

W. M. DOUGLAS.
 AUTOMOBILE TORPEDO.
 APPLICATION FILED DEC. 27, 1909.

978,862.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.

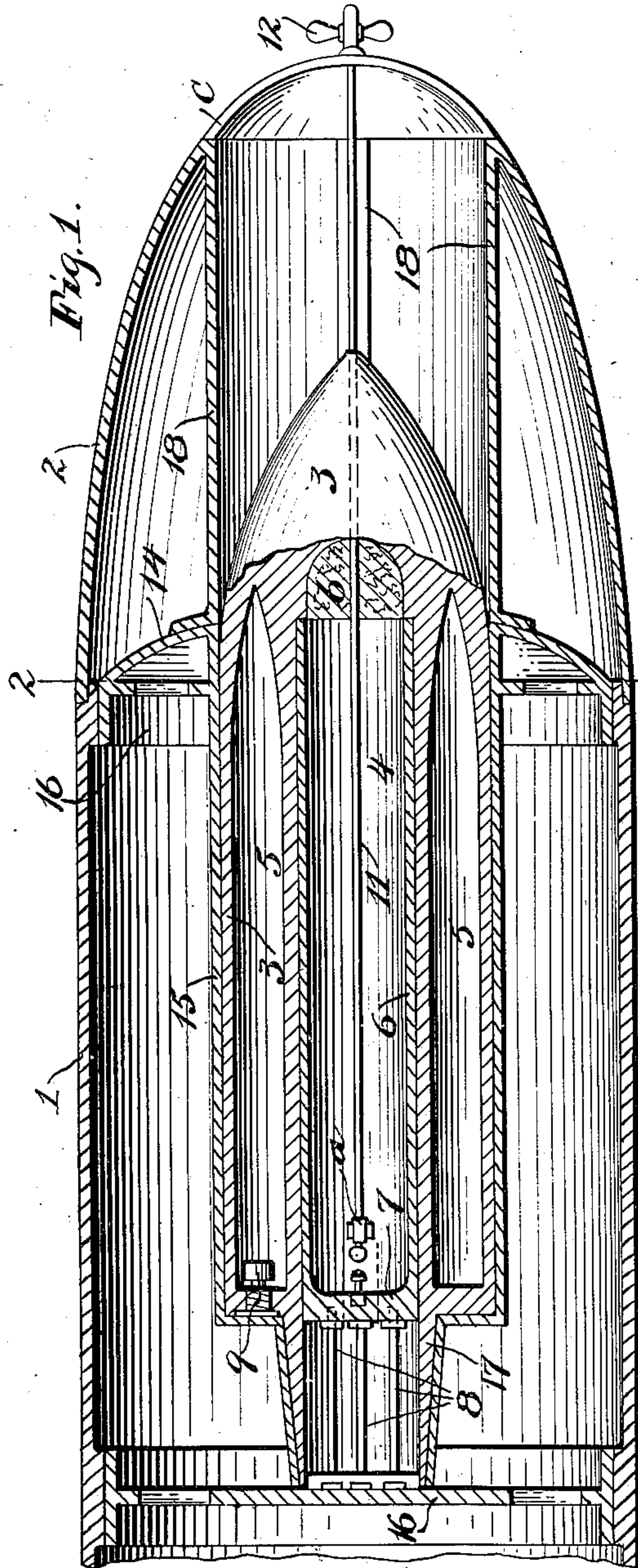


Fig. 2.

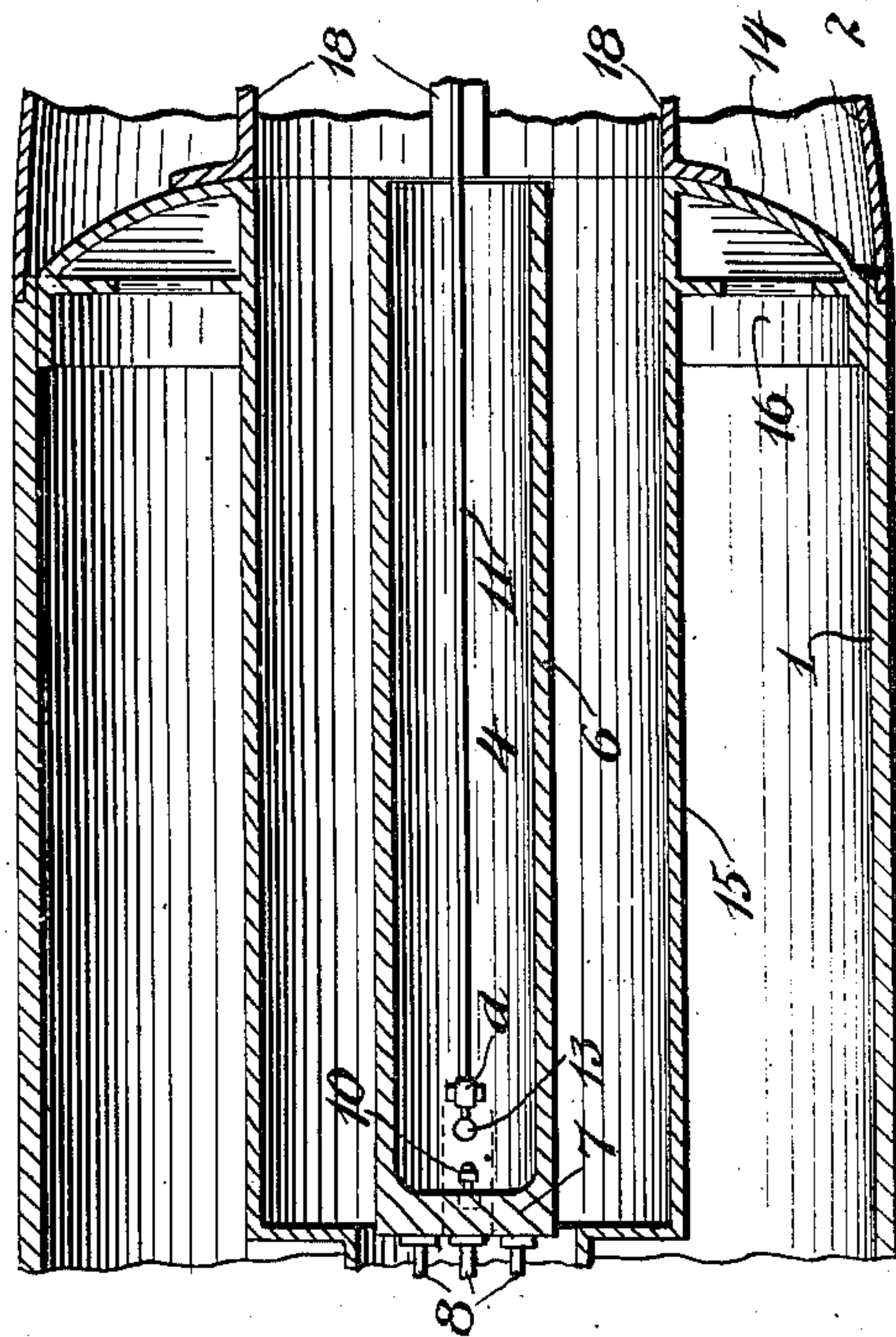
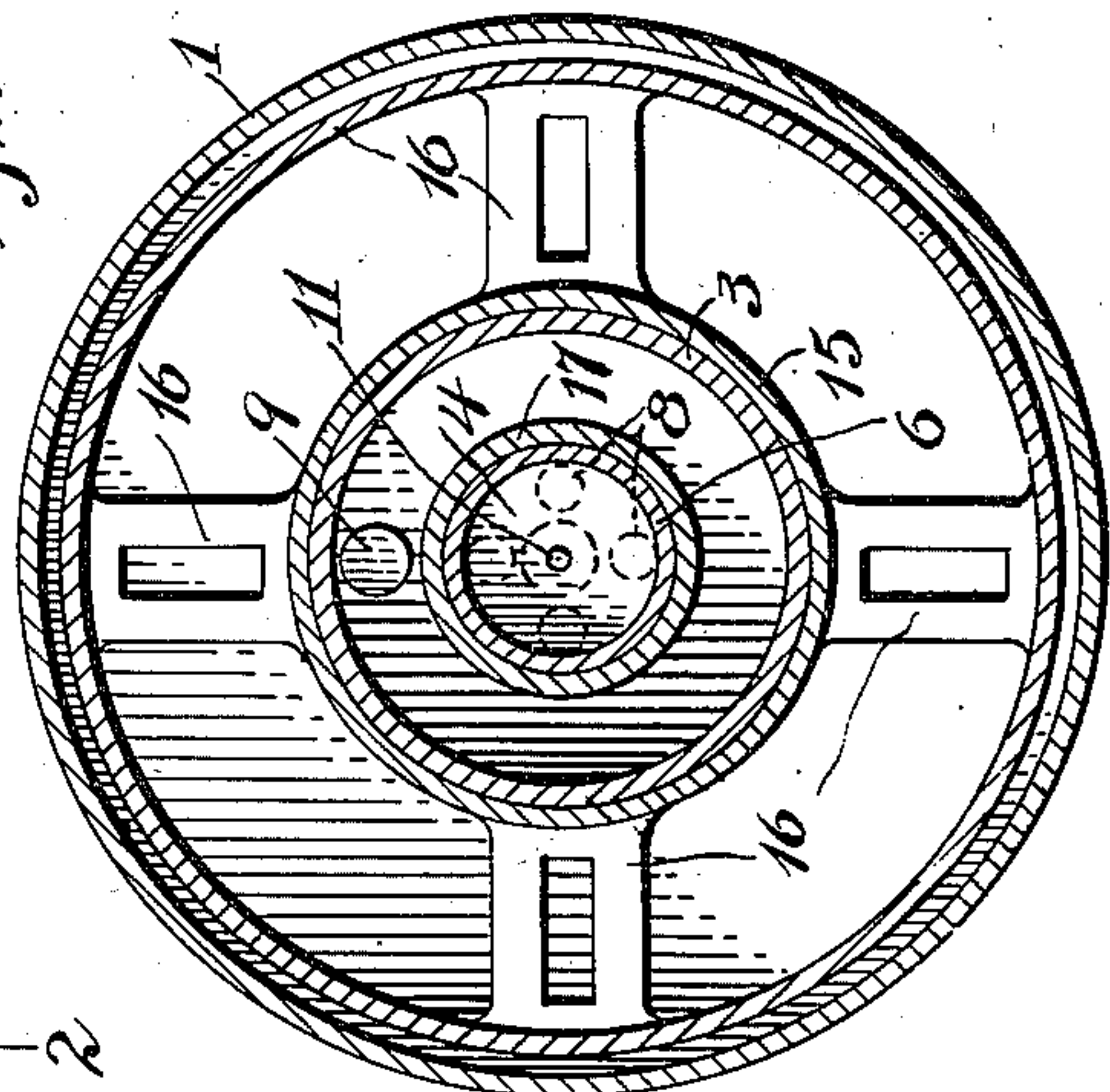


