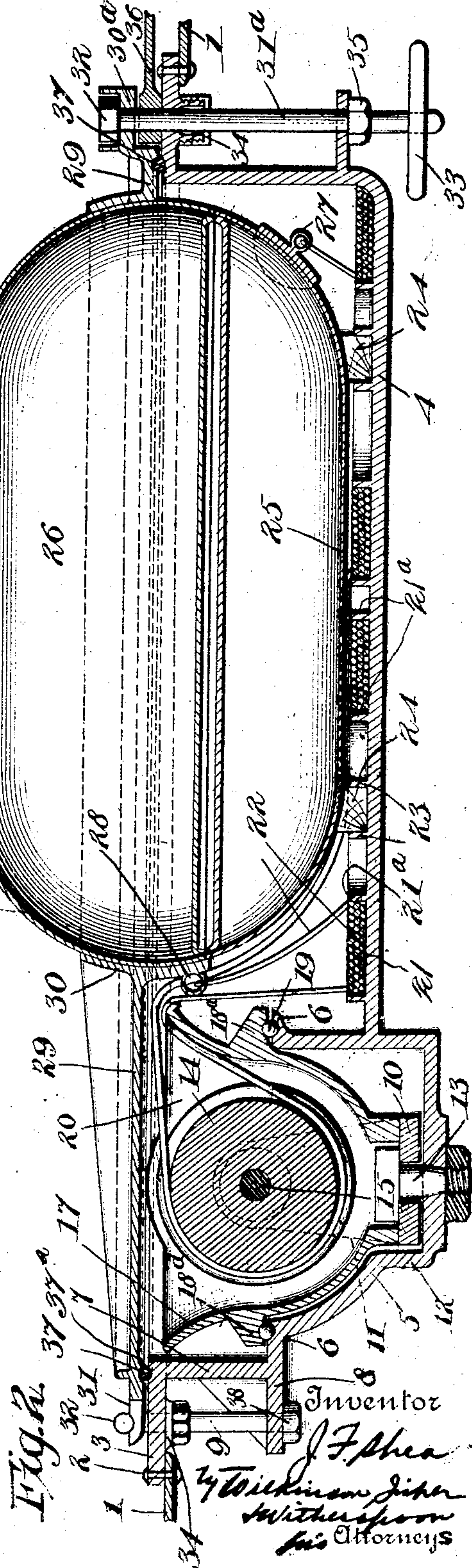
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