

No. 746,606.

PATENTED DEC. 8, 1903.

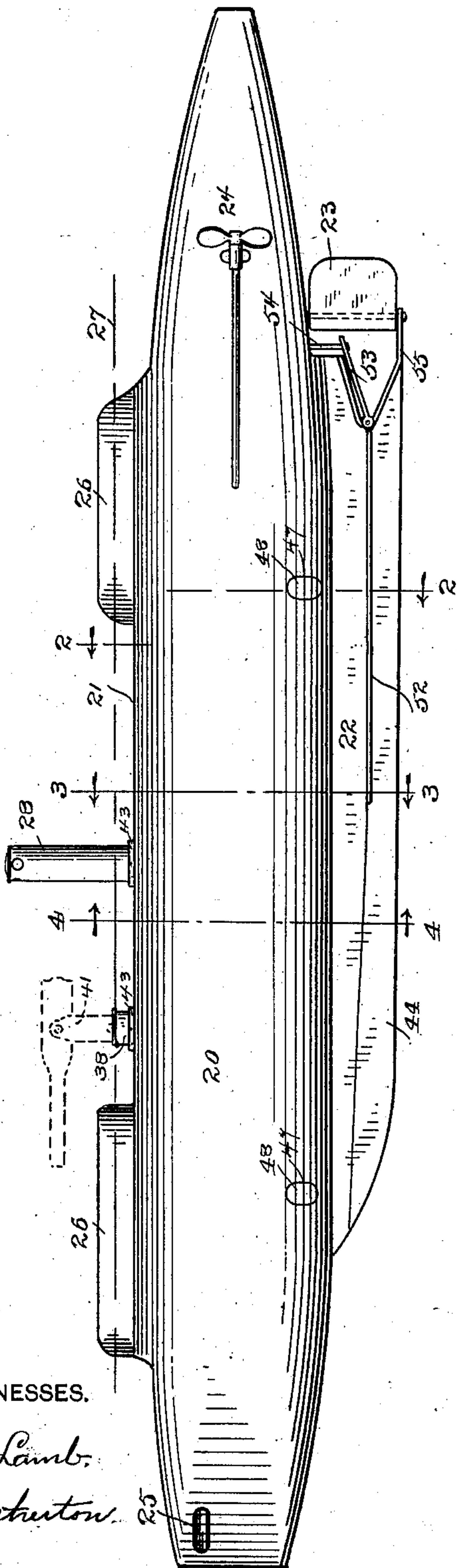
D. F. TOOMEY.
SUBMARINE BOAT.

APPLICATION FILED MAR. 25, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES.

H. A. Lamb.

S. W. Acton.

Fig. 3.

