

(No Model.)

3 Sheets—Sheet 1.

G. W. VAN HOOSE.
WAR SHIP.

No. 545,321.

Patented Aug. 27, 1895.

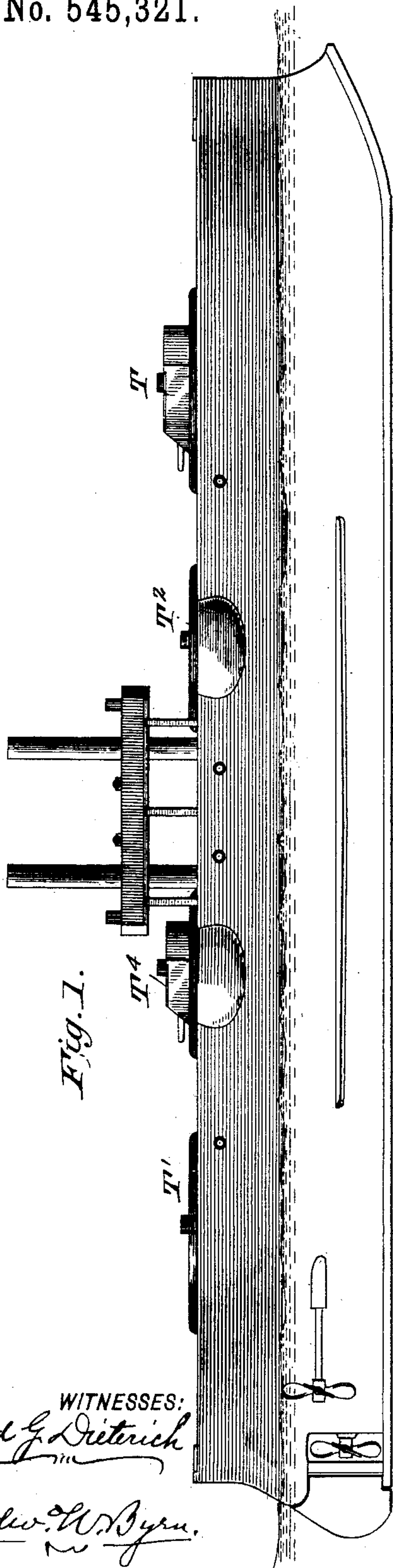


Fig. 1.

WITNESSES:
Fred G. Dietrich
Edw. W. Byrne.