Fig. 3.

Witnesses:
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 A. D. Reid

Inventor:
 William M. Douglas

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Fig. 4.

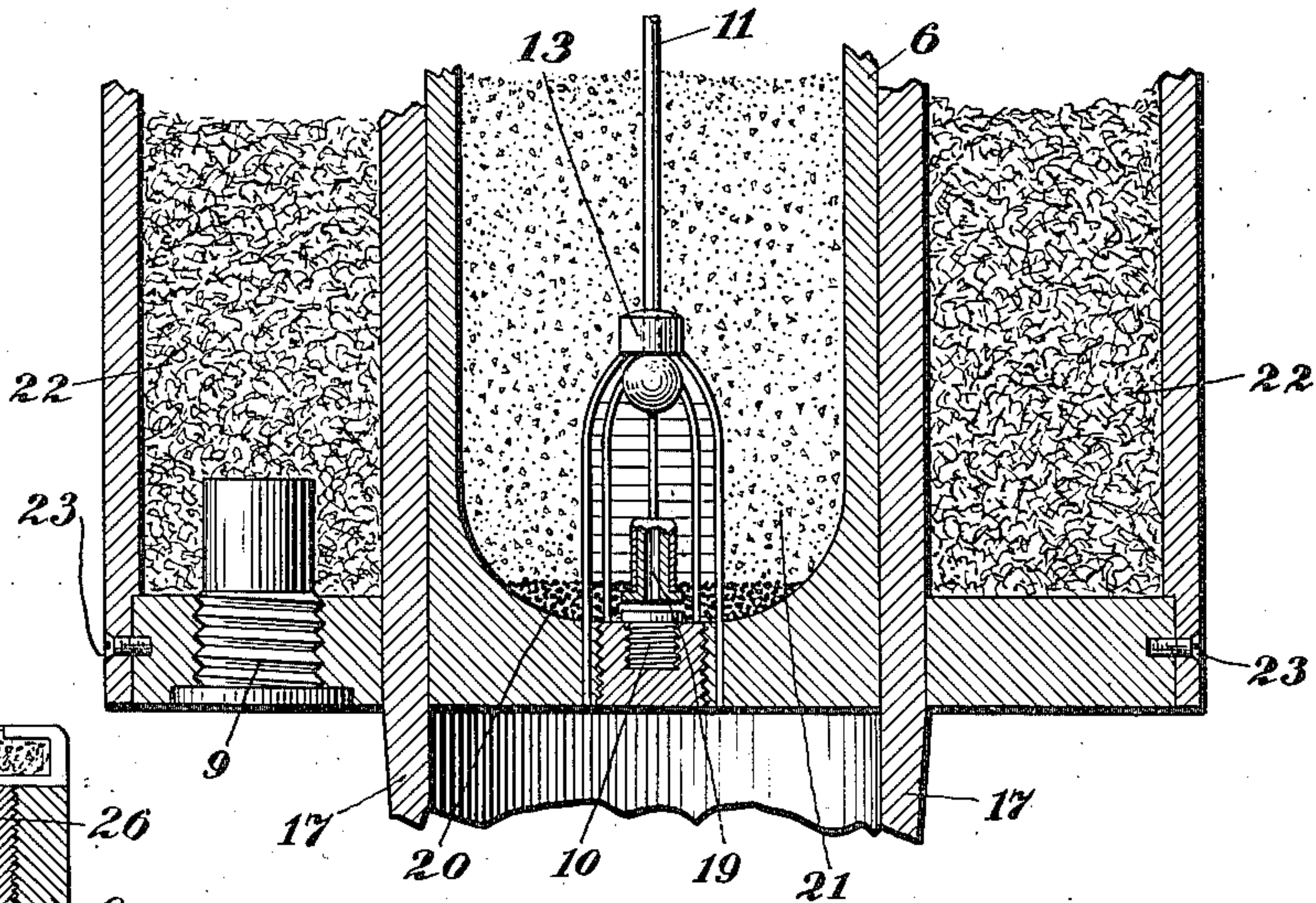


Fig. 6.