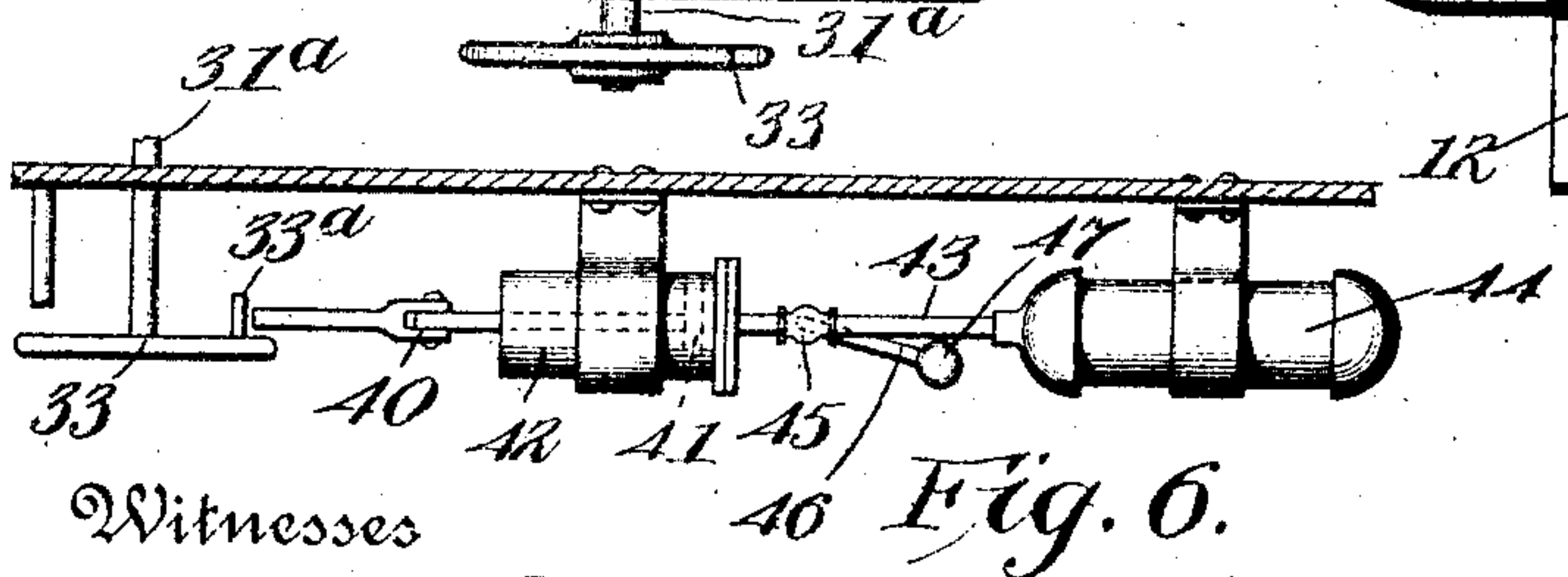
