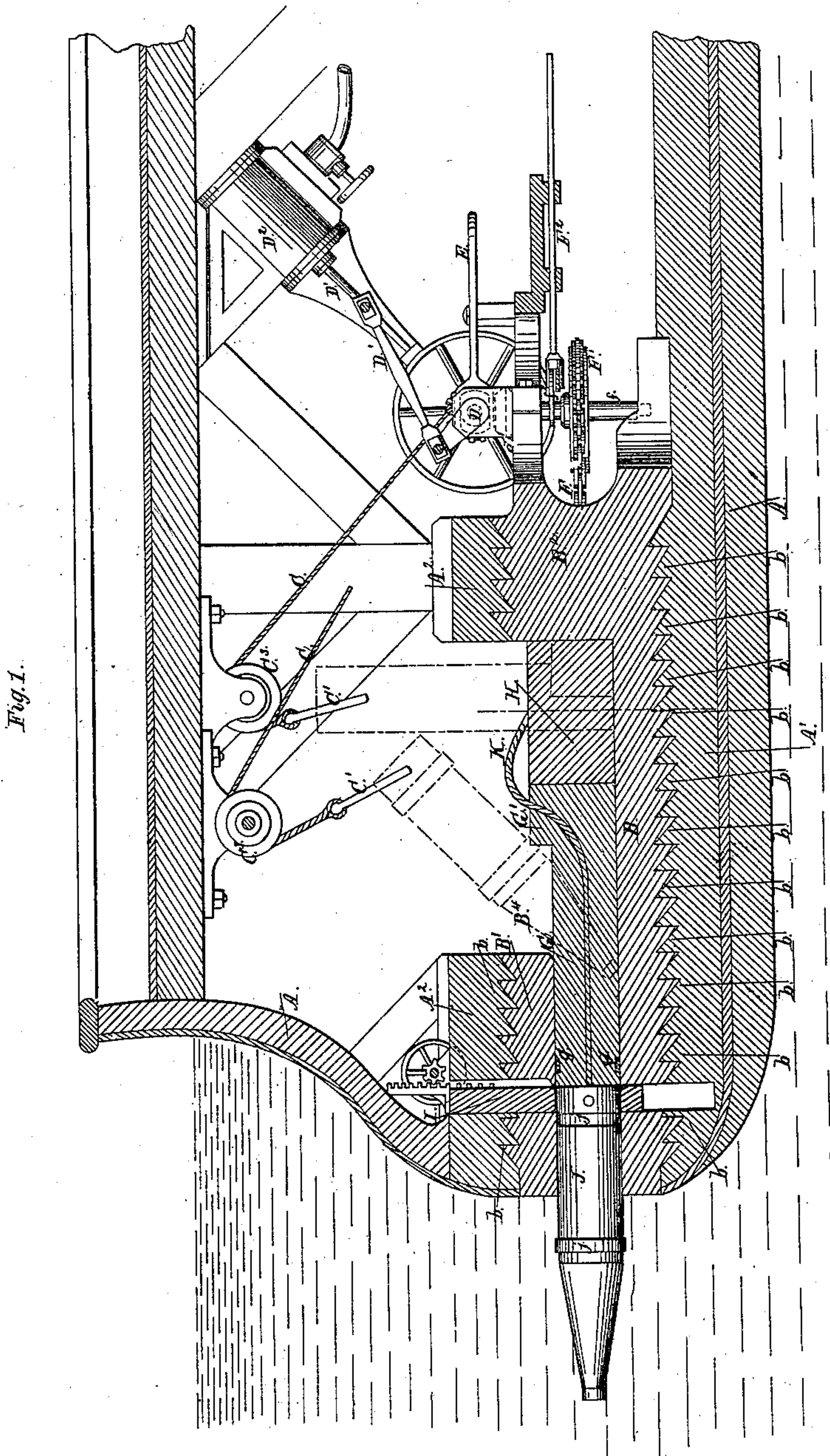


E. R. CHAMBERLAIN.  
TORPEDO RAM.

No. 48,260.

