

J. Carver. Sheet 1, 2, Sheets.
Submarine Battery.
 No 41,365.
 Patented Jan. 26, 1864.

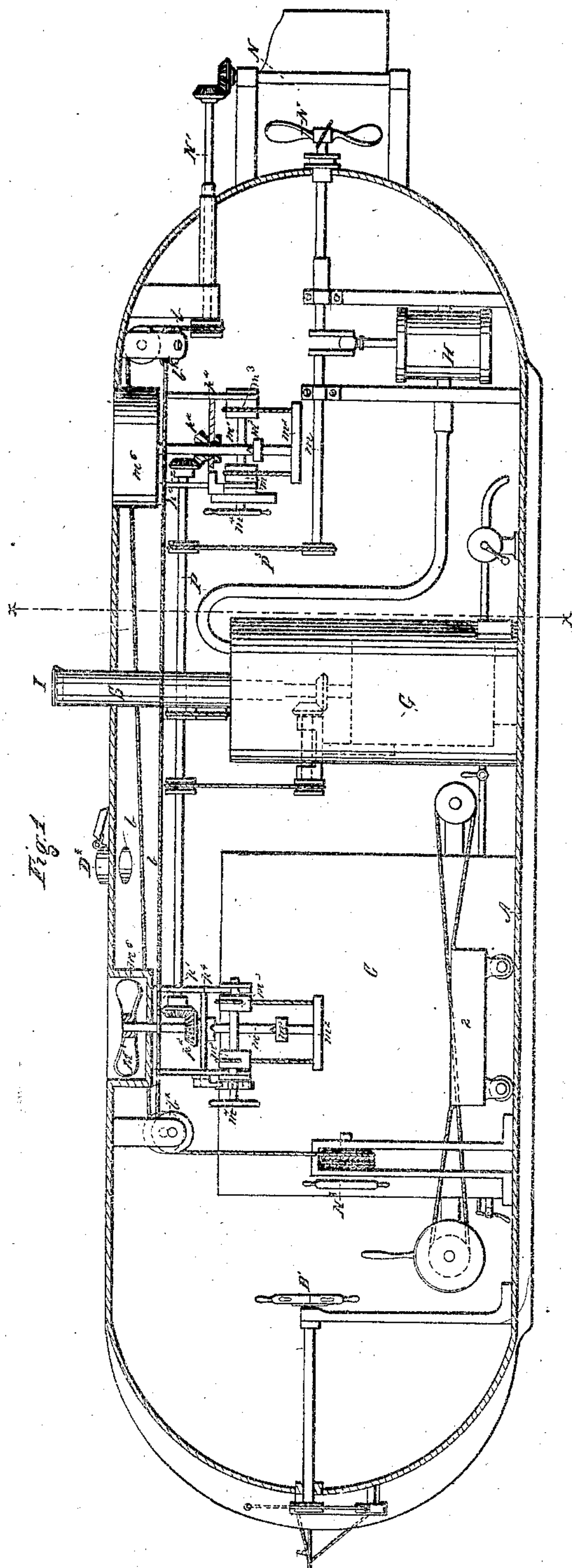


Fig. 1.

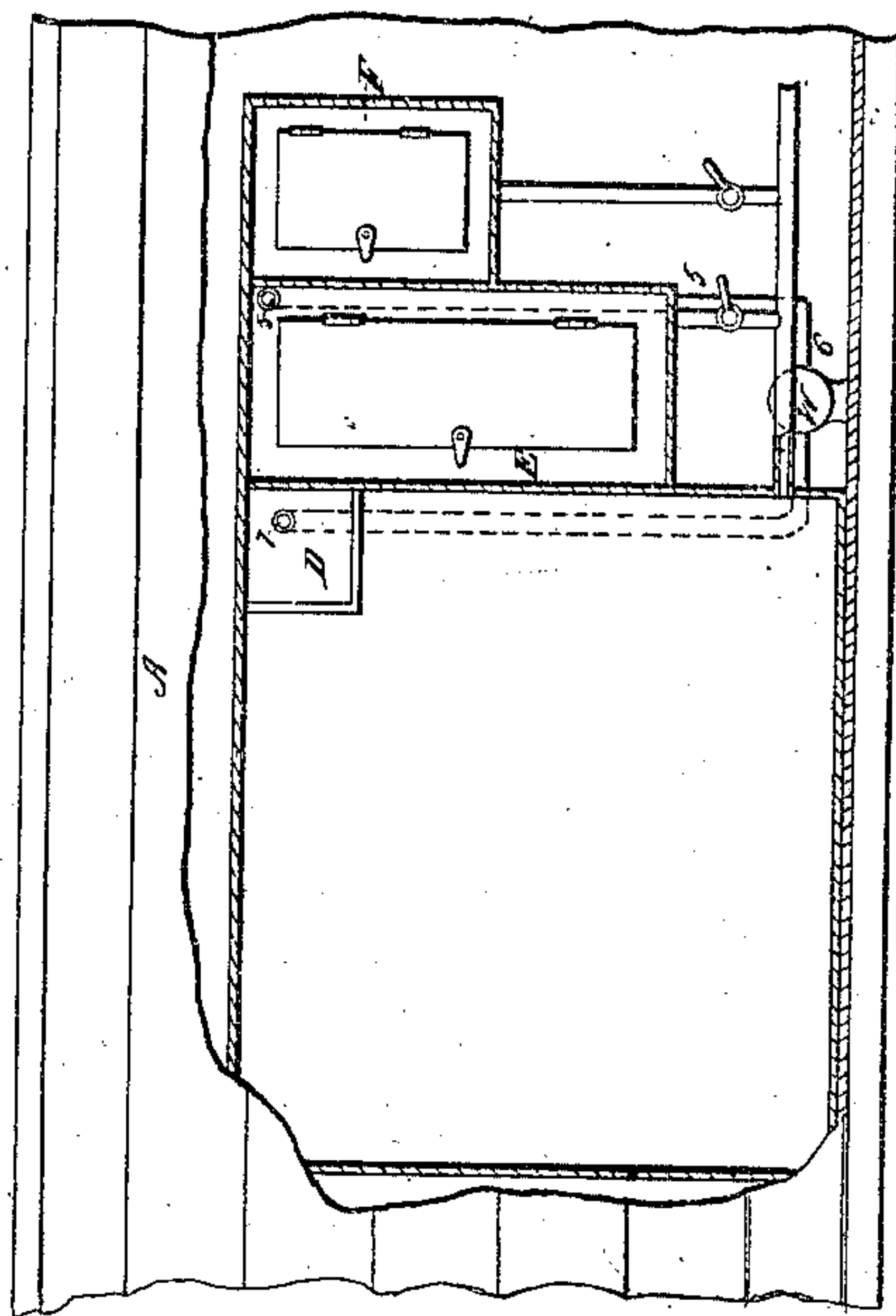


Fig. 3.

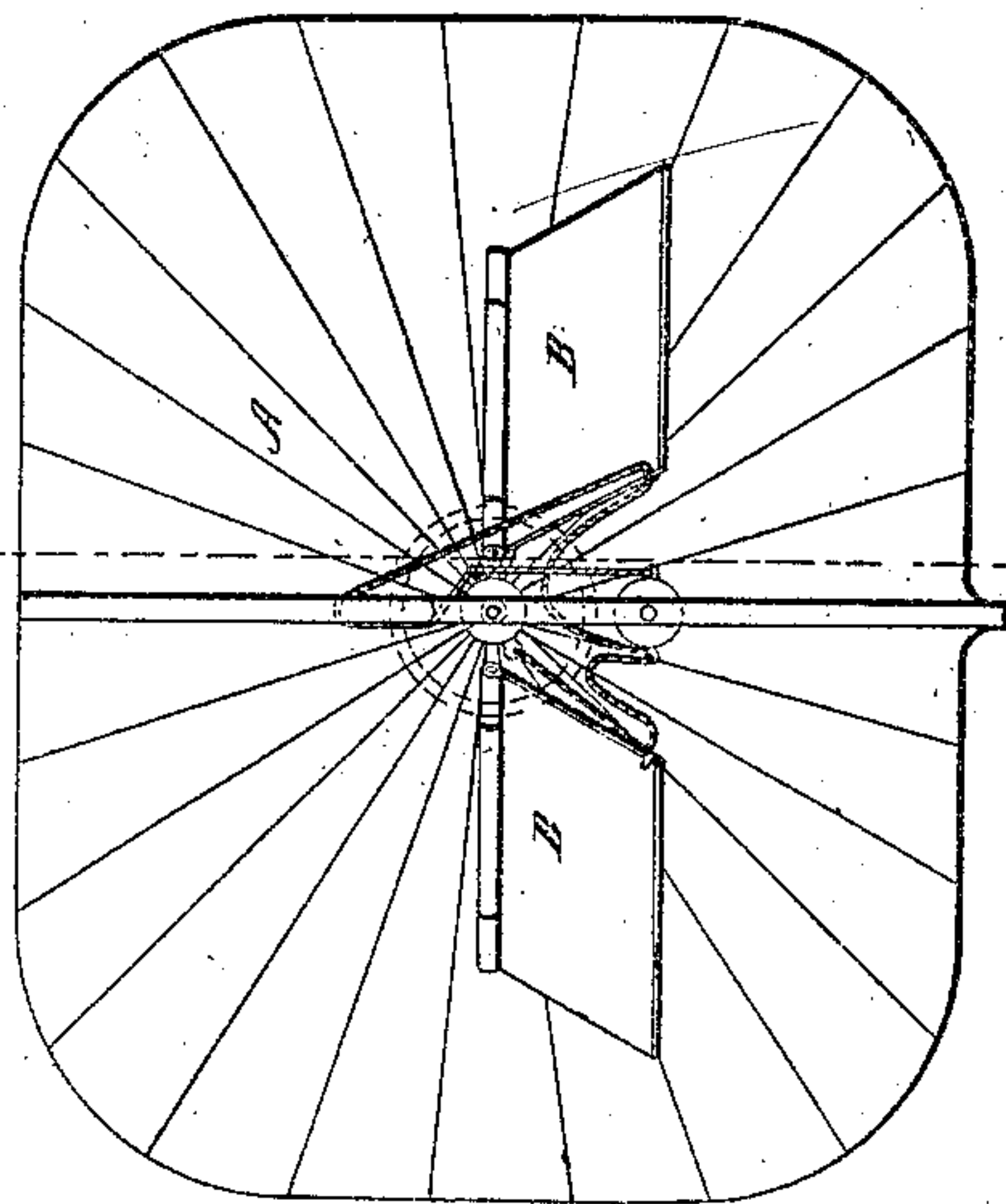


Fig. 2.

Witnesses:

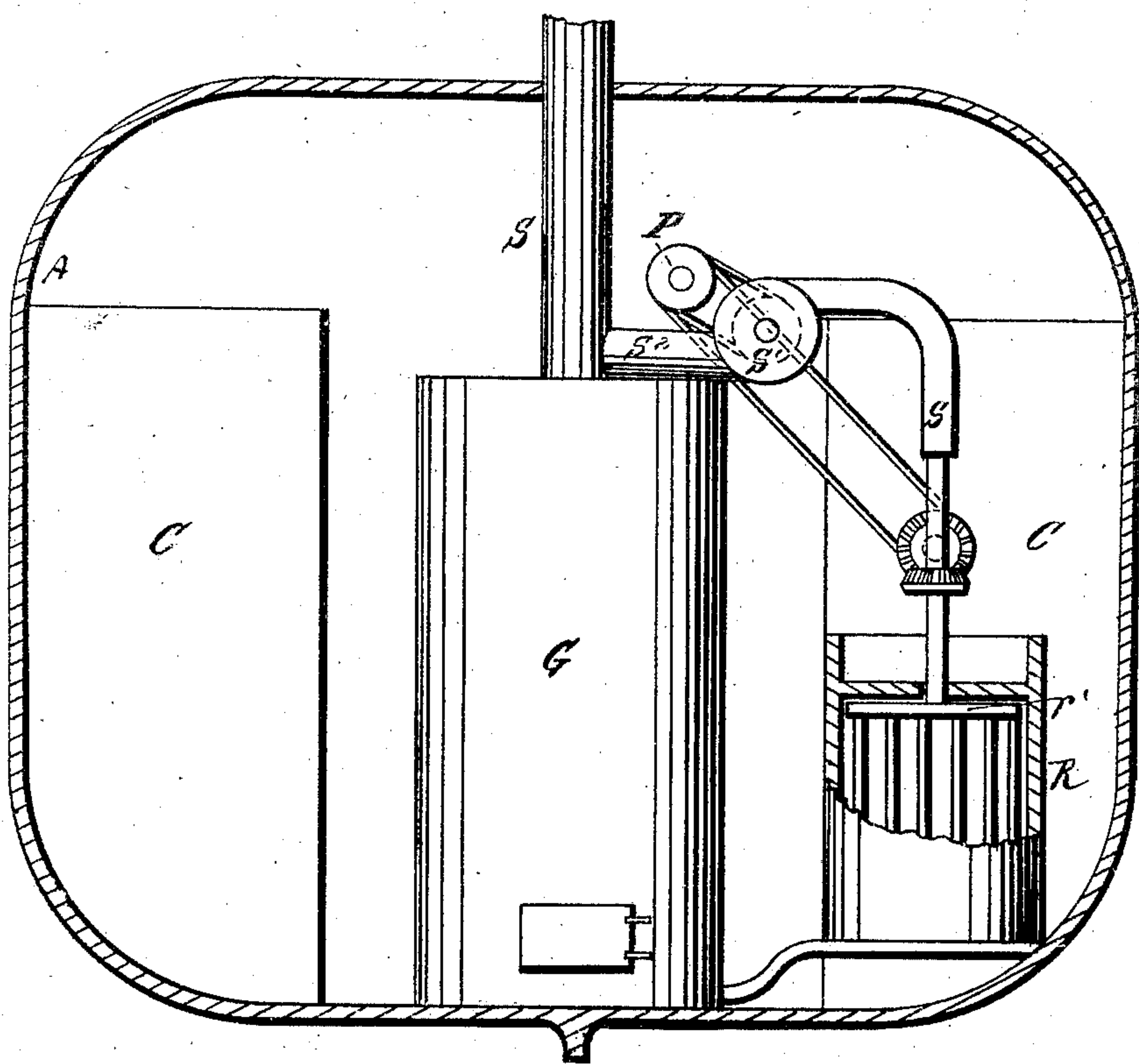
J. W. Coombs.
 G. W. Reed

Inventor:

James Carver.

J. Carver *Sheet 2, of 2 Sheets*
Submarine Battery
No. 41,365 *Patented Jan. 26, 1864*

Fig. 4.



Witnesses:

W. C. Coombs
G. W. Reed

Inventor:

James Carver

UNITED STATES PATENT OFFICE.

JAMES CARVER, OF BELLEVUE, OHIO

IMPROVED SUBMARINE BOAT.

Specification forming part of Letters Patent No. 41,365, dated January 26, 1864.

To all whom it may concern:

Be it known that I, JAMES CARVER, of Bellevue, in the county of Huron and State of Ohio, have invented a new and Improved Submarine Battery; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a sectional side elevation of the same. Fig. 4 is a transverse vertical section, the plane of section being indicated by the line *x x*, Fig. 1.

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

The object of this invention is to produce a submarine boat the motion of which can be perfectly controlled in every direction, two vertically-adjustable screw-propellers being provided to cause the boat to descend to any desired depth, or to ascend to the surface, one ordinary propeller at the stern and two hinged wings or fins at the bow for the purpose of propelling the boat and of directing its course upward or downward. The interior of the boat is fitted up with several tanks to contain water and some combustible liquid, the former to be used for the purpose of causing the boat to ascend or descend, and the latter to be used in the destruction of docks, warehouses, &c.; and said boat is further provided with a closet which has doors leading to the interior and to the exterior of the boat, and is furnished with a complete diving-dress, and which communicates with a chamber containing torpedoes and other similar machines of destruction, thus enabling the operator to attach such torpedoes or other devices to the bottom of a hostile vessel and destroy the same without the least danger to his own person or to his boat.

The construction of my submarine boat and its peculiar advantages will be readily understood from the following description.

A represents the shell of a submarine boat constructed of iron or any other suitable material, and provided with two wings, B B, which are hinged to the bow of the boat, for the purpose of facilitating the descending and ascending powers, and which are operated by means of chains, or their equivalents, and by a horizontal shaft and wheel, B', said shaft

being arranged in the bow of the boat, as clearly shown in Fig. 1 of the drawings.

O O represent two water-tanks to assist in sinking the boat preparatory to diving, also to facilitate the operation of ascending to the surface, which is accomplished by expelling the water from said tanks. Another tank, D, is arranged on the side of one of the tanks O, and this tank is designed to contain some combustible liquid to be used in the destruction of docks, warehouses, vessels, &c. A pipe, 7, leads from this tank to the pump W, and a pipe, 6, connects the pump with the ejection, pipe 5.

E represents a closet to contain a submarine armor and necessary appliances for diving, and this closet is in direct communication with the interior and exterior of the boat by means of perfect-fitting doors. On the side of the closet E is a case or chamber, F, to contain torpedoes and one or more submarine batteries or other machines of destruction, which are at the command of the operator in the closet. A crane and other necessary instruments to assist the operator in placing heavy objects at the desired point are also at hand.

G is a steam generator and furnace, from which an escape-pipe or smoke-stack, S, rises which is used when on the surface of the water, and which is closed by a valve, I, while the boat is submerged. The steam from the generator G serves to drive the engine or engines H, by which motion is imparted to the propellers M and M'.

N is the steering apparatus with horizontal shaft N' and gearing attachment to the rudder-blade. The horizontal shaft N' connects by chains or rope *b* with the steering-wheel N*, near the bow of the boat. The ropes *b* run over suitable guide-rollers, *b**, in the top of the boat and out of the way of the persons in the boat or of the working parts of the engines. The equilibrium of the boat is preserved by rolling ballast 2, which also serves to facilitate the operation of descending and ascending by change of position.

In order to be able to ascend and descend by direct upward or downward force, the screw-propellers M' are arranged on vertical arbors *m'*. These arbors are stepped into metal bars *m*², that are suspended by means of ropes or chains each from two rollers, *m*³, on

a horizontal shaft carrying a hand-wheel, m^4 . By turning the hand-wheels the bars m^2 are raised and the arbors, together with the propellers, are forced up to their working position. Motion is imparted to the vertical arbors m' by means of bevel-gears p' p^2 and a horizontal shaft, P, which connects by a belt, p^3 , with the propeller-shaft m . The bevel-wheels p' are firmly connected to the ends of the shaft P, and the wheels p^2 run loosely on the arbors m' , their hubs being journaled in the frames or hangers p^4 , which also form the bearings for the horizontal shafts carrying the hand-wheels m^4 . The lower edges of said hubs form half-clutches, the corresponding halves, m^5 , being firmly attached to the vertical arbors m' , and by raising said arbors, together with their propellers, to their working position the clutches m^5 are thrown in gear with the hubs of the bevel-wheels p^2 , and the arbors are caused to rotate. When the arbors and propellers are lowered, the wheels p^2 rotate without imparting motion to said arbors, and the propellers remain stationary. In this position they are protected by cylindrical cases m^6 , secured in the top of the boat A. Two or more heavy steel-pointed screws, projecting from the upper surface of the boat, serve to fasten the same to the bottom of a vessel while adjusting a torpedo or a battery, as the case may be. A man-hole, D*, gives access to the interior of the boat, and when under water this man-hole is closed by a tight-fitting cover or valve, the same as the valve covering the smoke-stack.

In the steam-generator coke will be used for fuel while above water, alcohol while submerged.

In order to prevent the products of combustion from escaping into the boat, a fan-blower, s' , is placed on the top of the steam-generator G, and this blower connects by a pipe, s^2 , with the smoke-stack S, and by a pipe, s^3 , with the condenser or regenerator R. This regenerator consists of a cylindrical tank partially filled with water, either pure or mixed with suitable

chemicals, and it is provided with a stirrer, r' , to which a rotary motion is imparted by a belt from the horizontal shaft P, and by a suitable bevel-gear. Said stirrer consists of a tabular reed with a series of tabular arms, and it connects with the pipe s^3 , carrying the products of combustion under the liquid in the regenerator R, and by the action of the stirrer the gases emanating from the smoke-stack are thoroughly mixed with the liquid, and only such gases are allowed to escape from the regenerator which are fit for respiration or capable to keep up combustion. By means of this arrangement my boat can be worked a considerably long time under water, and it can be used with great advantage for the purpose of destroying hostile vessels, and also docks, warehouses, &c., or for the purpose of removing obstructions under water, or, in fact, for any submarine operation, and it can be worked by a comparatively small number of hands.

What I claim as new, and desire to secure by Letters Patent, is—

1. The employment or use of the vertically-swinging adjustable pins B at or near the bow of a boat, A, constructed and operating in the manner and for the purpose substantially as herein shown and described.

2. The tank D, containing inflammable liquid in the hull of a submarine boat, in combination with a suitable pump, W, and pipes 5, 6, 7, all constructed and operating in the manner and for the purpose substantially as set forth.

3. The vertically-adjustable propellers M', in combination with the boat A, constructed and operating in the manner and for the purpose substantially as specified.

4. The regenerator R, in combination with the steam-generator G and boat A, constructed and operating substantially as and for the purpose specified.

JAMES CARVER.

Witnesses:

CHAS. B. CHIPMAN,
M. A. WOODBURN.