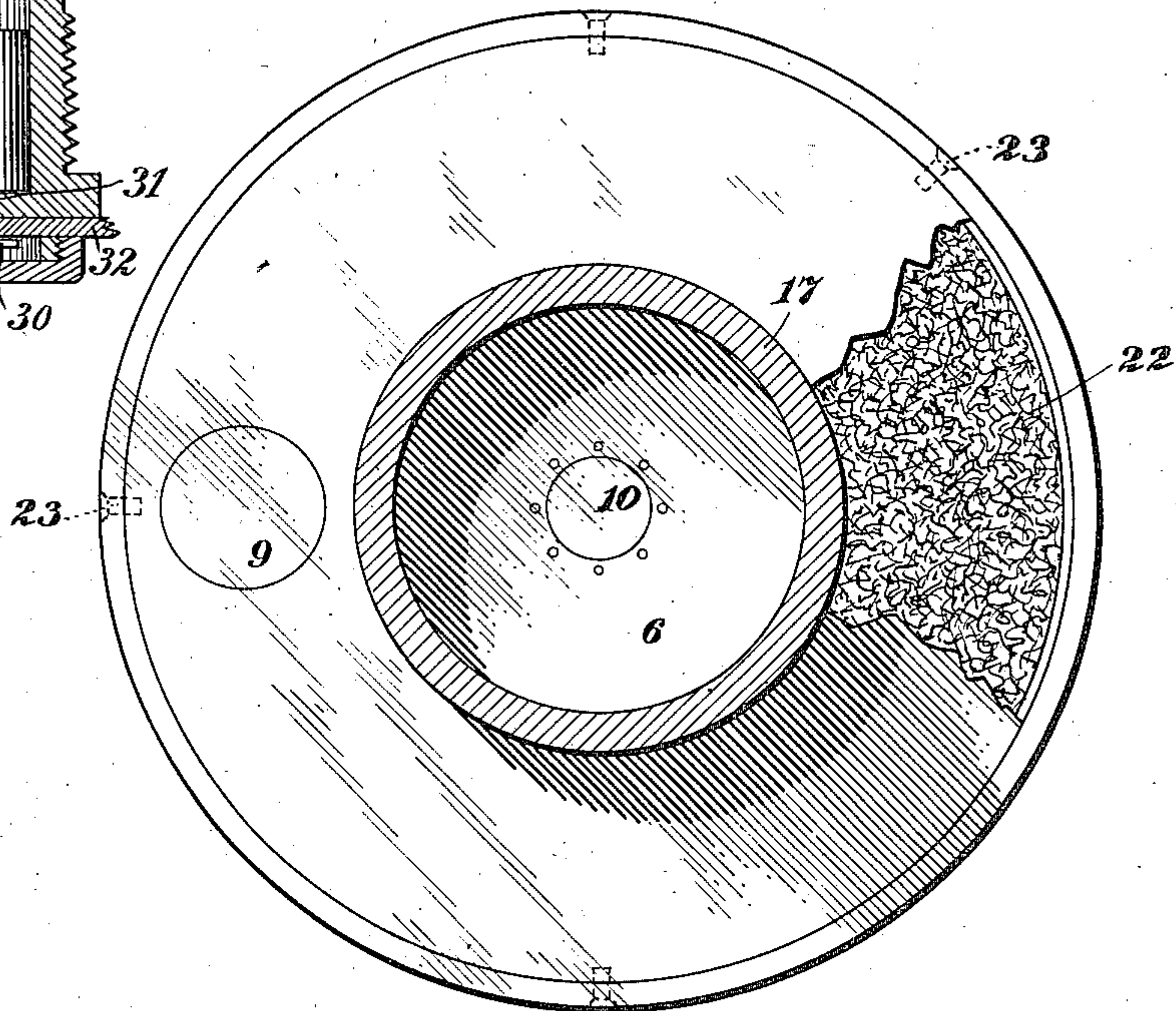