Patented June 20, 1865.



Witnesses.

*C. D. Smith*  
*J. Schmitt*

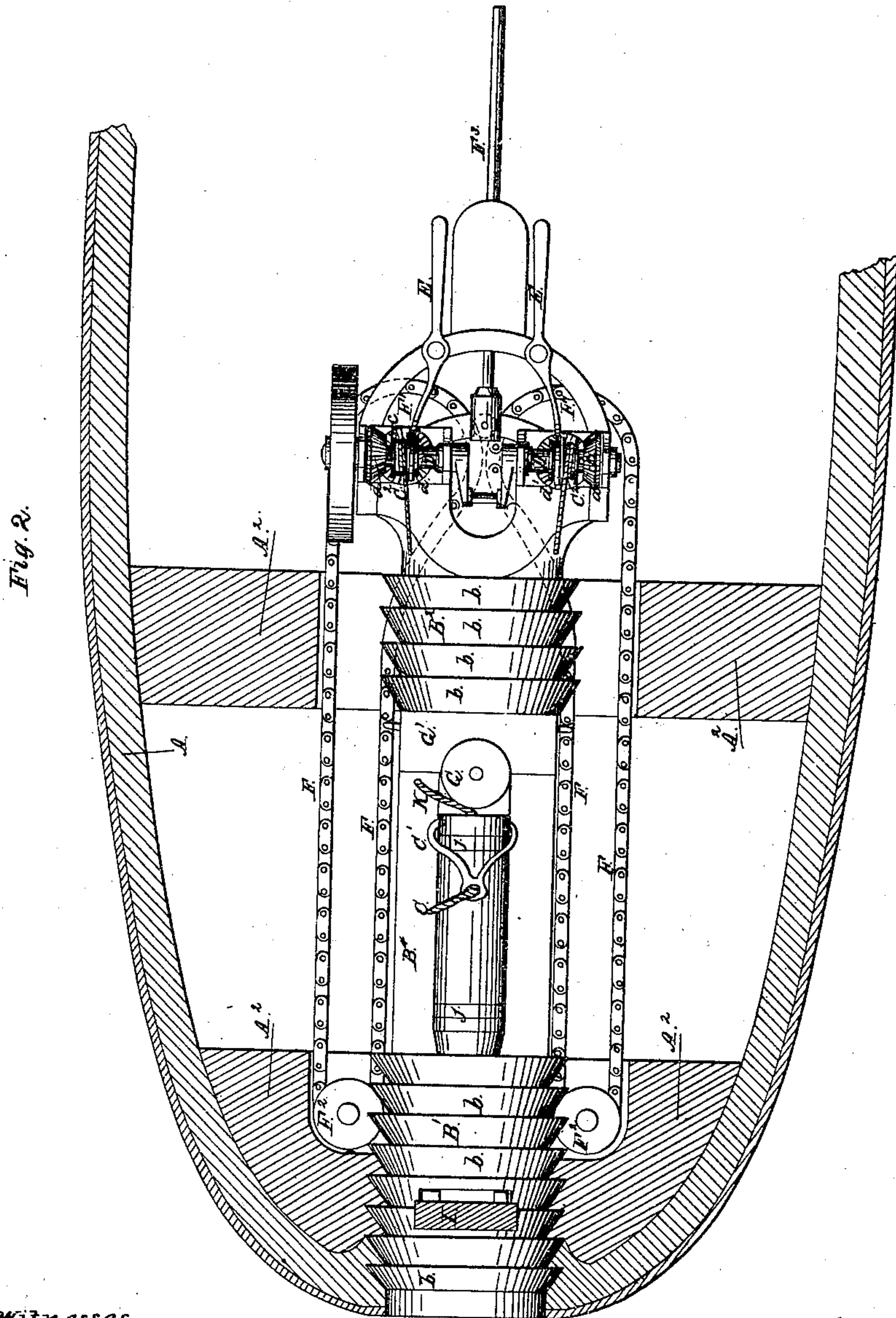
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