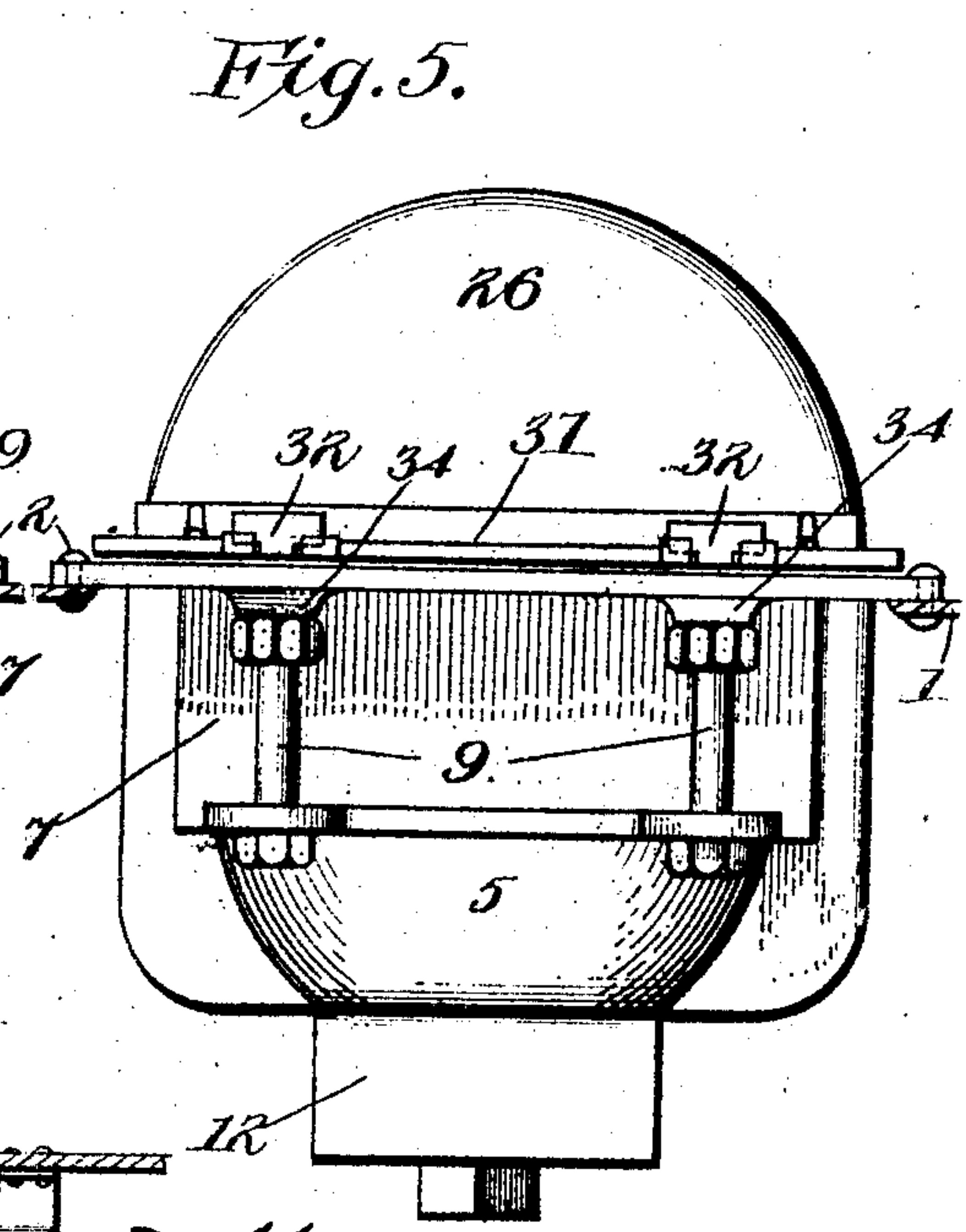
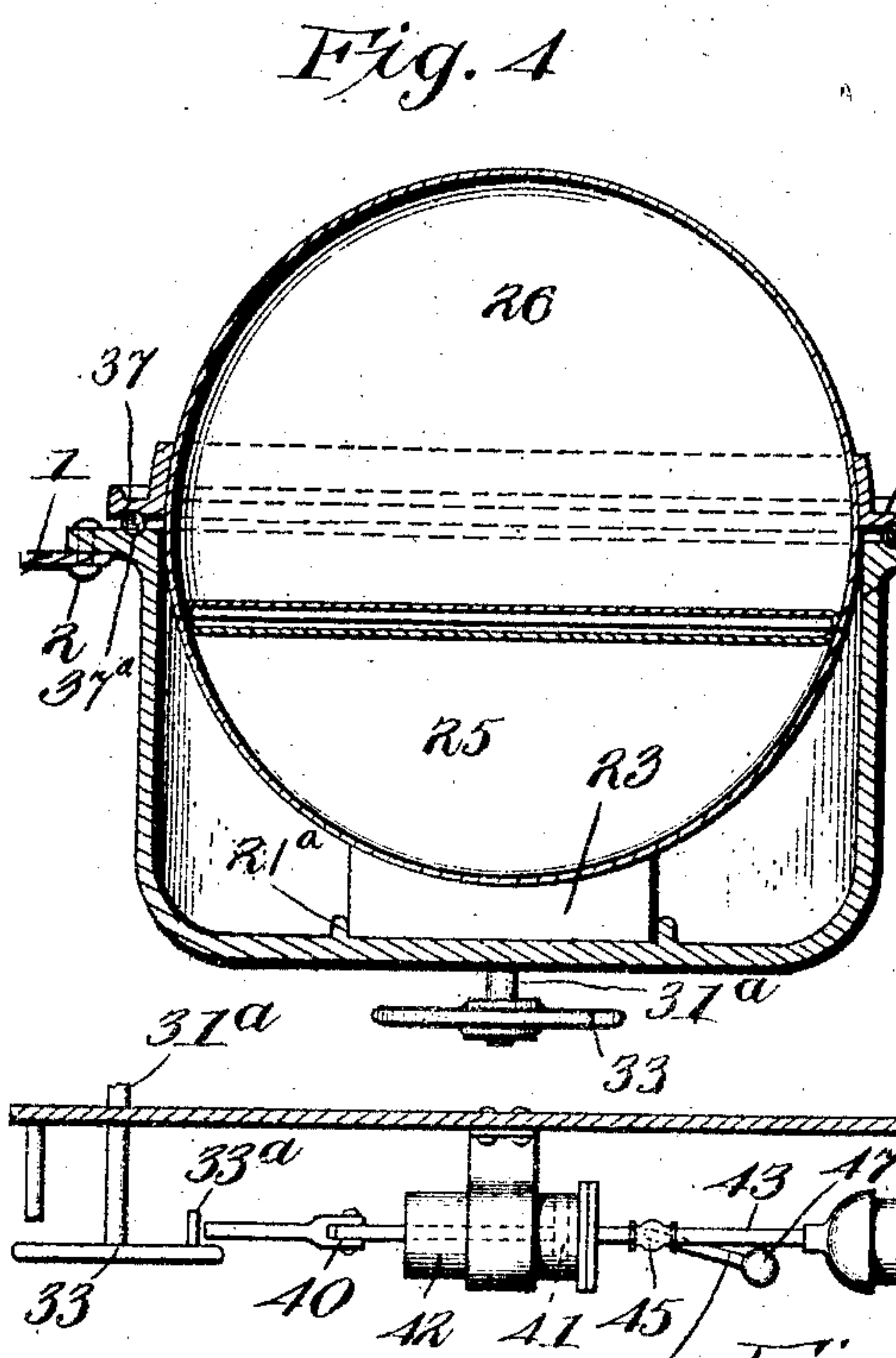
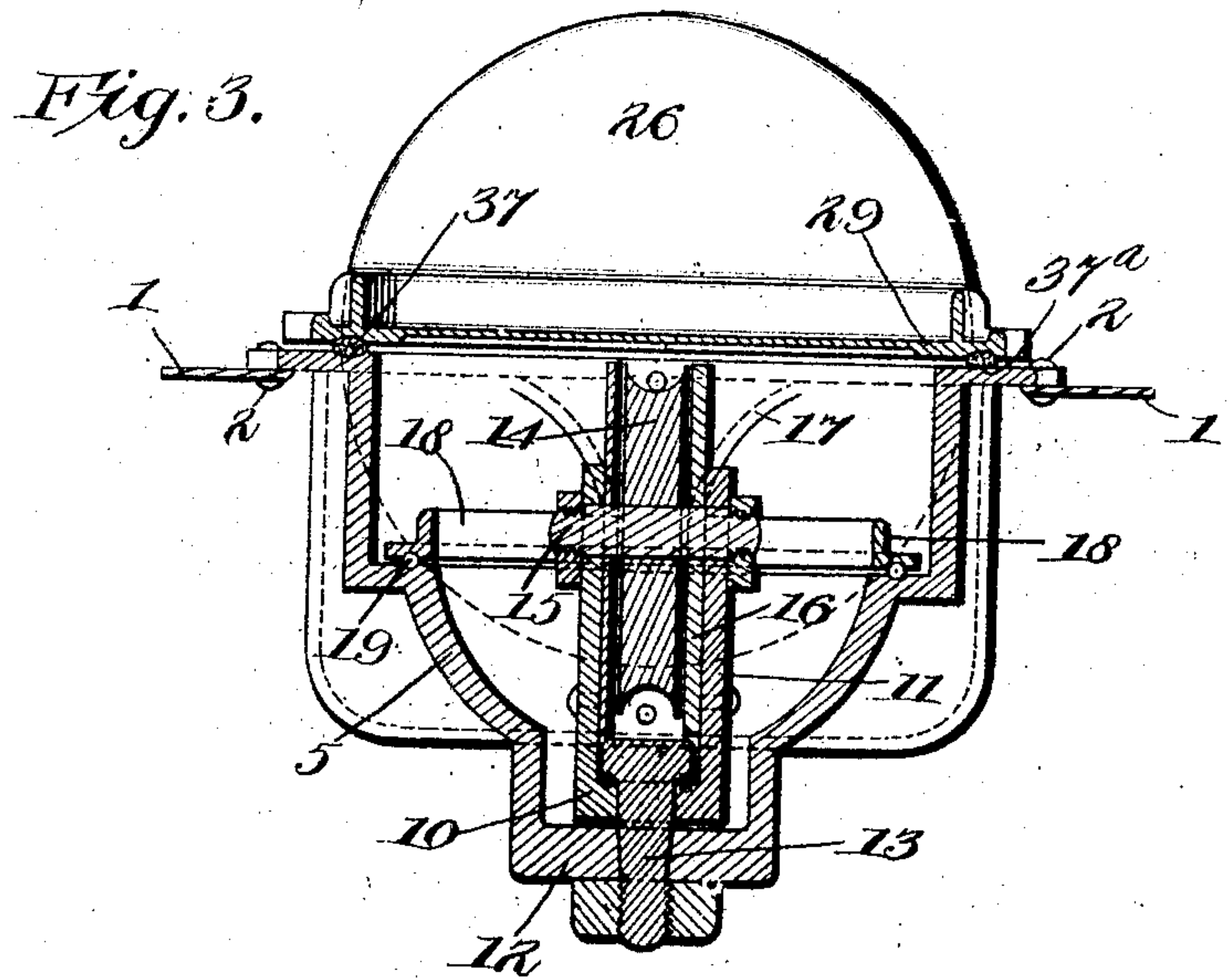
2 SHEETS-SHEET 1.



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UNITED STATES PATENT OFFICE.

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MEANS FOR INDICATING AND RAISING SUNKEN BOATS.

993,205.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN FRANCIS SHEA, a citizen of the United States, residing at Tampa, in the county of Hillsboro and State of Florida, have invented certain new and useful Improvements in Means for Indicating and Raising Sunken Boats; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for indicating the position of sunken vessels and providing means to assist in raising same, and the invention is particularly applicable for use with submarines in case of accident and renders more effective the saving of life and also property.

With these and other objects in view the invention consists in the arrangement and combinations of parts hereinafter claimed, and while the invention is not restricted to the exact details shown and described, still for the purpose of disclosure reference is had to the accompanying drawings, in which like characters designate the same parts in the several views, and in which—

Figure 1 is a view of my improved apparatus partly in plan and partly in horizontal section substantially on a line showing in plan the shell or guard casing for the pulley or sheave, the spaces for the coiled pilot line and the upper bearing for the ball race, a portion of this bearing being broken away showing the position of the balls therebeneath. Fig. 2 is a central longitudinal vertical section. Fig. 3 is a cross section on the line 3—3 of Fig. 1 looking to the right. Fig. 4 is a cross section on the line 4—4 looking in the same direction. Fig. 5 is an end view of the rear of the apparatus and Fig. 6 is a view in side elevation illustrating means for automatically releasing the floats.

In carrying out the invention broadly I provide means for normally anchoring to the submarine boat a pair of floats of different values of buoyancy, each connected to one end of the pilot cable, a suitable pulley being interposed between the ends of said

cable, in combination with means for containing said elements and releasing said floats upon emergency, whereupon both floats will float to the surface of the water if the water is not too deep, and if the water is too deep to allow both floats to reach the surface then the larger float will have sufficient buoyancy to counteract the buoyancy of the smaller float and the suspended pilot cable and will rise to the surface of the water, in either case one or both floats indicating the exact position of the ship. The position of the ship being indicated a strong cable can be attached to one end of the pilot cable, and upon the release of same the other end of the pilot cable can be hauled in until the end of the heavy cable is reached, whereupon the sunken vessel may be raised by means of this heavy cable.

In the drawings 1 indicates the deck of a submarine boat, to which there is firmly bolted or secured, by means of the rivets 2, the flange plate 3 of a casting or cradle having the well portion 4 for the reception of the floats and the pilot cables, and a chamber 5 having a ledge 6 substantially centrally thereof forming the lower race of a ball bearing hereinafter referred to.

The outer wall of the chamber 5 extends upwardly, as at 7, and outwardly at its upper end to form the flange 3 at that end of the apparatus, a flange portion 8 being disposed opposite the ledge portion 6 and cooperating with bolts 9, forming a part of the anchoring means for said floats, as hereinafter referred to.

Within the chamber 5 is mounted a universal pulley block around which the pilot cable reeves. The method of mounting this pulley is as follows:—A U-shaped strap is provided having a base 10 and the upright flat arms 11, the base 10 being swiveled to the bottom wall 12 of the chamber 5 by means of the headed swivel bolt 13, shown more clearly in Figs. 2 and 3. A pulley or sheave 14 is journaled on the axis pin 15 between the upright walls of said strap, and interposed between the walls and said pulley is a member or casing of peculiar construction comprising the parallel walls 16 flaring

outwardly at opposite ends as at 17 after the fashion of an inverted bell, the ends of this shell member being joined centrally by semi-circular members 18 forming with ribs 18^a (Fig. 2) on the outer faces of said shell an annulus therearound, the lower face of which annulus being grooved to form the upper raceway of a ball bearing, the balls of which are illustrated at 19. Thus the pulley or block is universally mounted and is supported by the ball bearing construction, while the sheave itself is so contained within the shell or casing that an enlarged outer end is provided which will enable the heavy cable to be rove on the sheave without jamming or fouling, only sufficient space being provided between the sheave and the side of the shell or casing to allow the sheave to turn freely, while the ends of the shell or casing are flared outwardly in the inverted bell fashion, as at 20, to allow of plenty freeway for the pilot cable or elevating cable.