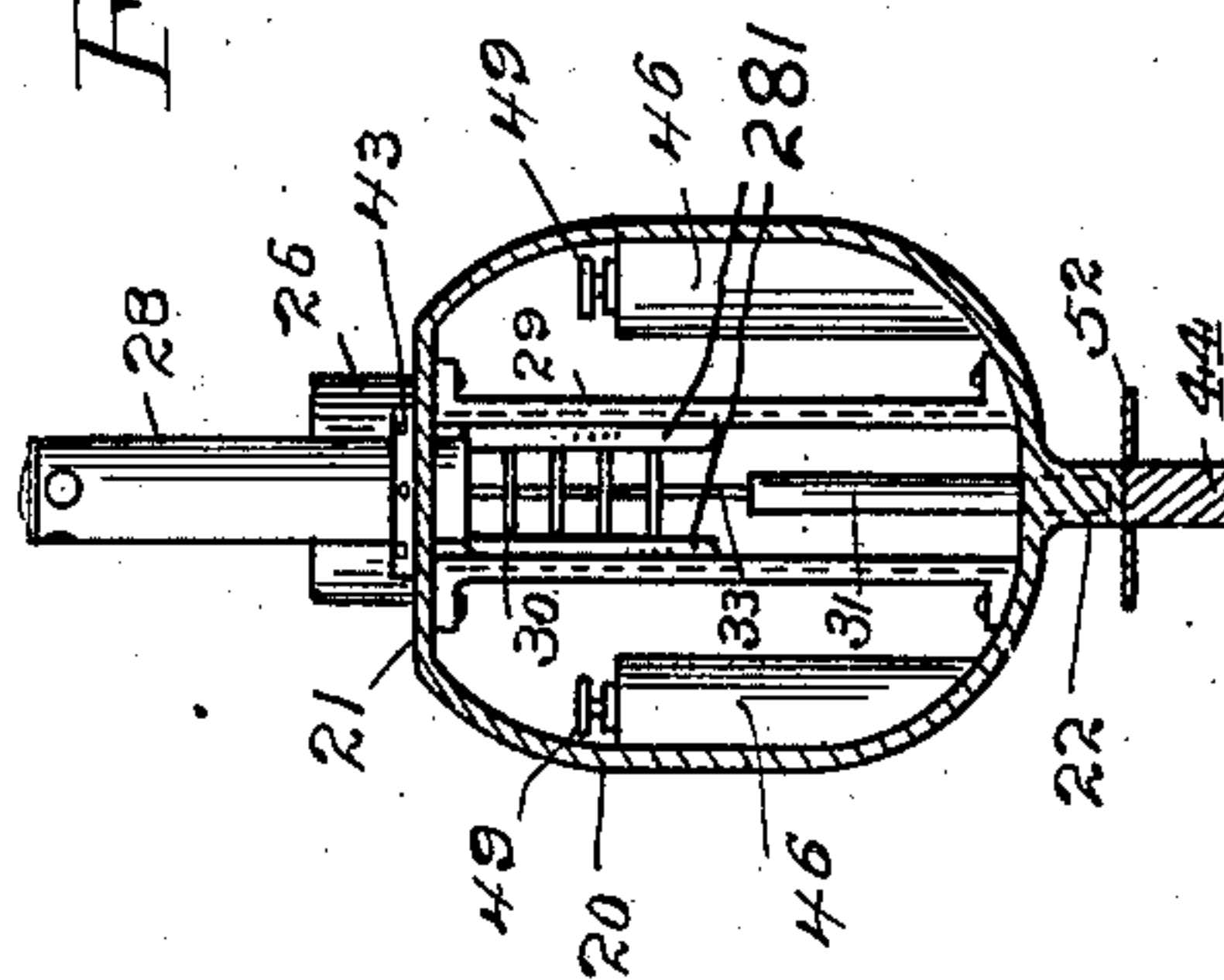
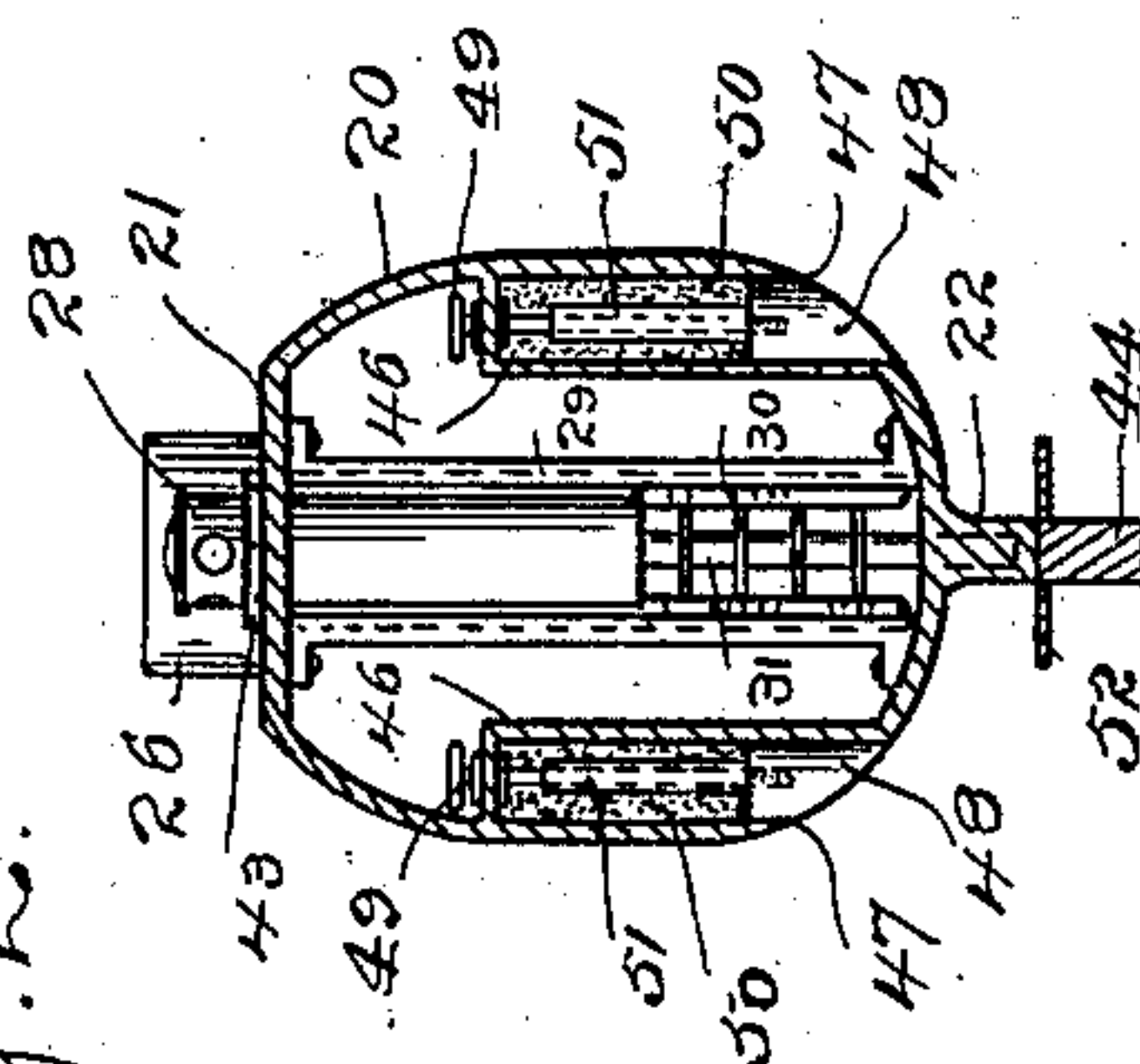