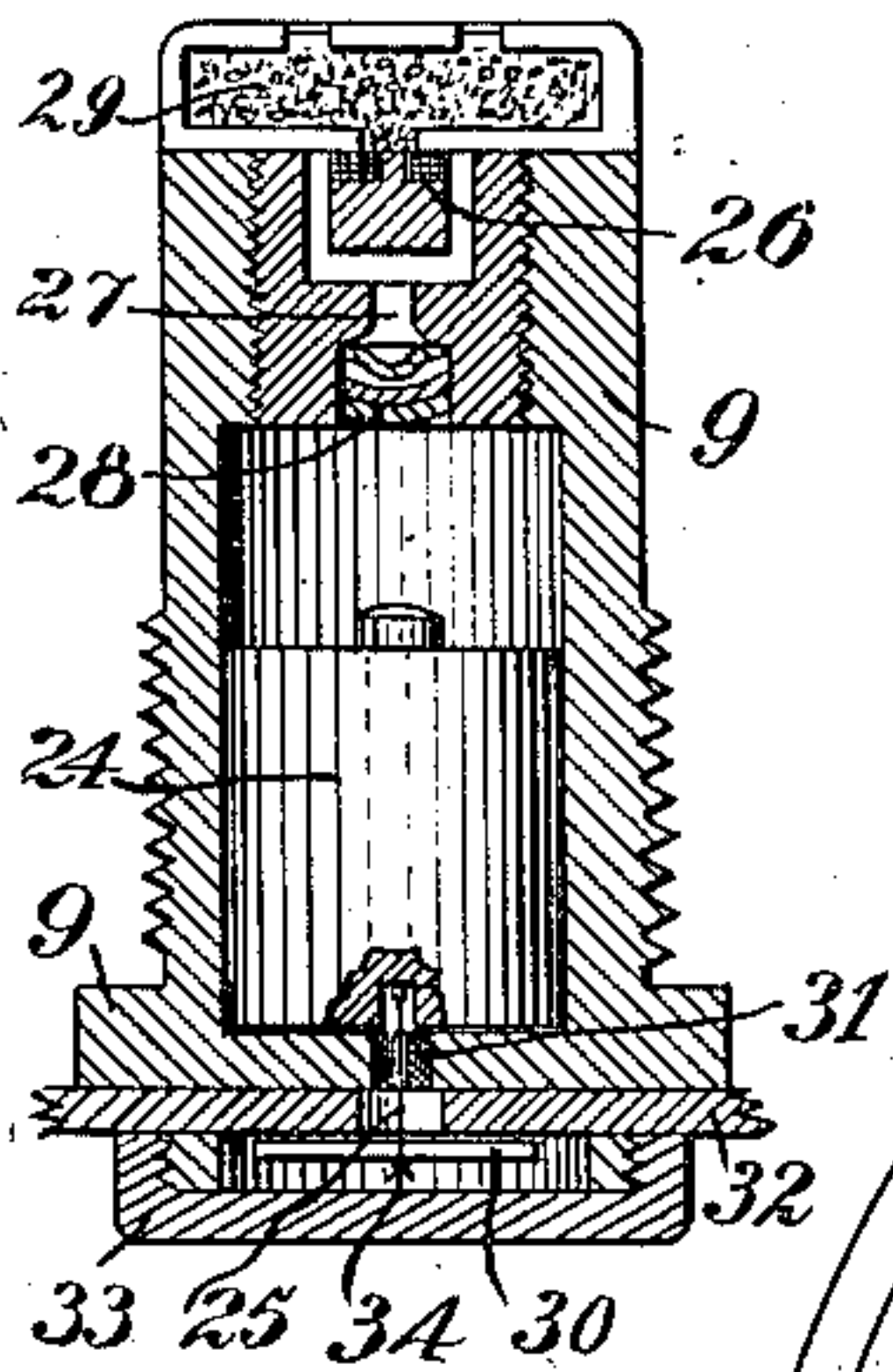


