

No. 765,305.

PATENTED JULY 19, 1904.

F. W. BRADY.

MEANS FOR EXPELLING TORPEDOES.

APPLICATION FILED JAN. 3, 1902. RENEWED DEC. 19, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

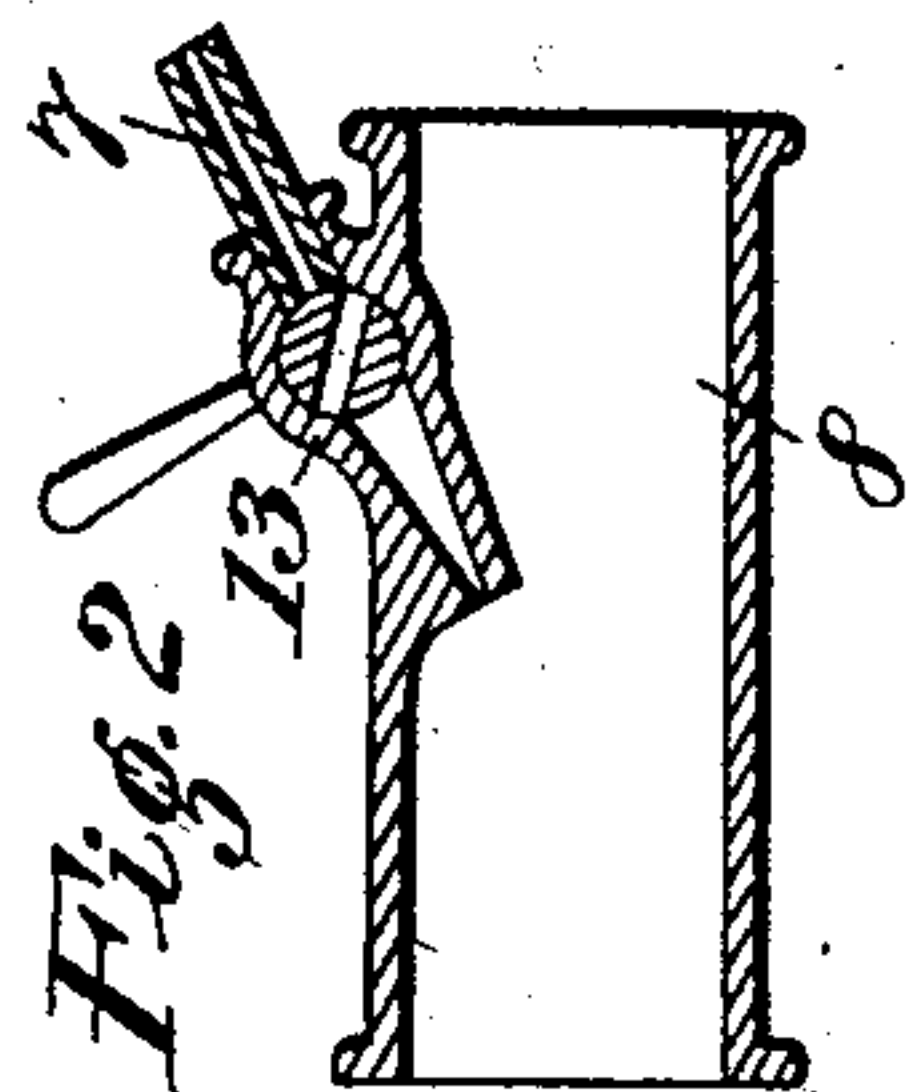
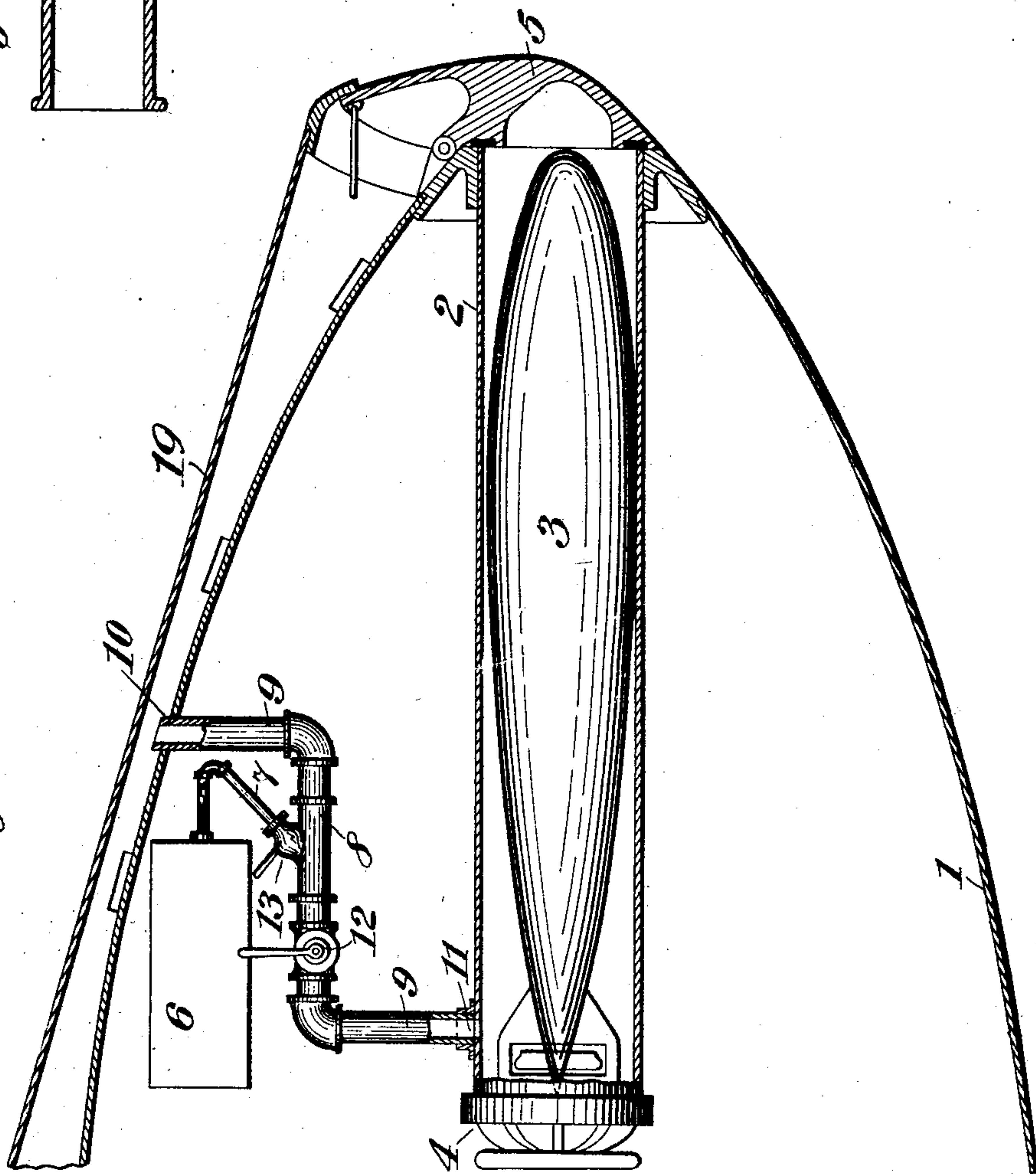