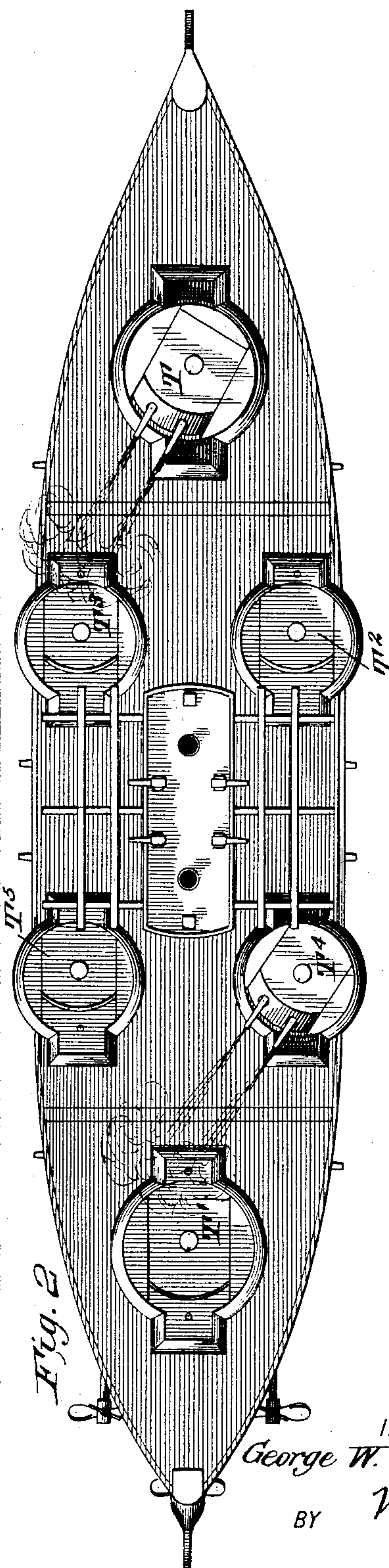


Fig. 2

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