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM M. DOUGLAS, OF GALVESTON, TEXAS.

AUTOMOBILE TORPEDO.

978,862.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed December 27, 1909. Serial No. 535,228.

To all whom it may concern:

Be it known that I, WILLIAM M. DOUGLAS, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented certain new and useful Improvements in Automobile Torpedoes, of which the following is a specification.

The invention has reference to submarine torpedoes; and I do 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.

The object in view considers the elimination of any gun or gun barrel as now intended and the use of a shell alone to take the place of the gun and its appurtenances in combination with a torpedo; in fact I present an entirely new method, system or type in the way of discharging a projectile from a torpedo, or like means, and forcibly driving the shell into a ship's side without the aid of a gun with its powder charge.

In illustration, and for that purpose alone, the accompanying drawings are shown so as to cover the spirit and intent of the invention only, and are not to be considered as working drawings subject to criticism in any way as to form, size, weight, position of parts or material as shown and hereafter described.

The spirit of the invention lies in the use of a fixed cartridge case around which the shell, carrying explosive chamber, is fitted in such a manner that upon discharge of the powder in cartridge case the shell will move forward under impulse of the gases and be guided by the fixed case and the outer frame, the shell to make its own chamber for expansion and pressure of gas beyond the limit of the cartridge case to extreme limit of twice the length of the case or more, so that due velocity may be given the mass before it leaves the guide frame at extreme nose of torpedo. The shell is therefore telescopic in action and all powder gas pressure is from the inside against the inner base of head of shell and not, as in the case of a gun shell, against its base or outside.

Figure 1 is a longitudinal sectional view of the forward end of a torpedo with my invention attached; Fig. 2 is a cross section and view of the body of torpedo with my invention attached; Fig. 3 is a view, partly in section, showing condition of the torpedo

before the shell has been placed to complete the same as per Fig. 1; Fig. 4 is an enlarged view of the lower end, or base, of shell, shown in section; Fig. 5 is enlarged plan view of base of shell as per Fig. 4, and Fig. 6 is a sectional view of the time fuse.