In the forward compartment, or well portion 4, are arranged two annular casings 21, formed by the concentric walls 21^a for containing the coiled ends of the pilot cable 22, one end of which cable is attached to one float and the other to the other float, as hereinafter described.

23 designates channel members incasing a suitably curved wooden chock 24 supporting the secondary or float of lighter buoyancy 25, the main float 26 resting upon the secondary float, with one end of the pilot cable secured to the float 25, as at 27, and the other end secured to the float 26, as at 28.

Any suitable means may be provided for securing the floats within their cradle against displacement when used with submarine boats and when the submarine is located below the surface under normal conditions, but in the drawings I have shown a plate or casting 29 secured to the upper float, as at 30, and at its rear end 31 projecting beneath key members 32 carried at the upper end of the bolts 9, the casting 29 extending around said float in belt fashion and projecting at its forward end, as at 30^a, to form an interlock with a rod 31^a having a locking head or key 32 and a hand wheel 33 or other suitable gearing adapted to be operated from the interior of the boat, 34 designating stuffing boxes between the deck plate and the interior of the boat.

35 is a locking nut for the rod 31^a, and 36 is a lever connected with the rod 31^a but disposed outside the deck so that the same can be operated to release the floats by a diver from the outside, should occasion necessitate.

In addition to the wheel 33 and the lever 36 for releasing the floats from the inside or outside, it is also desirable to provide an

automatic release operable in case of conditions preventing the manual manipulation of the wheel or lever, as might be the case in the event of collision and immediate sinking of the vessel. Various arrangements might be adopted for causing the automatic release and in Fig. 6 I have shown one automatic arrangement designed for this end. In this figure the wheel 33 is provided with pin 33^a to which is connected a swiveled rod 40 having a bifurcated end and connected at its other end to a piston shown in dotted lines at 41; contained within a cylinder 42, 43 designating a pipe discharging behind the head of said piston at one end and at its other end connected with the cylinder 44, containing the operating fluid which may be compressed air. In the conduit 43 is arranged a turning cock indicated at 45 and connected to an arm 46, carrying a float 47.

It is obvious that the conduit 43 may be located in the bilge of the boat so that the float 47 will be in a position to operate the releasing mechanism as the boat starts to fill up, instead of remaining inoperative until the boat has actually filled up, which would be the case if it were located immediately under the deck.

From the foregoing it will be observed that in the case of an emergency upon operating the locking rod 31^a either by the hand wheel 33 or the lever 36 the interlock between the key 32 and the member 30 is released, and the vessel being submerged the upper float 26 will immediately start to rise on the end 31 as a pivot until it has approached an inclined position, when the end 31 will be released from beneath the locking buttons 32 and the float 26 will start upwardly. At the same time the secondary float 25 is released upon the removal of the main float and it starts upwardly, both floats carrying with them their respective ends of the pilot cable. If the water is not too deep both floats will arrive at the surface and will indicate the position of the ship. So also if it happens that the hand wheel 33 or the lever 36 is not accessible, the rise of water in the boat will cause the float 47 to open the cock 45, whereupon the pressure fluid will pass behind the piston 41, forcing the hand wheel 33 around one-quarter turn, which turns the rod 31^a and the locking button 32 out of engagement with the casting 29, thereby releasing the latter. It will also be understood that in addition to acting as an automatic releasing means, the lever 46 may be operated manually as well.

If the water is deeper than one-half the length of pilot rope or cable then the buoyancy of the main float 26 will overcome the buoyancy of the secondary float 25 and will rise to the surface, the second float being

anchored below the surface by the main float and the sheave around which the pilot cable passes. In rendering assistance to the ship, under these conditions, a heavy cable is attached to that end of the pilot rope carried by the main float; and, upon release the secondary float will approach the surface, whereupon that end of the pilot rope can be pulled in until the heavy cable is rove around the sheave and means is provided for elevating the vessel.