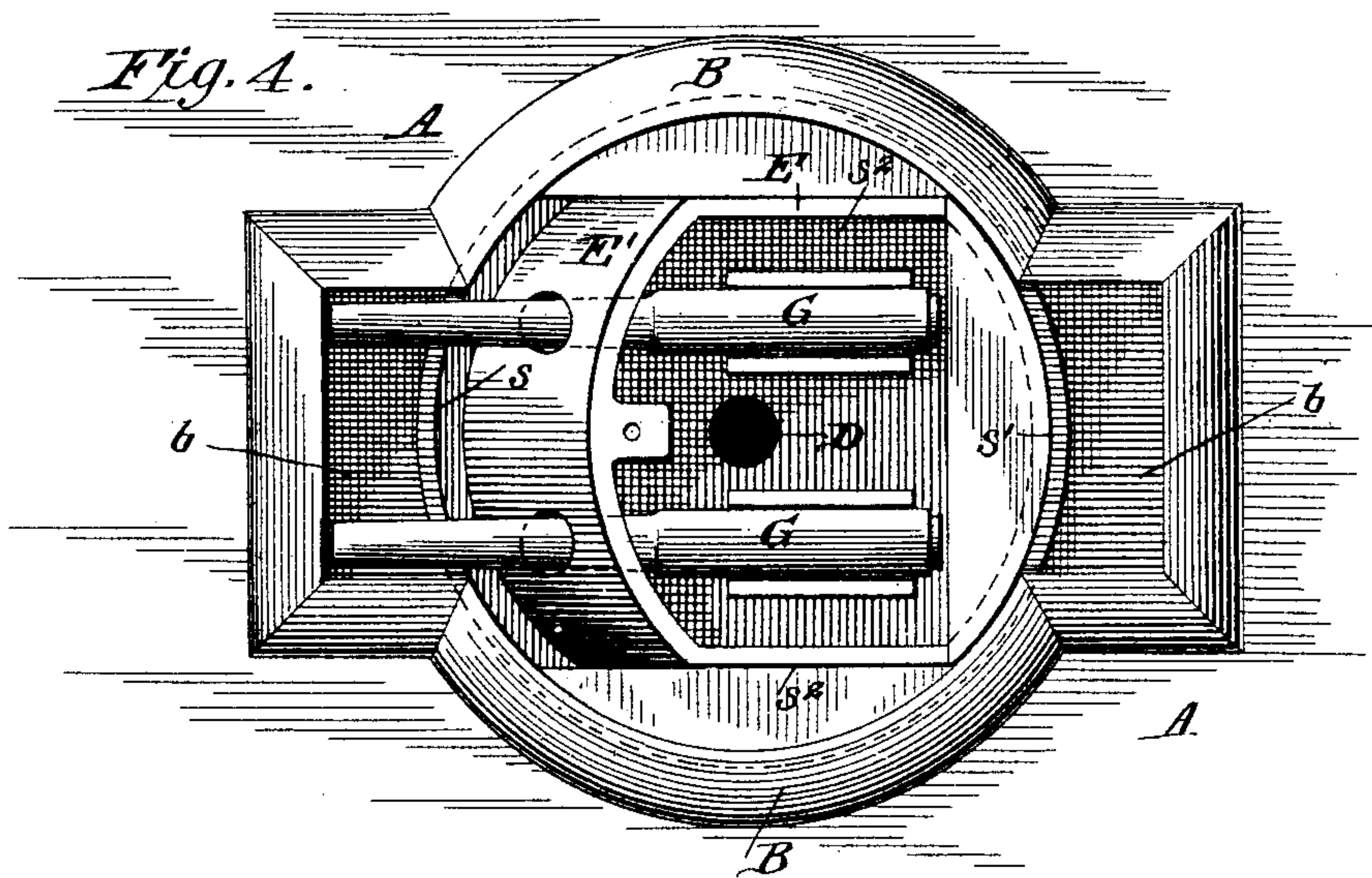
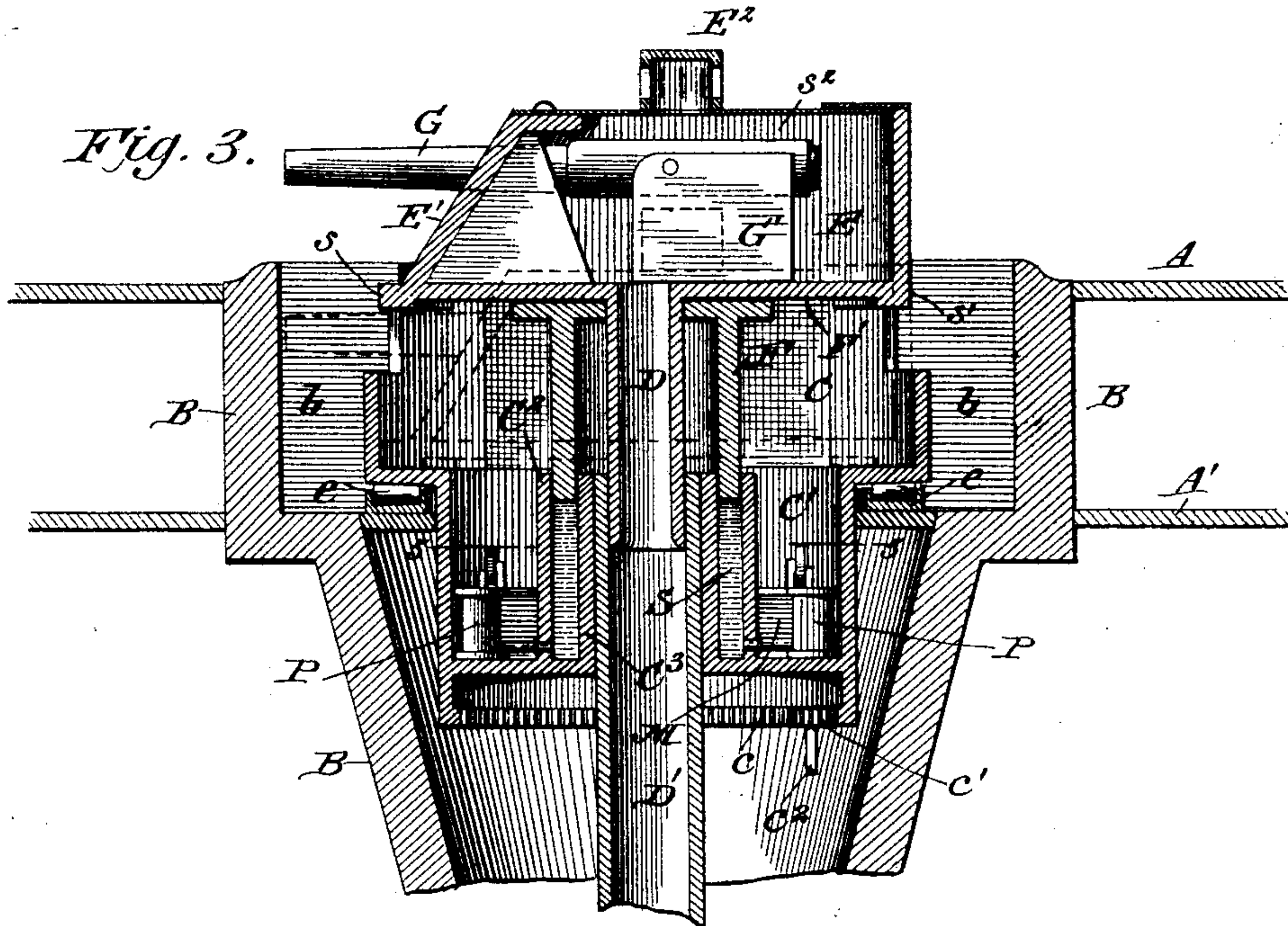
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Fig. 5.

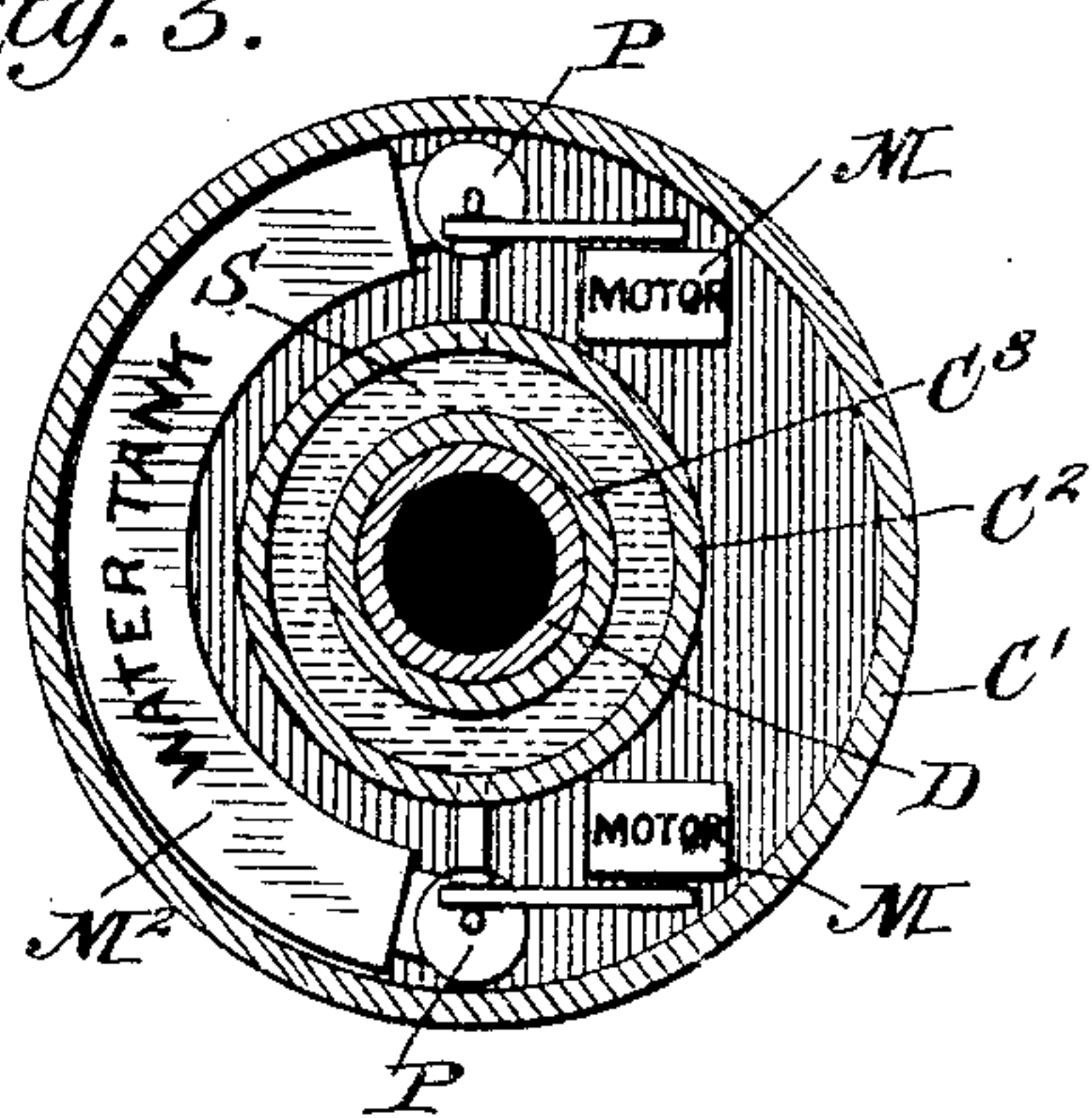


Fig. 6.

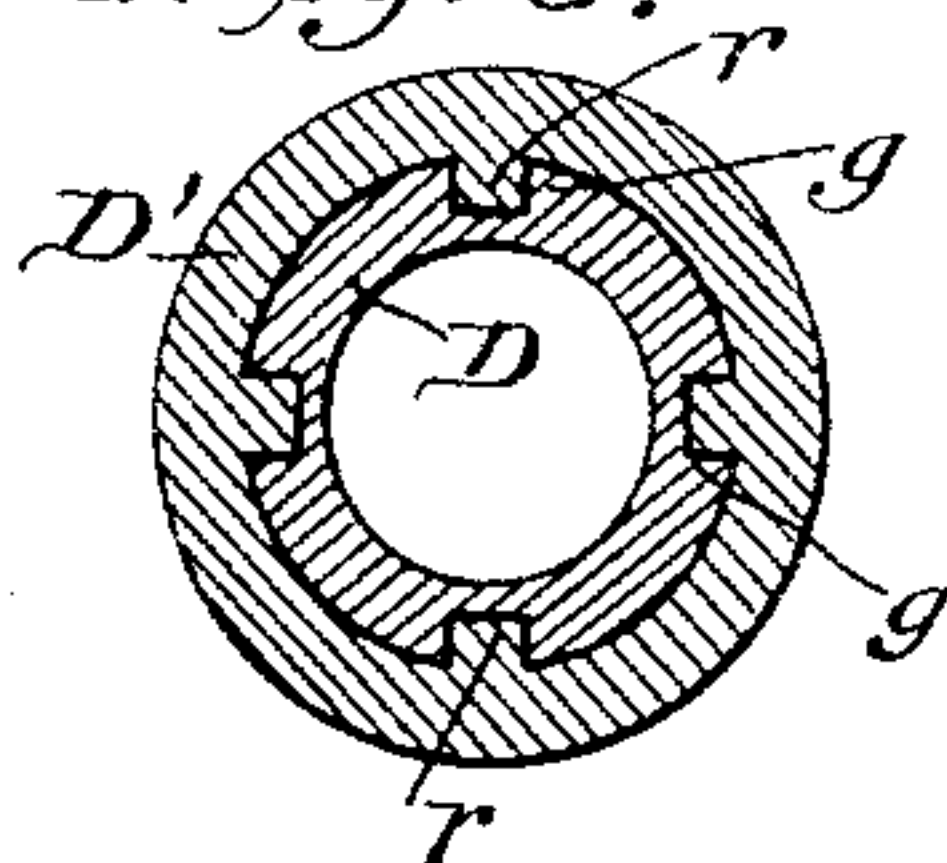
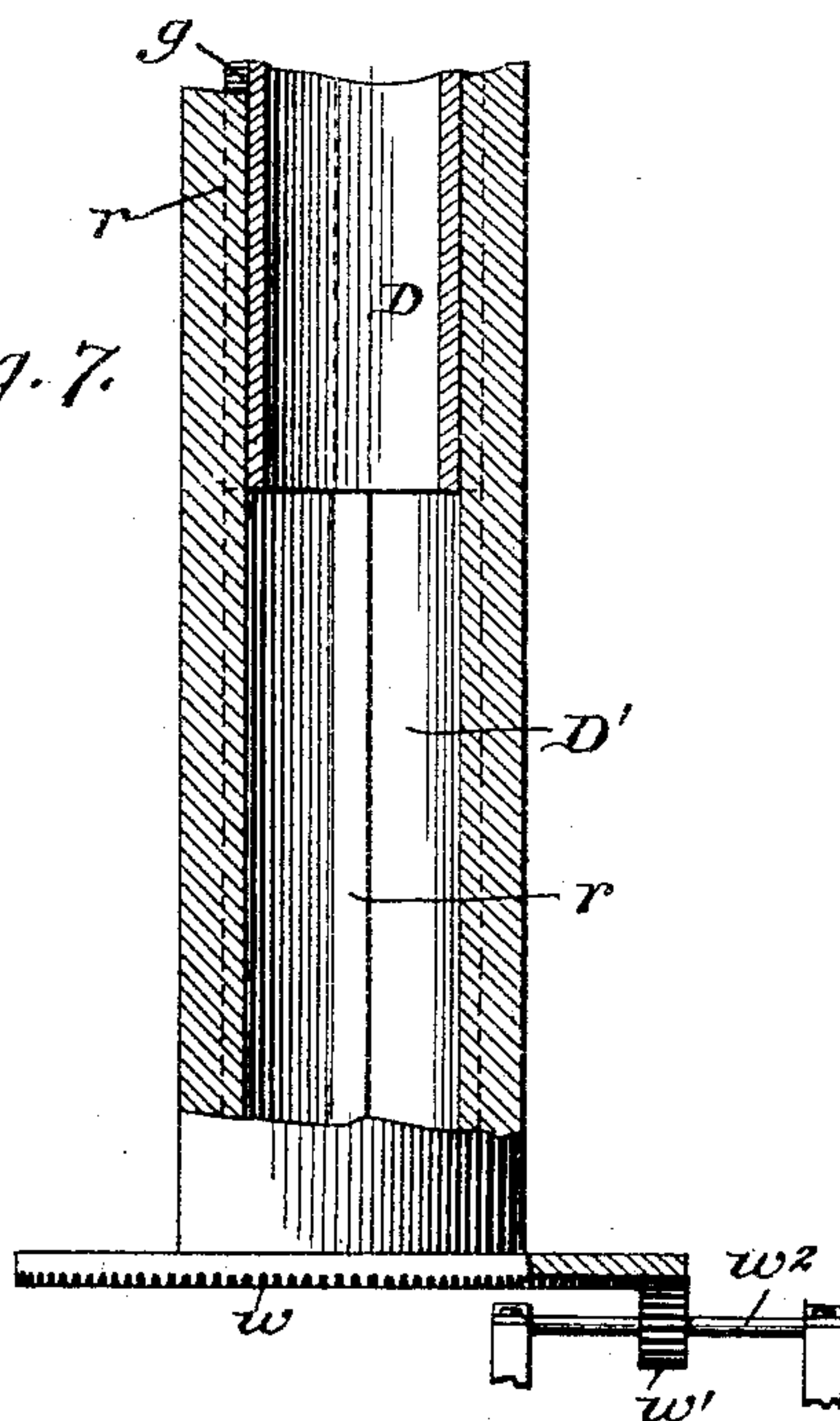