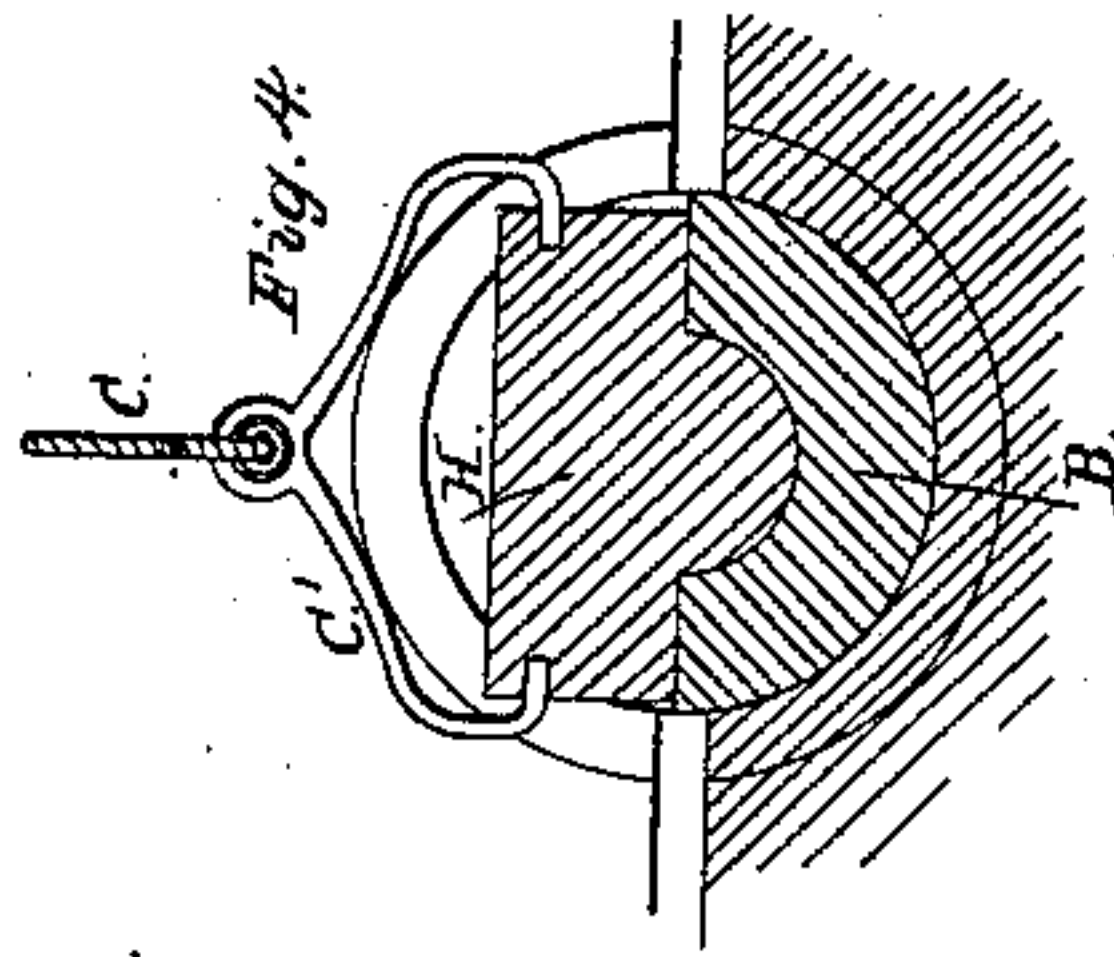
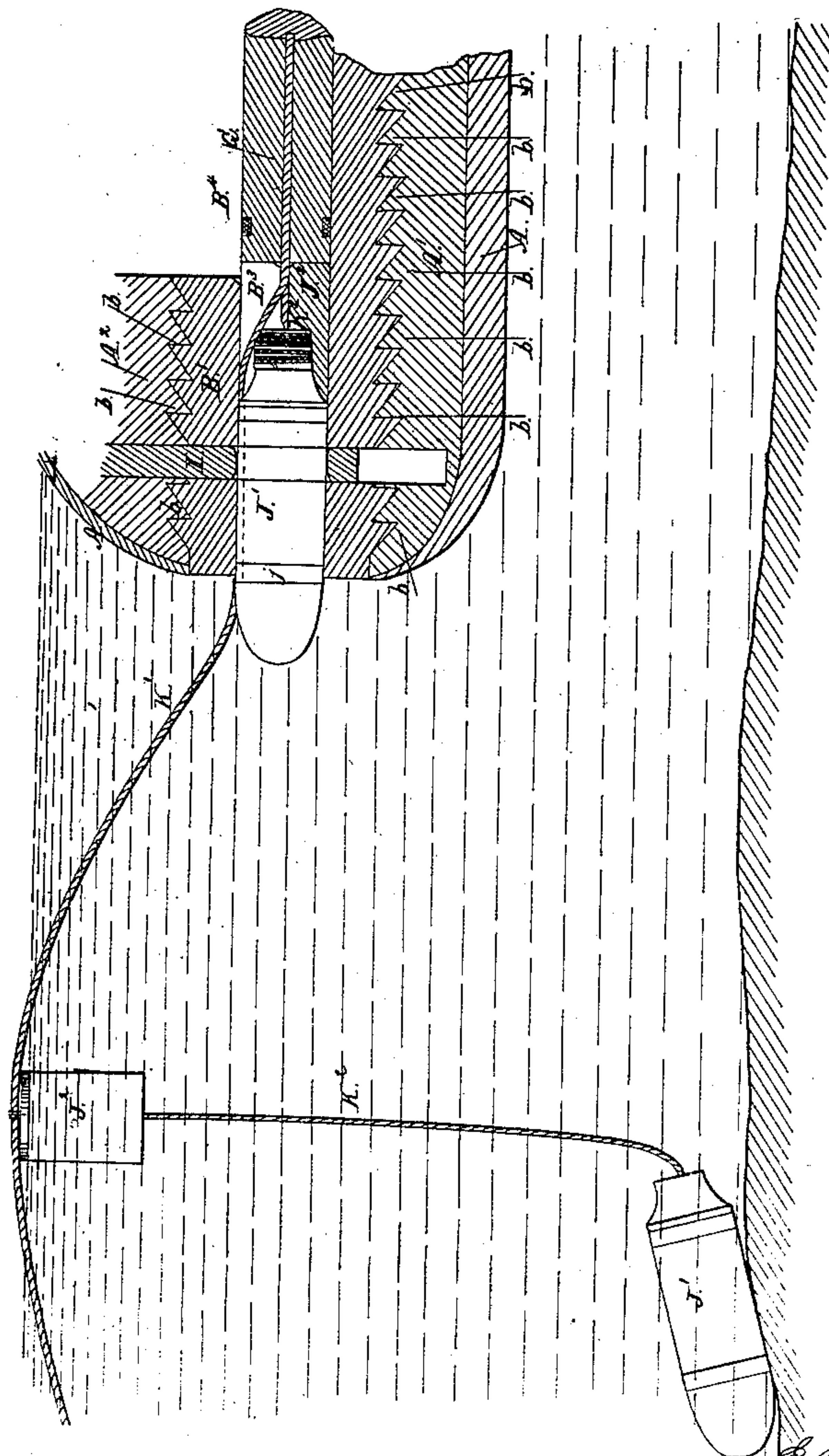