Fig. 2.



INVENTOR.

Daniel F. Toomey.
By A. M. Wooster,
Att'y.

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2 SHEETS—SHEET 2.

Fig. 4.

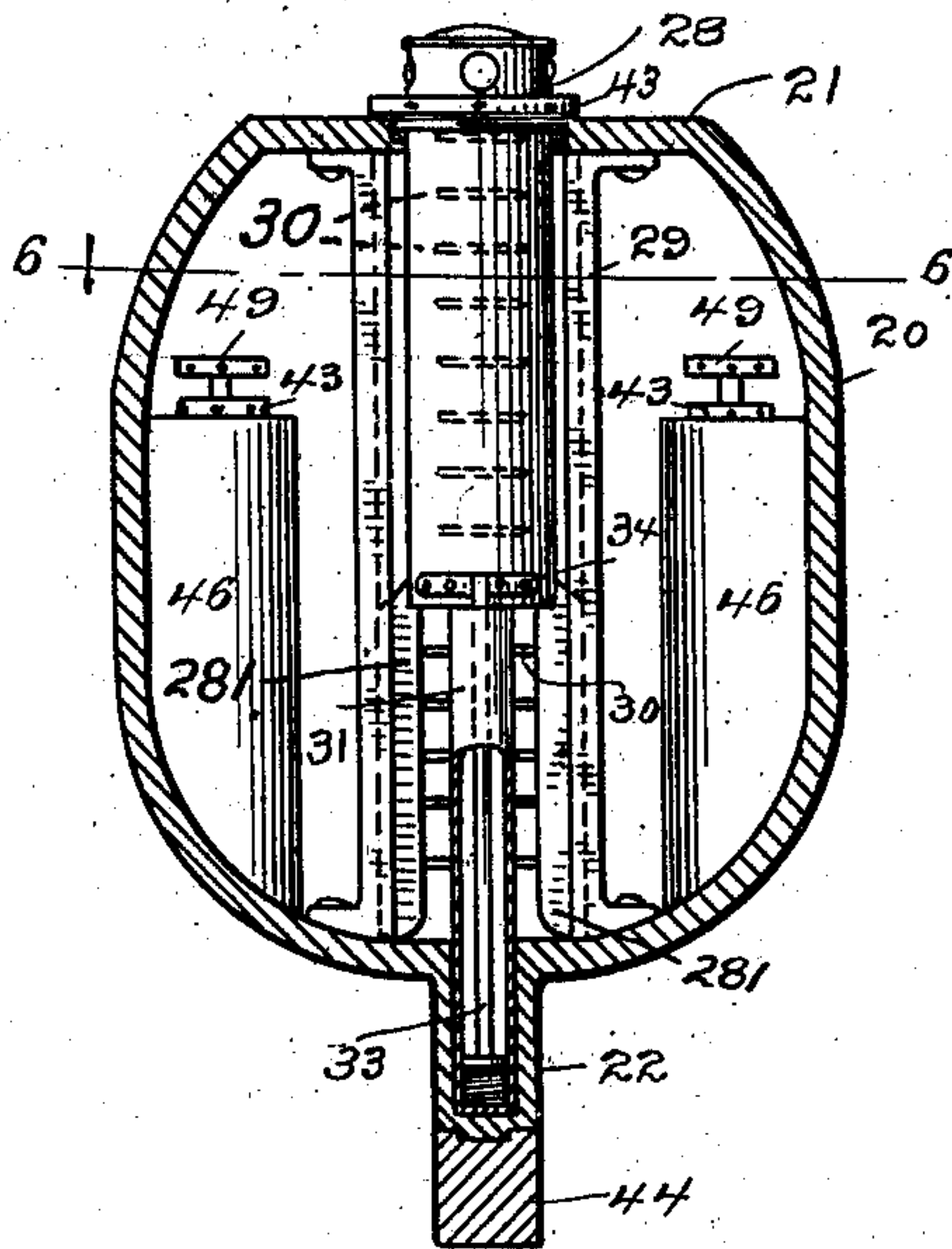


Fig. 5.