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE W. VAN HOOSE, OF TUSCALOOSA, ALABAMA.

WAR-SHIP.

SPECIFICATION forming part of Letters Patent No. 545,321, dated August 27, 1895.

Application filed November 10, 1894. Serial No. 528,421. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. VAN HOOSE, of Tuscaloosa, in the county of Tuscaloosa and State of Alabama, have invented a new and useful Improvement in War-Ships, of which the following is a specification.

The object of my invention is to improve the efficiency of modern war-ships, so as to bring into effective service the whole armament of heavy guns at one time for firing over the bow or the stern or across the broadside or the quarter without any interference between the turrets.

To this end my invention consists of a modified form of turret and barbette, in which the portion of the turret comprising the rotary feature or turn-table always remains below the upper deck and within and protected by the barbette, while the gun-carriage itself and its housing is arranged to rise above the deck when firing and to fall below it and within the protection of the barbette at other times, so that one set of guns adjusted to the higher position may fire directly over another set of guns of a turret in their lowered position.

My invention also consists in the special provision of devices operated by hydraulic power for raising and lowering the guns and their housing, and in the provision of a special form of barbette and turn-table with gun-carriage and housing whereby the extra long guns constituting the heavy ordnance may be compatibly combined with and protected by a barbette.

It also further consists in a telescopic conduit for containing the ammunition-hoist, as will be hereinafter more fully described with reference to the drawings, in which—

Figure 1 is a side view of a war-ship shown afloat, the same being constructed in accordance with my invention. Fig. 2 is a plan view of the ship. Fig. 3 is a vertical longitudinal section, on a larger scale, of a portion of the ship taken through one of the barbettes, turn-tables, and gun-carriage and housing, the guns being shown in their elevated position. Fig. 4 is a correspondingly enlarged plan view of the same, partly uncovered. Fig. 5 is a horizontal section through line 5 5 of Fig. 3, and Figs. 6 and 7 are details of modifications.

Referring to Figs. 1 and 2, I show the ship

provided with six separate sets of rising and falling turrets or gun-carriages and operating devices—one T at the bow, another T' at the stern, and four T² T³ T⁴ T⁵ nearly amidships, two on each side. Each one of these is constructed, arranged, and operated exactly alike, and each may have its guns raised for firing, as shown at T and T⁴, in a range directly over any one of the others in depressed position, as shown by the one elevated at T, and another depressed at T³ or, as shown, by one elevated at T⁴ and another depressed at T', the depressed ones being engaged in loading while the elevated ones are firing, or at certain angles they may all be brought into elevated firing position at one time. This is believed to be a new result in war-ships not heretofore known in either turret-ships or barbette-protected guns.

Referring now to Figs. 3 and 4, I will describe more in detail the construction and arrangement of the devices for operating each set of guns.

A and A' are the two upper decks, within which is firmly bolted the heavily-armored barbette B. This barbette rises slightly above the upper deck and descends with a convergence to a point somewhat below the waterline, as usual, so as to thoroughly protect all of the gun-operating mechanism contained within the same. The shape of the opening formed in the upper deck by this barbette is that of a circle with two diametrically-opposite openings or extensions *b b*, which are intended to allow the extra long guns G to rise through the same. If the barbette opened with a uniform radius large enough to accommodate the extreme length of these guns it would encroach too much on the sides of the ship and leave inadequate space for bracing and armor; and furthermore the turn-table of the gun-carriage would not have a solid reaction abutment against the barbette in firing. By making a round opening of minimum size for the barbette with elongated openings *b b* the following important results are obtained: Ample space on the sides is preserved for armor and bracing-timbers, a close fitting reaction abutment is provided for the gun-carrying devices, and yet the long guns are easily enabled to rise above and fall below the protecting range of the barbette. If desired the

barbette may be extended with a longitudinal opening on one side only.