Of course it will be understood that all of the parts are so constructed as to have sufficient strength to stand necessary strain, and further it will be understood that a suitable packing 37 is interposed between the deck flange and the plate casting 29, which latter is provided with grooves 37^a for the reception of the packing, and the nuts 38 and 35 may be operated to make this packing more effective, if desired.

Having thus described a practical and preferred embodiment of the invention, the particular features of novelty will now be pointed out more succinctly in the following claims:—

1. The combination of a pair of floats, one of said floats having greater buoyancy than the other, means for detachably securing same on the exterior of a vessel, means for releasing same, a cable connecting said floats, a bight of said cable passing around a part of said vessel fixed relatively thereto, substantially as described.

2. The combination of a cradle, means for securing same to a vessel, a pair of floats detachably secured within said cradle, means for releasing same, a pulley secured to said cradle, a single pilot line arranged in a plurality of coils, the end of one of said coils reeving around said pulley and connected to one of said floats, and the end of another coil being secured to the other of said floats substantially as described.

3. The combination of a cradle, a pulley secured thereto and means for securing said cradle to a vessel, a pair of floats normally mounted in said cradle, a pilot line passing around said pulley and secured at its ends to said floats, an extension carried by the uppermost of said floats, means detachably hinging one end of said extension to said cradle, and means for locking and releasing the other end of said extension for detachably holding said floats in place, substantially as described.

4. The combination of a cradle comprising a well portion and a smaller chamber, a universally mounted pulley in said smaller chamber, a float in said well portion, a second float of different buoyancy from said first float mounted thereon, an extension plate carried by the uppermost float and forming with said float a covering for said well

portion and a cover for said smaller chamber, means for detachably hinging one end of said extension to said cradle, means for locking and releasing the other end of said extension, and a pilot line reeving around said pulley and connected at its ends to said floats, substantially as described.

5. The combination of a cradle, a pair of floats detachably secured therein, means for releasing said floats, a chamber formed in said cradle, a pulley mounted to swivel in said chamber, a casing for said pulley and mounted to swivel therewith, and a pilot line reeving around said pulley and connected at its ends to said floats, substantially as described.

6. The combination of a cradle, a pair of floats detachably secured therein, means for releasing said floats, a chamber formed in said cradle, a pulley mounted to swivel in said chamber, a casing for said pulley mounted to swivel therewith and comprising a pair of flat side members lying adjacent the side walls of said pulley and terminating in a pair of oppositely disposed upwardly flaring extensions opposite the peripheral edge of said pulley, substantially as described.

7. The combination of a cradle having a well portion and an end chamber, means for detachably securing a pair of floats in said well portion, means for releasing same, a U-shaped strap swiveled to the bottom of said end chamber, a pulley freely journaled between the walls of said U-shaped strap, a casing for said pulley comprising a pair of flat side walls disposed within said U-shaped strap adjacent the side faces of said pulley and terminating at opposite ends in upwardly flaring openings opposite the peripheral edge of said pulley to prevent the fouling of a cable when rove therethrough, and a pilot line reeving around said pulley and connected at its ends to said floats, substantially as described.

8. The combination of a pair of floats, means for detachably securing the same to the exterior of a vessel, a cable connecting said floats, a bight of said cable passing around a part of said vessel fixed relatively thereto, and means for automatically releasing said floats, comprising a locking rod detachably engaging one of said floats, a piston adapted to operate said locking rod, a fluid pressure conduit acting with said piston, a cock in said conduit and floating means connected to said cock, substantially as described.

9. The combination of a pair of floats, one of said floats having greater buoyancy than the other, means for detachably securing said floats to the exterior of a vessel, said securing means including as an element a locking rod, a pulley secured to said vessel,

a pilot line connected at one end to one of
said floats, thence reeving around said pulley
and connected at its other end to said other
float; a piston adapted to operate said lock-
5 ing rod, a fluid pressure tank; a conduit con-
necting said fluid pressure tank and the cyl-
inder for said piston, a turning cock in said
conduit and a lever secured at one end to said

turning cock and at its other end provided
with a float, substantially as described. 10

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

JOHN FRANCIS SHEA.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