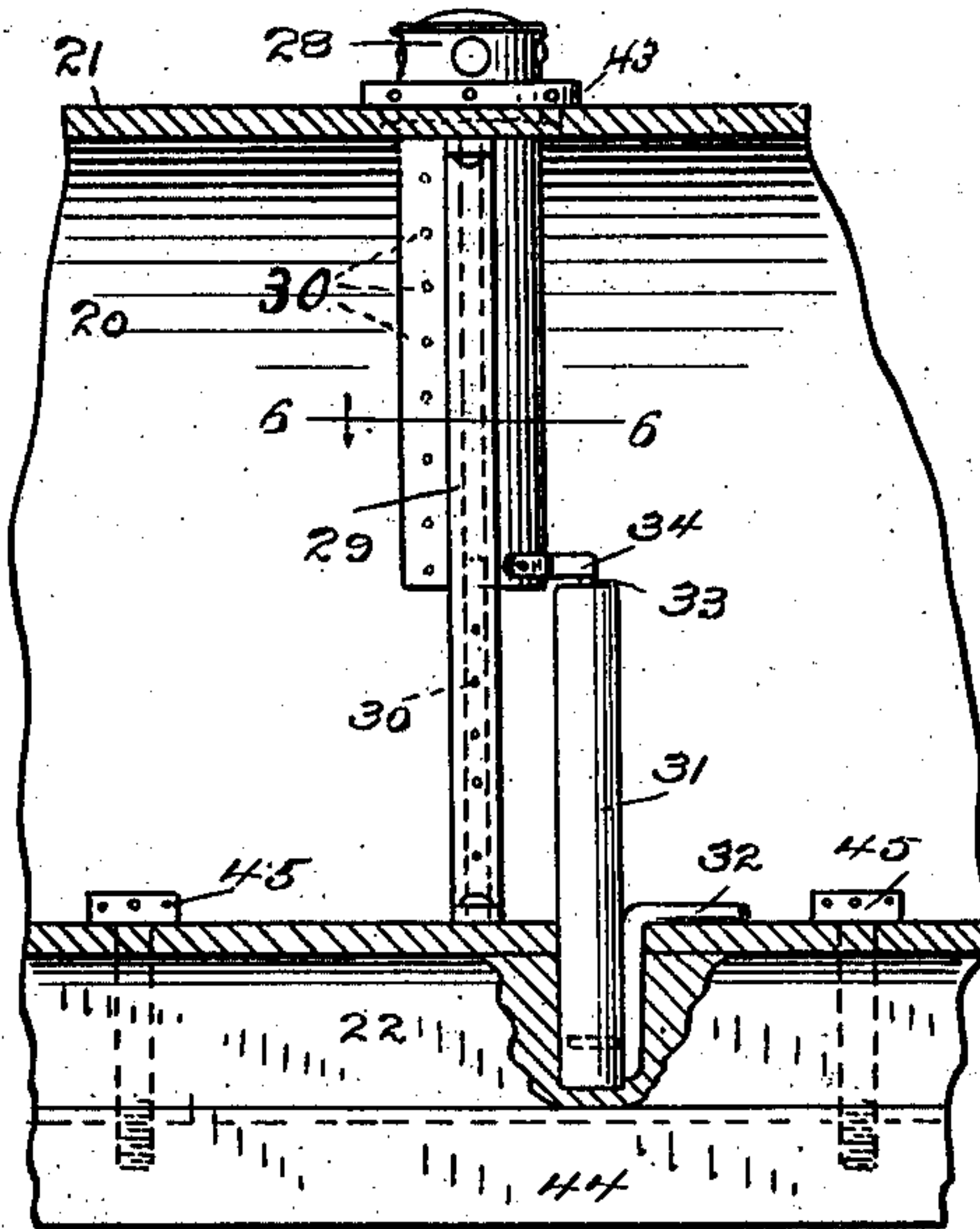


Fig. 6.