The turn-table feature of the turret consists of a stout cylindrical casing C, fitting snugly within the circular portion of the barbette flush with the top of the same, and sustained upon antifriction-rollers *e* on a suitable circular track on the level of the second deck A'. I claim no novelty in these means for permitting rotation of the turn-table, and do not even confine myself to the same, as the French method of rotation on an imprisoned or sealed body of water may be used. The casing C below the deck A' has a cylindrical portion C', of smaller diameter, within which in central position is arranged a hydraulic ram for raising and lowering the guns. This ram is of peculiar construction, and consists of an outer cylinder C² and an inner cylinder C³, both arranged in concentric relation and extending upwardly to the larger portion C of the turn-table casing. These two concentric cylinders have an annular water-space S between them, within which tightly fits an annular ram-plunger F, which is connected at its top to a table F', which forms a support upon which the gun-carriage and housing E rests, and by which said housing and carriage is raised and lowered.

The guns G are mounted upon a suitable carriage G' within a housing E and protrude through openings in its front face E'. This front face of the gun-housing is inclined to present an oblique face to the impact of projectiles, so as to cause them to glance upwardly without expending their full force against the housing, and to better protect the housing said inclined face is heavily armored. In the top of the housing E is formed a protected conning-tower E². The side walls of the housing are straight and parallel, as shown at s², and fit against corresponding straight vertical walls on the inside of the turn-table casing. The front lower edge s of the housing and the rear end s' are curved to correspond to the arc of the circle formed by the inner face of the casing C of the turn-table. This correspondence of the flat sides of the housing E and casing C causes these two parts to lock or move together in any rotary adjustment.

About the center of gravity of the housing E and between the two guns carried thereby there is connected to the housing a downwardly-projecting tubular sleeve D vertically adjustable within and working telescopically with an outer stationary vertical tube or cylinder D', extending down to the lower portion of the ship. These two telescopic tubes D D' form the ammunition-conduit, through which the ammunition is raised to the guns from below. I do not show any special hoisting mechanism for this purpose, as this forms no part of the present invention. It will be understood, however, that this telescopic ammunition-conduit may receive any approved or suit-

able hoist to lift the ammunition through the same.

As the gun-housing rises and falls in the casing C the telescopic sleeve D rises and falls within the lower stationary tube D'. This movement is effected by the pressure of the water in the annular chamber S of the hydraulic ram acting upon the annular plunger or piston F. For filling this chamber S with water pumps P P are brought into use, and these, together with the motors M actuating them, Fig. 5, and reservoir-tanks M² containing water, are preferably located in the bottom of the lower portion C' of the turn-table. Said pumps, however, may be located below, or the water-chambers of the rams of all the turrets may be connected to a common reservoir in which water under high pressure is maintained, and from which such water under pressure may be admitted to any one of the rams by simply opening a valve; and furthermore, instead of using hydraulic lifting-power I may use steam, electric, or any other motive power for such purpose. For rotating the turn-table an inwardly-projecting circle of teeth *c* is formed upon a lower extension of the turn-table, and these teeth are engaged by a pinion *c'* on a vertical shaft *c*² rotated by a suitable prime mover.

As a modification of my invention, I may dispense with the turn-table C C' and turn the gun-carriage and housing upon the annular water-cushion in the chamber S of the ram, the annular character of the piston F permitting this to be done and serving, by its wide bearing or support, to steadily hold the gun-housing within the upper periphery of the barbette. When such modification is employed, I make the telescopic section D D' of the ammunition-conduit perform the additional function of a rotating device for the gun-housing, and to that end the sections D D' have a sliding joint composed of vertical parallel ribs and grooves *r* and *g* in Figs. 6 and 7, which permit vertical adjustment between them, but interlock rigidly in any rotary adjustment, so that both turn together. In such case the turning of the guns horizontally may be effected, as in Fig. 7, by a crown-wheel *w*, fixed to the lower tube-section D' and acted upon by a pinion *w'* on a horizontal shaft *w*².

In pointing out what I believe to be the leading distinctive features of my invention, I would state that there is nothing new in a rotating turret, nor in a rising and falling or disappearing gun, nor yet in a tubular central ammunition conduit and hoist.

My invention is distinctive in the following features:

First. The guns are raised and lowered inside the turning table of a barbette-turret, so that they can be made to disappear at will, and when necessary they can be rotated around the whole circle, so that the whole armament of this ship can always be brought

to bear at once against an adversary, which is impossible in the ordinary war-ship. This advantage is gained by using this vertical motion in conjunction with the rotary one within a barbette.

5 Second. The barbette is prolonged fore and aft, so that the extremely long-rifled guns can be raised or lowered through this space and at the same time sufficient armor-plating can
10 be carried on these barbettes to protect the guns inside them without injuring the stability of the ship. This protection is an absolute requisite to the success of this plan, and while I am aware that attempts have been
15 made to raise and lower guns inside of ships before this, yet such proposed plans cannot succeed because the machinery to accomplish this will be destroyed by armor-piercing shells, and such devices have only been applied to
20 very short guns, as compared to the modern eight, ten, and twelve inch guns. This plan proposes to successfully solve the difficult problem of handling these long guns, while giving ample armor-protection to the bar-
25 bette.

Third. The telescopic joint inside the ammunition-conduit is a novelty, as here used, and a necessary adjunct of my system.

30 Fourth. The guns can be loaded and pointed inside their invulnerable steel citadels, and can be run up and fired in comparative safety and then disappear.

Fifth. When a storm comes up, the center of gravity of the ship can be lowered by dropping the guns below the upper deck.
35

Sixth. While this ship carries the same number of guns as any other war-ship, yet she can bring double the fire of any other one when fighting either fore or aft. Nothing
40 will be seen on the upper deck until the signal to fire is given.

Seventh. The defensive properties of this ship are greatly increased, because the guns can be kept within the barbette until they
45 are needed, and cannot be dismounted by a heavy fire from the rapid-firing gun.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

50 1. The combination in a war ship, of a turntable, a rising and falling gun carriage and housing mounted upon said turntable, and an encompassing and heavily armored bar-
55 bette extending from the upper deck to a point below and inclosing the turntable and gun operating mechanism, said barbette fitting closely to the periphery of the turn table throughout a part of the periphery, and being extended away from the same at one or
60 more other parts substantially as and for the purpose described.

2. The combination in a war ship, of a turntable, a rising and falling gun carriage and housing mounted thereon, and an inclosing
65 and protecting barbette opening through the

deck and having a circular shape on the middle parts to correspond to and back up the turntable under firing strain and also give armor space for the barbette and extended in the form of one or more longitudinal open-
70 ings through the deck to permit of the rise and fall of the long guns therethrough substantially as and for the purpose described.

3. The combination with a rising and falling and horizontally rotating gun supporting
75 and operating mechanism; of a central telescopic ammunition conduit substantially as and for the purpose described.

4. A war ship having a series of barbettes extending below deck, and provided with one
80 or more elongated openings *b*, turn-tables arranged within the barbettes and fitting the same closely except at the elongations *b*, and rising and falling gun carriages and housings mounted upon said turntables and arranged
85 to be elevated above the deck to firing position, or be dropped within and below the bar-
bette, the said deck being perfectly clear and unobstructed in said lower adjustment of the
90 guns, whereby one set of guns may fire di-
rectly over another and the armament be thus given an increased efficiency substantially as and for the purpose described.

5. The combination with a rising and falling gun carriage and housing; of an annular
95 lifting and supporting ram and a central tubular conduit for ammunition passing through the annular ram substantially as and for the purpose described.

6. The combination with a turntable having a vertical casing or walls; of a swiveling
100 gun carriage and housing having corresponding vertical walls arranged to rise or fall within said casing and to lock and rotate with it, substantially as and for the purpose described.
105

7. The combination of a vertically adjustable gun housing *E* having an inclined and heavily armored front face *E'*, circular edges
110 *s s'*, and a swiveling central tube forming an ammunition conduit, a turn-table carrying
the gun housing and arranged to lock with it in rotary adjustment but permit vertical
115 movement of the same and a barbette having a circular bearing surface corresponding to the circular edges of the turn table substantially as and for the purpose described.

8. The combination with an encompassing barbette; of a turntable having a circular
120 casing *C* of large diameter and anti-friction rollers *e* beneath its edges and also a circular
lower casing *C'* of smaller diameter bearing a hydraulic ram and actuating mechanism, and a rising and falling gun carriage and housing sustained upon and operated by said
125 ram substantially as and for the purpose de-
scribed.

GEORGE W. VAN HOOSE.

Witnesses:

EDWD. W. BYRNS,
PERRY B. TURPIN.