The different parts are described by figures and letters, as follows:

1 represents the casing of a torpedo; 2, the head thereof, with cap C; 3 represents the shell, having a powder chamber 4, an annular explosive chamber 5, a cartridge case 6, with supporting block 7, block supports 8, fuse 9, anvil and cap primer 10, firing rod 11, safety propeller 12, cage to protect primer from powder pressure and to secure head of firing rod, 13. The additional parts are: diaphragm 14; receiver for shell complete, and also wall for the extension of the air-flask that much farther toward the head of the torpedo, 15; additional block supports and cross walls 16. At the lower end of shell the inner walls of shell are prolonged and marked 17. At the upper end, and adjusted to diaphragm 14, on either side, are shown guide bars 18, of which there will be four, viz., the three shown at sides and bottom and one on top.

In Figs. 4 and 5, enlarged sections, figure 19 shows vents in anvil; 20 is priming amount of block powder; 21 is smokeless powder charge; 22 is explosive in explosive chamber; 23 is screw holding heel plates in place.

24 is a hammer held in place by a wire 25; 26 is a ring or washer of specially prepared powder; 27 is vent; 28 is a primer; 29 is ignition charge; 30 is a holding or safety bar; 31 is a passage lined with or plugged with soft rubber, or the like; 9 is the case; 32 is the part of receiver, 15, against which the shell rests; 33 is cap to cover wire hole 31, and 34 is where wire end is tied around bar 30.

But first it may be necessary to show the distinction between a gun-torpedo and a shell torpedo, or the distinction between other systems and the system here disclosed. This is shown by the drawings viz., that they do not illustrate any gun or resemblance to a gun—the shell proper being its own carrier, its own expeller and its own propeller in its self-contained character. The system is arranged to get power from the powder discharged within the shell, and the expansion of the powder gases against the inner

side of head as it is pushed outward will give the necessary velocity so that when the pointed head of shell hits the hull the hard steel point will penetrate and carry the body farther inward until the time fuse 9 (as per Fig. 6, or of any suitable make) causes explosion of the explosive carried in the explosive chamber 5 of the shell. The powder chamber 4 will expand to extreme twice its normal length, and more, before the force or pressure of expanding gases cease, thus insuring all the velocity required to carry the load to the objective point.

By examining the drawings, Fig. 1 especially, it may readily be seen that great differences exist between the shell-torpedo and the gun-torpedo system. The particular difference is in the fact that there is no gun-barrel in which to insert a powder charge and a projectile. Again, the gun-torpedo (or torpedo gun) is only for use in holding a shell and the powder charge to fire it, while the shell-torpedo (or torpedo-shell) will deliver itself, with light fixtures, therefore enabling the standard sizes of torpedoes to carry the shell, etc., without providing an extra head for a torpedo shell or casing, and thus avoiding the extra expense as well as the inconvenience of working such an auxiliary as a telescoping head adapted to be extended so as to complete the contour of a torpedo at the same time, or just before, firing the same. In fact, the shell-torpedo can be made so compact that every particular part will occupy only a minimum of space and far less than the space and weight necessarily required by the gun-torpedo system and especially so in the larger calibers of shells—say 9 to 12 inches. In the shell-torpedo as described herein there are no solid walls outside of the shell itself; no breech, no powder chamber outside the shell, no shell placed forward of the powder chamber, and no space for travel of shell in a gun so as to acquire velocity before leaving the gun. In a word, the gun-torpedo and the shell-torpedo are entirely distinct systems in the way of attaining the same object or result, with the advantage on the side of the shell-torpedo in simplicity, efficiency, and economy in first cost and final trial.