Fig. 3.



Witnesses.

C. J. Smith  
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# UNITED STATES PATENT OFFICE.

ELIJAH R. CHAMBERLAIN, OF SHARONVILLE, OHIO.

## IMPROVED TORPEDO-RAM.

Specification forming part of Letters Patent No. 48,260, dated June 20, 1865; antedated June 10, 1865.

*To all whom it may concern:*

Be it known that I, ELIJAH R. CHAMBERLAIN, of Sharonville, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in War-Vessels, which I style a "Torpedo-Ram" and a "Depositor;" and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical longitudinal section of the bow of a torpedo vessel or ram constructed upon my improved plan. Fig. 2 is a horizontal section of the same at  $x x$ , Fig. 1. Fig. 3 is a vertical longitudinal section of the stern of a vessel, illustrative of the manner of depositing the torpedoes. Fig. 4 is a detached sectional view, showing the form and manner of operating the retaining-block hereinafter referred to.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists, primarily, in constructing a vessel with a circular metallic frame so formed and applied as to afford a powerful medium for resisting force, and employed to hold torpedoes which project forward from the bow of the vessel to be driven into an enemy's ship and then exploded.

The invention also consists in novel means for advancing penetrating-torpedoes and retaining them in their operating position, or depositing torpedoes to be exploded beneath an enemy's vessel, all as will be hereinafter fully explained.

The following description will enable others skilled in the art to which my invention appertains to fully understand and use the same.

In the drawings, A may represent the several parts of a vessel which do not bear an essential relation to my invention.

At the bow of the vessel is a circular metallic frame, B B' B<sup>2</sup>, formed with latitudinal ribs or projections  $b$  and firmly fitted into or between the keelson A' and the solid timbers A<sup>2</sup>. The rear faces of the projections  $b$  are vertical and have corresponding bearings in the wood-work A' A<sup>2</sup> A<sup>2</sup>, thus causing the resisting parts to be at right angles with the direction in which the force is applied to the said frame,

and adapting the latter to effectually withstand such force.

In the forward part, B', of the frame above referred to is a central longitudinal opening, B<sup>3</sup>, through which the torpedoes are passed to the exterior of the vessel, and which is made accessible from the interior by the recess B<sup>4</sup>, between the parts B' B<sup>2</sup>. The bottom of the recess B<sup>4</sup> is formed with a semicircular groove, into which the torpedoes are placed by means of either of the ropes C, which are provided each with a bail or pair of cam-hooks, C'. The said ropes are operated by pulleys C<sup>2</sup> C<sup>2</sup> upon a crank-shaft, D, and they pass over pulleys C<sup>3</sup> C<sup>3</sup>, which occupy suitable positions above the recess B<sup>4</sup>. The crank-shaft D is driven by connecting-rods D' from the engine D<sup>2</sup>, and by means of the pivoted levers E E the pulleys C<sup>2</sup> may be shifted longitudinally, so as to cause them to engage with or be disengaged from projections  $c$ , in order to throw them into or out of gear with the shaft D.

F F are endless chains passing around sprocket-wheels F' F' and pulleys F<sup>2</sup> F<sup>2</sup>, and connected to a piston, G, employed to force the torpedoes through the opening B<sup>3</sup>, or project them from the exterior mouth of said opening, according to the way in which they are to be used.

On the rear end of the piston G is formed a square enlargement or abutment, G, between which and the part B<sup>2</sup> is inserted a block or retainer, H, which holds the piston in its advanced position when a torpedo is to be driven into an enemy's vessel. The under side of the retainer H is shaped in conformity with the groove in the recess B<sup>4</sup>, as shown in Fig. 4, and this said block may be placed within said recess in proper position or removed from the same by means of either of the ropes C, and one of these ropes serves to raise the piston G upon its end, while the other is employed to place a torpedo in the recess B<sup>4</sup>, as illustrated by the red lines in Fig. 1. Any connections between the chains F F and piston G permitting the said piston to be turned to a vertical position may be used.

I is a vertically-sliding gate adapted to close the opening B<sup>3</sup> and prevent the entrance of water when said opening is not occupied by a torpedo or the piston G. This block may be



raised to permit the passage of the torpedoes, and lowered by means of a rack, pinion, and crank.

The piston G is provided with a packing, *g*, to form a water-tight joint when in the opening B, and the torpedoes have each two similar packing-rings, *jj*, for the same purpose.

Motion is communicated from the crank-shaft D to the chains F F through the medium of bevel-pinions *d d'*. The pinions *d'* are on the same shafts *f* with the sprockets F', and to the said shafts *f* are attached links *f*<sup>2</sup>, which by the advancement and retraction of a rod, F<sup>3</sup>, may be made to move the shafts *f* away from or toward each other, so as to break or form the connection between the pinions *d d'*, and thus suspend or produce the rotation of the chains F.