Fig. 1.



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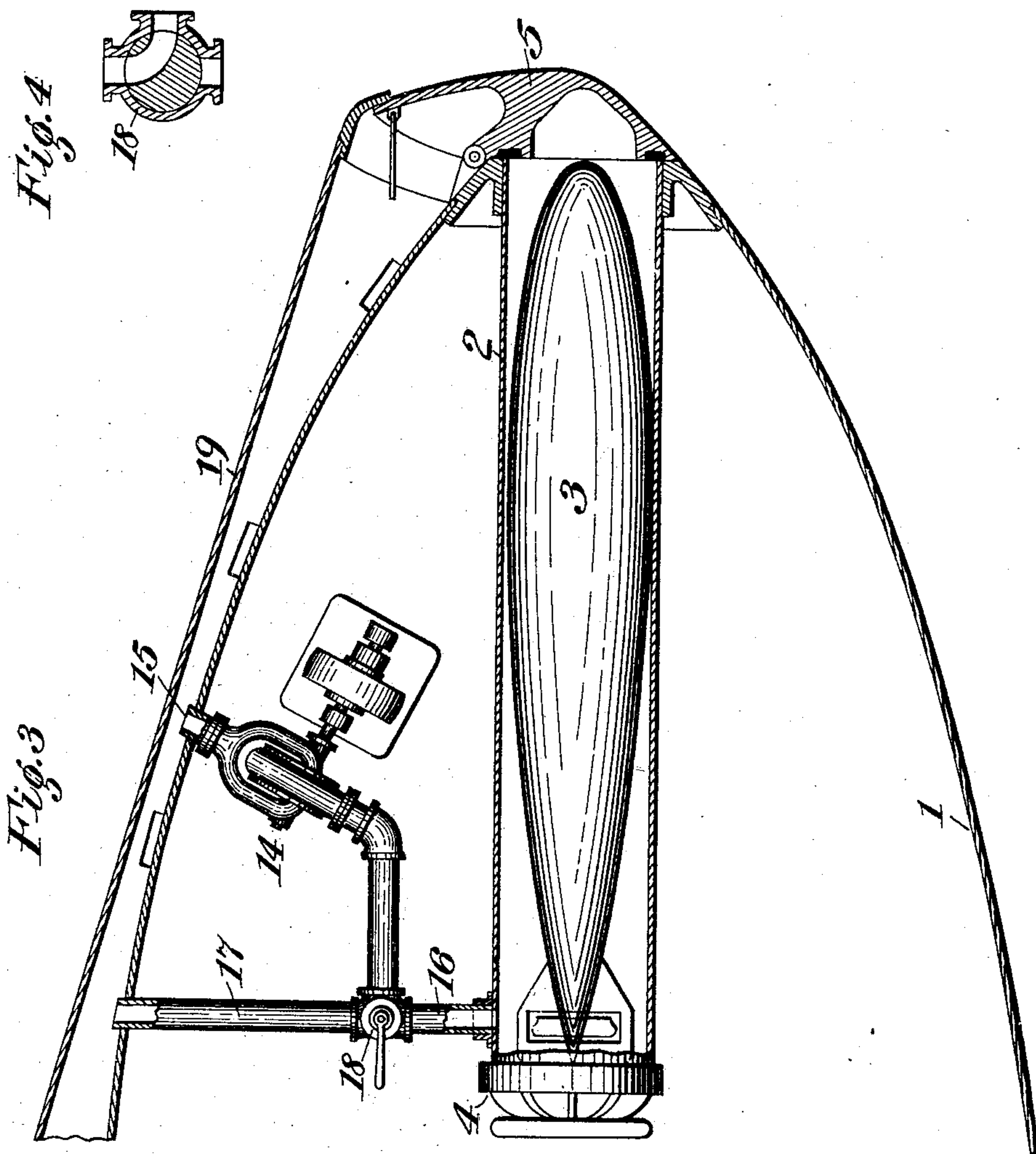
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UNITED STATES PATENT OFFICE.

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MEANS FOR EXPELLING TORPEDOES.

SPECIFICATION forming part of Letters Patent No. 765,305, dated July 19, 1904.

Application filed January 3, 1902. Renewed December 19, 1903. Serial No. 185,901. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. BRADY, a citizen of the United States, residing at Englewood, in the county of Bergen and State of New Jersey, have invented certain Improvements in Means for Expelling Torpedoes, of which the following is a specification.

This invention relates to means for expelling torpedoes or similar projectiles from the expulsion-tube of a war vessel.

Heretofore it has been the practice, so far as known, to employ air or other aeriform fluid under pressure to expel the torpedo from the submerged tube. This means and mode of expelling the torpedo has some disadvantages which are obviated by the means which form the object of the present invention.

In carrying out the present invention water from outside of the boat or vessel and under pressure is utilized for expelling the torpedo.

In the accompanying drawings two embodiments of the invention are illustrated.

Figure 1 is a somewhat diagrammatic sectional view of a part of a submarine torpedo-boat, showing the application of the invention thereto; and Fig. 2 is an enlarged sectional view of the water-forcing means. Fig. 3 is a view similar to Fig. 1, illustrating another embodiment of the invention; and Fig. 4 is a sectional view, on a larger scale, illustrating the construction of the two-way valve employed in connection with the pump for forcing the water to the expulsion-tube shown in Fig. 3.