To assemble the torpedo for action, the cartridge case 6 is supposed to be in place and secured by supports 8, the firing rod 11 being a part of the case-supported at *a* by the cage 13, and at 6 by a plug of any light inflammable material on top of the powder shaped to fit the space bored out in the head of shell. The parts shown by 14, 15, 16, 18 being also in place, the shell 3 is then introduced, the rod 11 having a free end where propeller 12 will be off and the casing *c* not yet attached. The inner walls of shell, 17, will slide upon the cartridge case, 6, and the outer wall of shell 3 will slide upon the wall

of receiver 15. This wall 15 need not be made solid, but may be made as per the guide bars 18—the rearward portion covering supports 8 only being solid. Thus the shell 3 will form the wall to hold the air in flask when the same is turned on and so save weight in material. Care should be taken to avoid accidental discharge before the safety propeller 12 can be attached at screw end of rod 11. When shell 3 is fairly in place the capping piece *c* can be put on and then the safety propeller 12. The guides 18 and receiver walls 15 should receive coating of a lubricant, such as wax and graphite; also the walls of cartridge 6 and shell 17, so that the proper action may be had thereby. Air tight joints will help to hold shell in place until fired; if thought not sufficient, then other means are available, such as a sleeve around rod 11, between nose of shell and inner face of cap at safety propeller 12.

It is understood that the firing of the shell is done by contact of rod 11 with the hull of the ship aimed at; the propeller 12 running under pressure against the water will unscrew itself and give action to the rod, which under the blow will hammer the cap 10 and explode the charge in cartridge. Other means are available, and may be used if thought best; for I do not confine myself to this or any particular way or method for discharging the cartridge.

I do not confine myself to any particular metal for the shell 3 or torpedo casing 1, 2, only expressing the spirit of the improvement for metal and workmanship suitable in all ways, and that the powder charge and explosive be in quality and quantity sufficient for all purposes and as intended.

In action the movement will be: When the head of the torpedo meets the hull of the vessel aimed at, the head of rod 11, being uncovered and free of the propeller 12, the same unscrewing itself in the usual way—will strike the cap 10 and thereby explode the powder in powder chamber 4 of the cartridge 6 through proper vents 19, (Fig. 4). The explosion of the powder will give impulse to the shell 3, which will head against the nose of torpedo, and riding rod 11 will proceed to carry its charge of explosive (in chamber 5) into the hull opposed to it, where by means of the time fuse 9, final damage will be done inside the hull. When the shell 3 is fired the force applied will snap the wire 25, or if the wire be plugged in with lead it will be withdrawn from hammer 24, and so arm the fuse for action when the shock from meeting of nose of shell 3 and the side of vessel aimed at happens, thus jarring forward hammer 24 against primer 28, the flames through vent 27 being retarded by the washer or ring of prepared powder 26, which will only burn from edge inward, and give the slight delay necessary before the ignition

charge 29 explodes the charge in explosive chamber 5 when shell 3 reaches the interior of the ship. The rubber plug 31 will keep inner part dry.

5 My improvement is applicable in a manner substantially the same as herein shown to weapons in lieu of field guns, mortars, howitzers and secondary battery guns, and in some functions in place of machine guns.

10 Having explained the action and practice of the torpedo shell in a torpedo launched from a tube, and described my invention and mode of operation, what I claim, and desire to secure by Letters Patent, is as follows:

15 1. In a torpedo, the combination of a shell fitted over a cartridge case within a receiver or frame, the shell having an explosive chamber with a fuse provided for bursting same within a hull after passing through the under water side; the cartridge case to be provided with a fuse and means to fire the same together with a suitable propelling charge; the fixed cartridge case and the shell arranged so as to form an enlarged chamber
20 for expansion of gas as it moves forward so that under the pressure of the powder gases

due velocity may be given the shell before it leaves the cartridge case and the torpedo, as described.

2. In a torpedo, the combination of a fixed 30 cartridge case and propelling charge therein with means for firing said cartridge, a projectile fitted around said cartridge case and provided with a bursting charge and a fuse; the projectile fitted so that upon firing the 35 powder charge in the case the projectile will move forward under impulse of the gases and be guided by the fixed case and an outer frame, the projectile and cartridge case making a chamber for expansion and pressure of 40 gases to an extreme limit exceeding the limit of the cartridge case, so that due velocity may be given the projectile before it leaves the cartridge case and the torpedo, as described. 45

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

WILLIAM M. DOUGLAS.

Witnesses:

STELLA U. DOUGLAS,
A. D. REID.