Operation: When a torpedo is to be driven into an enemy's vessel and exploded therein the various parts are employed in the manner shown in Fig. 1. The torpedo J thus employed is formed with a converging or punching front, and is placed within the groove of the recess B<sup>4</sup>, while the piston is held up endwise. The front of the torpedo J having been forced part of the way into the opening B<sup>3</sup> by the piston in its upright condition, said piston G is retracted and lowered, the wire or line K passed through, and the piston G advanced into the opening B<sup>3</sup>, carrying before it the torpedo J until the latter projects to a sufficient extent forward of the bow of the vessel, its rear end being held within the mouth of the opening B<sup>3</sup>. As soon as the torpedo reaches this position the motion of the chain is arrested by throwing the wheels *d d'* out of gear, and the retainer H is placed between the end of the piston and the abutment B<sup>2</sup>. The torpedo J is then in condition to be driven into an enemy's vessel, and the force applied to the torpedo on striking and entering a vessel is transmitted from the piston G and retainer H to the frame B B' B<sup>2</sup>, which is well adapted to receive and withstand it, as before explained. As soon as the torpedo is driven into an enemy's ship it may be forced out of the opening B<sup>3</sup> either by the piston G or by the backing of the vessel. In the latter case the gate I, which is raised as soon as the torpedo is fairly into the opening B<sup>3</sup>, will fall before the torpedo is drawn completely out, and the line K will continue to run out through a slot in the under side of the gate protected by an artery-valve, so that any length of line may be run out while the gate is closed. As soon as the line ceases to be paid out the continued motion of the vessels draws a friction-primer within the torpedo and effects the explosion.

The torpedoes J', which are deposited in the water to be exploded beneath the vessels of an enemy, are formed each with a longitudinal groove, which is occupied by the main lay-

ing line or rope K', while the torpedo is passing through the opening B<sup>3</sup>, said rope K' running out through a central hole in the piston G in like manner with the wire K. The exploding-wires K<sup>2</sup> of the torpedoes J' are coiled round the rear, and therefore are covered by hoods J<sup>2</sup>, which retain the wires K<sup>2</sup> in the compact form represented in Fig. 3 until the torpedo is by the piston G forced entirely through the opening B<sup>3</sup>, when the torpedo sinks and the hood becomes detached therefrom and constitutes a buoy, as illustrated. I propose to have a frame, B B' B', with its described appurtenances, located in the stern, (as well as in the bow,) for depositing torpedoes while the vessel is moving forward. The retainer H is moved out of the recess B<sup>4</sup> while torpedoes are being deposited, to allow the necessary longitudinal movement of the piston G, which may be advanced and retracted with great rapidity, ejecting a torpedo at each forward movement.

The above-described method of depositing torpedoes may be carried into effect very successfully and without any indication of such operation being in progress, inasmuch as they are passed out of the vessel at a point below the water-line. It will also be seen that they may be laid and exploded while the vessel containing them is being pursued by an adversary.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The frame B B' B<sup>2</sup> *b*, constructed substantially as described, adapted to permit torpedoes to be expelled from the interior of the vessel below the water-line, or to hold them at its mouth and receive and effectually withstand the force which is applied to the torpedo on being driven into an enemy's vessel.

2. In combination with the above, the piston G G', operated by the chains F F' or other suitable means, and employed to expel the torpedo through the opening B<sup>3</sup>, or, in connection with the block H, to retain the torpedo in its operating position when the same is to be driven into an opposing body.

3. The ropes C and hooks C', in combination with the pulleys C<sup>2</sup> and their shifting levers E E, the whole being arranged to operate substantially in the manner and for the purpose specified.

4. In combination with the aforesaid frame B B' B<sup>2</sup>, the gate I, operating, as herein described, to close the opening B<sup>3</sup> when said opening is not occupied by a torpedo or the expelling-piston.

E. R. CHAMBERLAIN

Witnesses:

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C. D. SMITH.