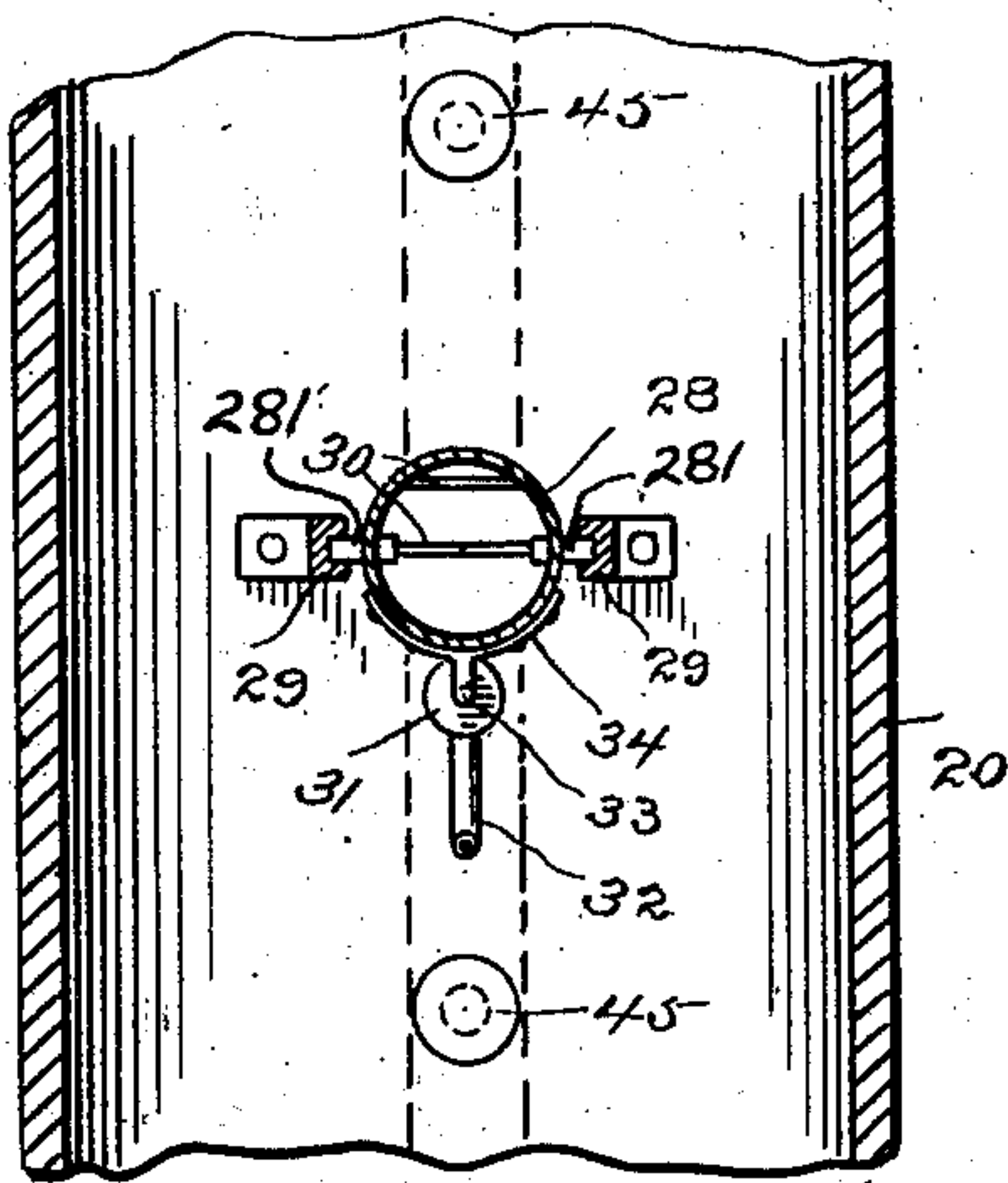
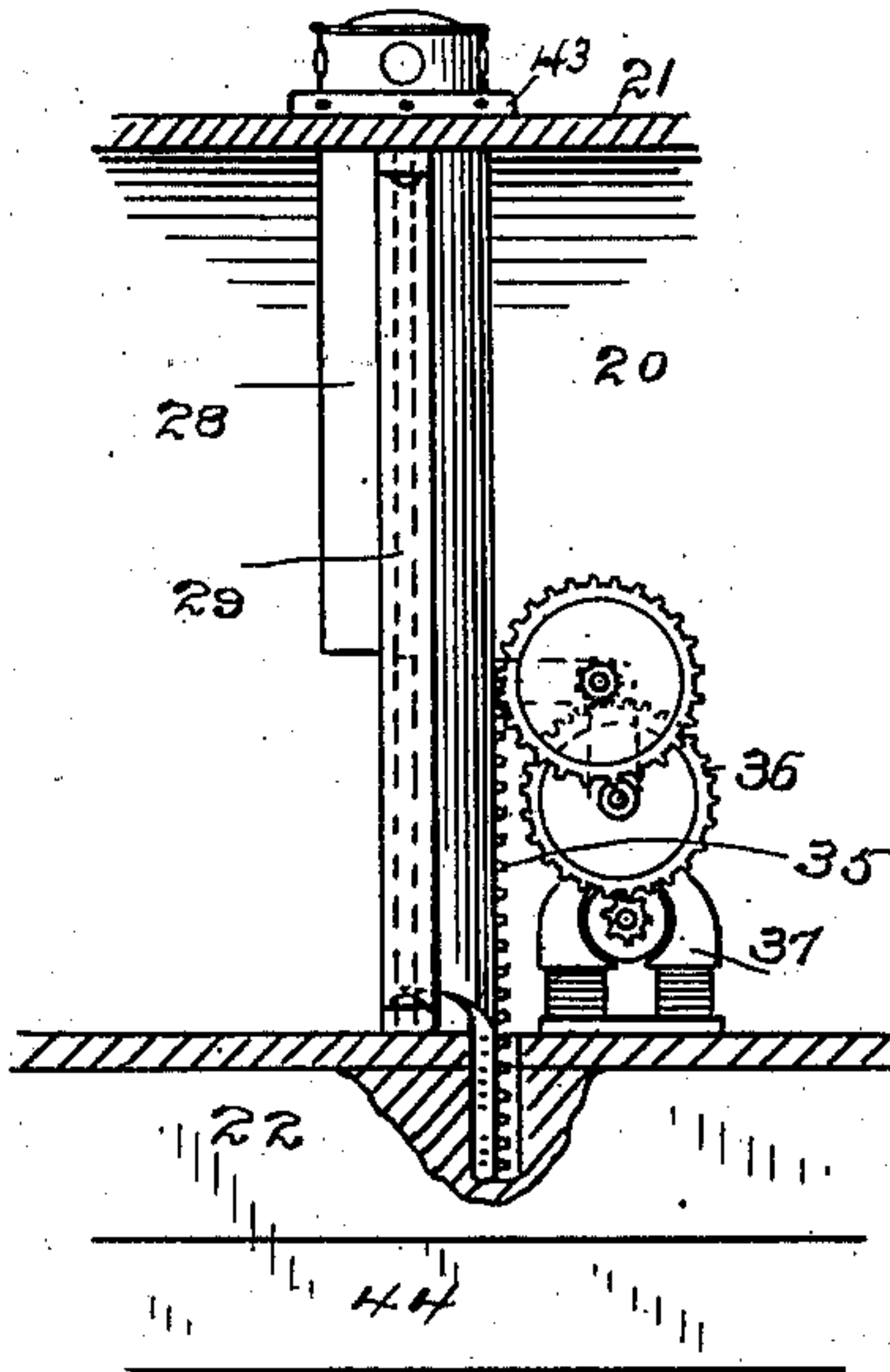


Fig. 7.



WITNESSES.

H. A. Lamb.
J. W. Atherton.

INVENTOR.

Daniel F. Toomey
By
A. M. Wooster,
Atty.

UNITED STATES PATENT OFFICE.

DANIEL F. TOOMEY, OF GUILFORD, CONNECTICUT.

SUBMARINE BOAT.

SPECIFICATION forming part of Letters Patent No. 746,606, dated December 8, 1903.

Application filed March 25, 1903. Serial No. 149,556. (No model.)

To all whom it may concern:

Be it known that I, DANIEL F. TOOMEY, a citizen of the United States, residing at Guilford, county of New Haven, State of Connecticut, have invented a new and useful Submarine Boat, of which the following is a specification.

This invention relates to submarine boats generally, and is especially adapted for use upon submarine torpedo boats and destroyers. It is of course well understood that in all boats of this type which are steered from within it is necessary that the helmsman be able to obtain as wide a view as possible of the surface of the water. It has been a serious objection to this type of boats that even when not submerged and when the water was comparatively smooth it was impossible for the helmsman to get a wide enough range of vision to be of much assistance to him in steering, and when the water was even moderately rough reliable steering was absolutely impossible for the double reason that it was impossible to get a view of the surface of the water, and that the windows of the pilot-house or conning-tower quickly became covered so thickly with a deposit of salt from waves and spray as to make it impossible to see through them. In order to overcome these difficulties, I have devised a submarine boat having what I have termed a "disappearing" conning-tower—that is, a conning-tower which may be quickly elevated a sufficient distance above the deck for use under ordinary conditions, where it may be allowed to remain as long as may be required, and may when necessary be quickly lowered down to or beneath the surface, depending, of course, on the degree of submergence of the boat, the top of the conning-tower when lowered being nearly down to the deck.

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, which will be hereinafter described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, forming part of this specification, in which like characters of reference indicate the same parts, Figure 1 is an elevation of my novel subma-

rine boat complete; Fig. 2, a transverse section on the line 2 2 in Fig. 1 looking toward the left; Fig. 3, a transverse section on the line 3 3 in Fig. 1 looking toward the left; Fig. 4, a transverse section, on an enlarged scale, on the line 4 4 in Fig. 1 looking toward the right; Fig. 5, a partial longitudinal section corresponding with Fig. 4, illustrating hydraulically-operated mechanism for raising and lowering the conning-tower; Fig. 6, a horizontal section on the line 6 6 in Figs. 4 and 5; Fig. 7, a partial longitudinal section corresponding with Fig. 5, illustrating electrically-operated mechanism for raising and lowering the conning-tower.

20 denotes the hull as a whole; 21, the deck; 22, the keel; 23, the rudder; 24, one of the screws, and 25 a torpedo-tube opening. These parts may all be of any ordinary or preferred construction.

28 denotes a tubular conning-tower whose top normally extends slightly above the deck and whose body lies within the hull and is adapted to be raised and lowered, as clearly shown in Figs. 2 to 7, inclusive.

29 denotes guides for the conning-tower, which are rigidly secured in a vertical position within the hull.

30 is a ladder within the tower and the guides for convenience in use.

The fixed guides 29 for the conning-tower extend from the deck to the bottom of the boat, and therefore serve the additional purpose of internal braces. The said tower is provided with ribs 281, which fit the grooves of the guides 29, (see Figs. 4 and 6,) and said ribs extend below the lower end of the conning-tower and serve to steady the tower when the latter is raised. The lower rungs of the ladder 30 are preferably set between the lower extensions of the ribs 281, (see Fig. 4,) and the upper rungs of said ladder extend across the interior of the tower at one side of its vertical center, thus enabling a person to readily pass the upper rung of the lower series and into the tower, whether the latter be raised or lowered.

In Figs. 2 to 6, inclusive, I have illustrated hydraulically-operated mechanism for raising and lowering the tower. 31 denotes the cylinder of a hydraulic jack; 32, the water-

supply pipe; 33, the piston of the jack, and 34 a connection between the piston and the collar.

In Fig. 7 I have illustrated electrically-operated mechanism for raising and lowering the conning-tower. In this form the tower is provided with a rack 35, which is engaged by gearing 36, operated by a dynamo 37.

It will of course be understood that I do not limit myself to any special means of raising and lowering the conning-tower, as it may obviously be raised by means of compressed air or steam-operated mechanism, which it is not deemed necessary to illustrate.

In practice my novel submarine boat would ordinarily be provided with two conning-towers and wholly independent mechanism for raising and lowering each tower, so that in the event of one tower becoming disabled the navigator may still have the means at his command of obtaining a view from an elevation above the deck.

43 denotes stuffing-boxes which I preferably provide around the conning-towers so as to prevent the possibility of water entering the hull.

I have also shown in the drawings certain parts or features which I do not claim herein, but which I briefly refer to as follows:

Steadiers 26 comprise elongated buoyant compartments above the deck, the water-line when the boat is nearly submerged being indicated at 27.

The boat may be provided with a gun-tower or tube, as at 38, containing a gun-mount 41, (indicated by dotted lines in Fig. 1,) which gun-mount may be raised or lowered by means similar to the mechanism described for operating the conning-tower. A stuffing-box 43 is also indicated for the tube 38.

A detachable keel 44 is shown as held in place by screws 45, and the drawings also represent sockets 46, having openings 47 at the bottom and containing ballast 48, held in the sockets by screws 49, passing through tubes 51, the latter being surrounded by loose ballast 50.

52 represents a horizontal fin; 53, a horizontal rudder hinged to the rudder-brace 55 and which may be operated from within the hull by means of a rod 54.

Having thus described my invention, I claim—

1. In a boat of the character described, the combination with the hull, of vertical guides extending from the deck to the bottom and forming internal braces for the hull, a tubular conning-tower fitted to slide vertically between said guides, and means for raising and lowering said tower.

2. In a boat of the character described, the combination with the hull, of vertical guides extending from the deck to the bottom and forming internal braces for the hull, a tubular conning-tower fitted to slide vertically between said guides, a fixed stuffing-box surrounding the conning-tower where the latter emerges, and means for raising and lowering said tower.

3. In a boat of the character described, the combination with the hull, of vertical guides connecting the deck and the bottom, a tubular conning-tower fitted to slide vertically between said guides, means for raising and lowering said tower, and ribs extending below the lower end of the tower and fitted to said guides to steady the tower when the latter is raised.

4. In a boat of the character described, the combination with the hull, of vertical guides connecting the deck and bottom, a tubular conning-tower fitted to slide vertically between said guides, means for raising and lowering said tower, and ribs extending below the lower end of the tower and fitted to said guides to steady the tower when the latter is raised, the said ribs being connected by ladder-rungs.

5. In a boat of the character described, the combination with the hull, of vertical guides connecting the deck and bottom, a tubular conning-tower fitted to slide vertically between said guides, means for raising and lowering said tower, and ribs extending below the lower end of the tower and fitted to said guides to steady the tower when the latter is raised, the said ribs being connected by ladder-rungs, and the tower being provided in its interior with ladder-rungs at one side of the vertical center thereof.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL F. TOOMEY.

Witnesses:

J. A. HILLEARY, Jr.,

J. F. KNAUSS.