Referring primarily to Figs. 1 and 2, 1 designates the hull of the boat, 2 the expulsion-tube, and 3 the torpedo therein. 4 is the cap for closing the inner end of the expulsion-tube, and 5 is the cap which closes the outer end of said tube. These are all known means and devices and will not require any special description. In order to expel the torpedo, it has been the common practice to admit compressed air from a tank on board to the inboard end of the expulsion-tube.

Referring to Figs. 1 and 2 primarily, 6 is

a tank containing compressed air. 7 is a pipe which leads the compressed air from the said tank to an injector 8 in and forming a part of a pipe 9, one end of the latter opening to the water of flotation through the shell of the boat at 10 to receive water and the other opening into the inboard end of the expulsion-tube at 11 to deliver water for expelling the torpedo. In the pipe 9 at any convenient point is a stop-cock 12 and in the air-conduit is a stop-cock 13.

The operation is simple. When the torpedo is to be expelled, the cocks 12 and 13 are opened and the air through the conduit injects water from outside of the boat forcibly into the inboard end of the expulsion-tube, thus filling the latter and driving out the torpedo.

The advantages of this means of expelling the torpedo are that the water used for expulsion floats the torpedo and renders it buoyant while it is carried out by the current established. The torpedo-propeller mechanism is set in motion by the movement of the torpedo from the tube, and the water supplied for expulsion submerges the rotating propeller. The water used for expulsion takes the place of the torpedo as the latter is driven out, thus compensating the weight of the torpedo in the most effective manner—that is to say, gradually—as the torpedo is displaced. Where air is employed to expel the torpedo, the water does not enter the outboard end of the tube until the torpedo is expelled and the air cut off, and the means herein described for effecting the expulsion has an important advantage over the old method in providing gradual compensation for weight displaced without interval between the displacement and replacement of weight, as in the ordinary method.

In Figs. 3 and 4 another form of water-forcing device is illustrated. In this construction a rotary pump 14 is employed. This pump is supplied with water from the outside at 15, and its eduction side is connected with a pipe 16, leading to the inboard end of

the expansion-tube, and a pipe 17, leading to the outside or water of flotation, the course of the flow of water from the pump being controlled by a two-way valve 18. The operation is as follows: The valve 18 is turned so as to direct the flow outboard through the pipe 17 and the pump set in motion. The water will flow from outboard to outboard. When the torpedo is to be expelled, the valve 18 is shifted so as to direct the discharge from the pump to the expulsion-tube.

It is not important to this invention what particular water-forcing means is employed to supply water to the expulsion-tube for expelling the torpedo so long as the means employed supplies the water with sufficient force and in sufficient quantity. The inlets and outlets for the water through the shell of the boat will be preferably under the superstructure 19 if the boat is supplied with one.

I am aware that it has been proposed to expel a torpedo by "air or water under pressure;" but I am not aware that any means for accomplishing the expulsion of the torpedo by water taken from the outside of the boat and forced under pressure into the ordinary expulsion-tube has ever been proposed. I do not claim, broadly, the use of water as a substitute for air for expelling a torpedo, but

means whereby water may be so used in the ordinary expulsion-tube.

Having thus described my invention, I claim—

1. The combination with the expulsion-tube of a vessel or boat, of a water-forcing means connected on its induction side with the water exterior to the boat and on its eduction side with the inboard end of said expulsion-tube, and means for controlling the operation of said water-forcing means.

2. The combination with the expulsion-tube of a vessel or boat, of a water-forcing means for expelling the torpedo from said tube, said means comprising an injector device connected on its induction side with the water of flotation and on its eduction side with the inboard end of the expulsion-tube, a reservoir for compressed aeriform fluid, a pipe for supplying compressed air therefrom to the injector device, and means for controlling the supply of air.

In witness whereof I have hereunto signed my name, this 2d day of January, 1902, in the presence of two subscribing witnesses.

FRANCIS W. BRADY.

Witnesses:

HENRY CONNETT,
PETER A. ROSS: