

Edgar Harriott's Imp^d Propeller
No. 118,607. Patented Aug. 29, 1871.

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Fig: 1.

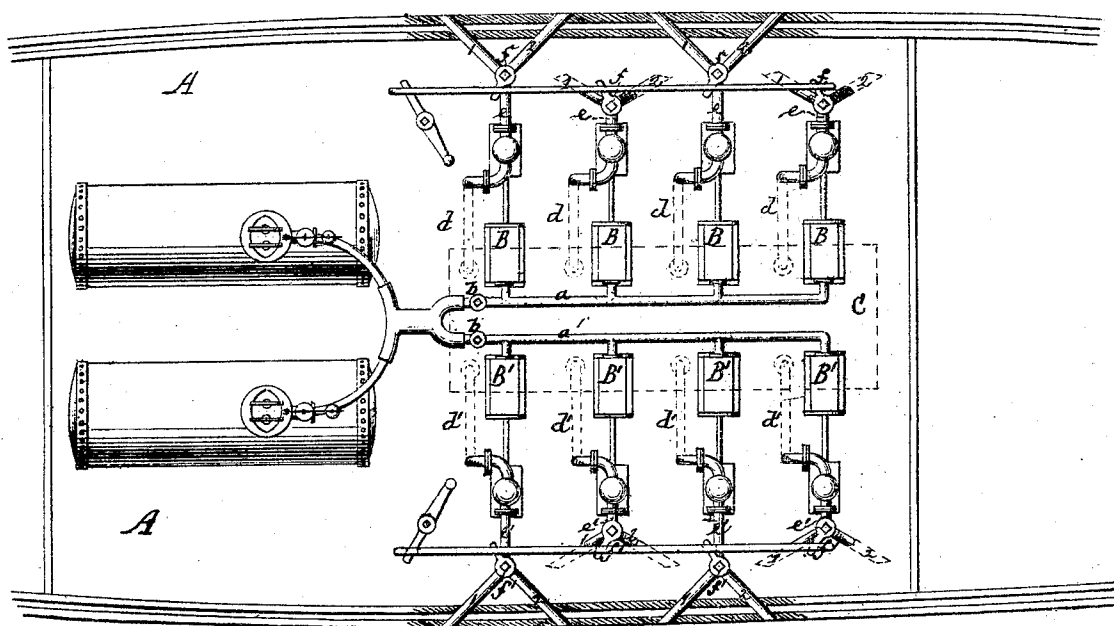
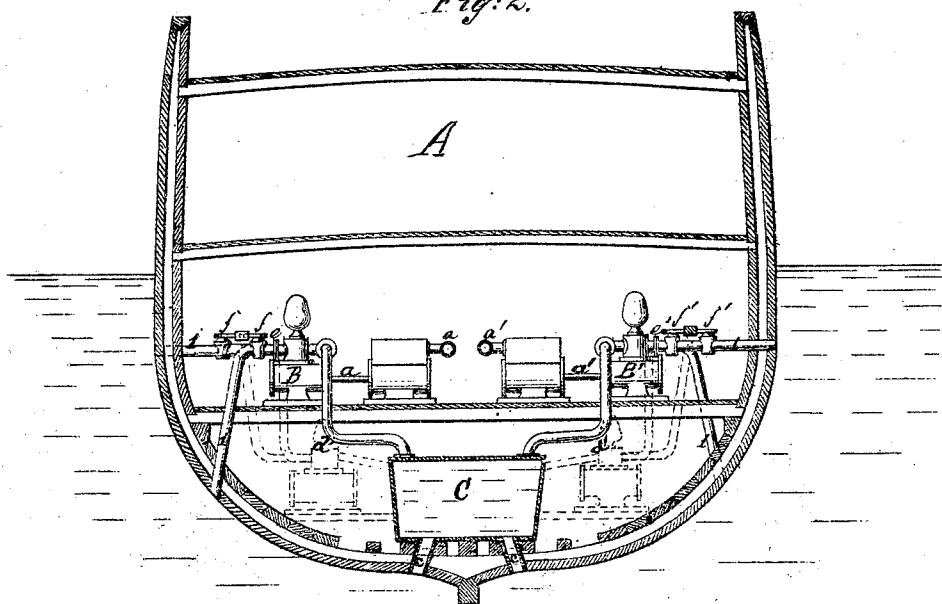


Fig: 2.



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UNITED STATES PATENT OFFICE.

EDGAR HARRIOTT, OF PLAINFIELD, NEW JERSEY.

IMPROVEMENT IN PROPULSION OF VESSELS.

Specification forming part of Letters Patent No. 118,607, dated August 29, 1871.

To all whom it may concern:

Be it known that I, EDGAR HARRIOTT, of Plainfield, in the county of Union and State of New Jersey, have invented a new and Improved Propeller for Vessels; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a plan or top view of this invention. Fig. 2 is a transverse section of the same.

Similar letters indicate corresponding parts.

This invention consists in the arrangement of two sets of pumps placed amidships and provided with inclined nozzles passing out through the sides of the vessel below the water-line, in combination with a closed tank which communicates with the water outside through suitable pipes passing through the bottom of the vessel, and from which pipes lead to the several pumps in such a manner that, by setting the pumps in motion, the water from the closed tank is sucked in and then ejected through the nozzles, and the jets of water thus ejected impinge against the external water and act as the propelling power. Each of the nozzles is provided with two branches, one inclined toward the bow and the other toward the stern, so that, by opening the stern branches and closing the bow branches, the vessel is caused to move forward, and vice versa. The two sets of pumps are provided with stop-cocks, so that each set can be stopped or started independent of the other, and that by these means the vessel can be steered with ease and convenience.

In the drawing, A designates the hull of a vessel, in which are placed two sets of pumps, B B', one opposite the other, in the middle of the vessel and on the lower deck. These pumps communicate, by means of pipes *a a'*, with a set of steam-boilers, and said pipes are provided with stop-cocks *b b'*, so that either set of pumps can be started independent of the other; or by opening both stop-cocks both sets of pumps can be started simultaneously. Below the pumps B B' is situated a tank, C, which is hermetically closed, and provided with supply-pipes *c* extending through the bottom of the vessel, so that it is always filled with water. From this tank extend

suction-pipes *d d'*, one to each of the pumps B B', and each of the pumps is provided with a nozzle, *e e'*, extending through the side of the vessel below the water-line, each nozzle being made with two branches, 1 2, which are inclined one toward the bow and the other toward the stern of the vessel, as shown in Fig. 1 of the drawing. Between said branches are stop-cocks *f f'*, which are so constructed that they close either one or the other of the branches, as may be required. If the pumps are set in motion jets of water are ejected through the nozzles *e e'*, and as these jets impinge against the water outside, the vessel is propelled. If the bow branches of the nozzles are closed and the stern branches opened the vessel moves forward, and by closing the stern branches and opening the bow branches the vessel moves backward. If it is desired to turn the vessel on its own center, the bow branches of the nozzles on one side of the vessel are opened and those on the other are closed; or if it is desired to turn the head of the vessel toward a certain point of the compass, the stop-cock in one of the steam-pipes *a* or *a'* is closed, and thereby the pumps on one side of the vessel are stopped, and the head of the vessel is turned toward the side desired. The stop-cocks *a a'*, and also the branch-cocks *f f'*, are so arranged that they can be readily operated by the engineer as the pilot may direct.

In practice I employ two sets of nozzles, one set being extended above the lower deck and inclined toward the bow and stern, while the other set is situated below the lower deck in the bilge, and their branches are inclined downward at angles of thirty-five to forty degrees, and also fore and aft, as shown, so that the jets of water ejected from these bilge-nozzles not only serve to propel the vessel but also to steady the same in a cross-sea. The deck-nozzles may, however, also be inclined downward, so as to increase the resistance offered to the jets ejected therefrom, and to steady the vessel. The suction-pipes leading from the pumps to the reservoir are all supplied with stop-cocks, so that if one of the pumps has to be repaired it can be readily stopped without interfering with the operation of the remaining pumps.

The number and capacity of the pumps and nozzles must of course be changed according to the size of the vessel and the speed or power desired; and in practice said pumps, together

with all the driving-gear, will be placed in the lower hold to save room, and increase the capacity of the vessel for freight and to add to her steadiness, and also to decrease the work to be done by the pumps by bringing the latter near the reservoir or tank. The location of the pumps in the lower hold or at the bottom of the vessel is indicated in dotted outlines.

I do not claim the use of steam and water either separately or together for propelling vessels; but

What I do claim is—

In combination with the double set of pumps

B B' placed opposite each other, and the supply-tank C placed beneath the pumps, the branched nozzles *cc'* arranged in two sets occupying different horizontal planes, the suction-pipes *d d'*, and the steam-pipes *a a'* connecting the boiler with the two sets of pumps, all arranged as herein shown and described, for the purpose specified.

EDGAR HARRIOTT.

Witnesses:

E. F. KASTENHUBER,

C. WAHLERS.