

(No Model.)

LORENZO JULIA Y PUIG.
PROPELLER.

No. 534,518.

Patented Feb. 19, 1895.

Fig 1.

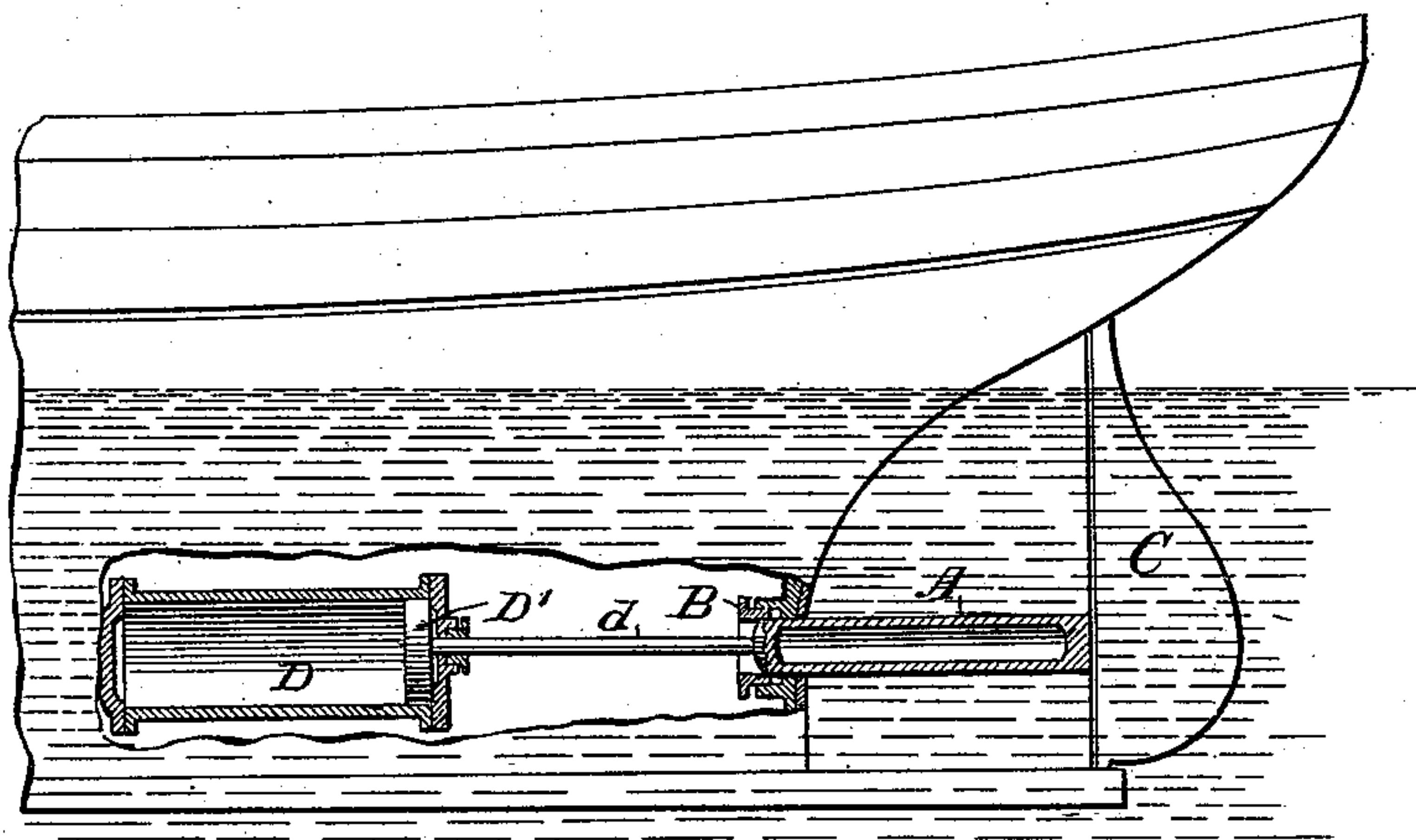


Fig 2.

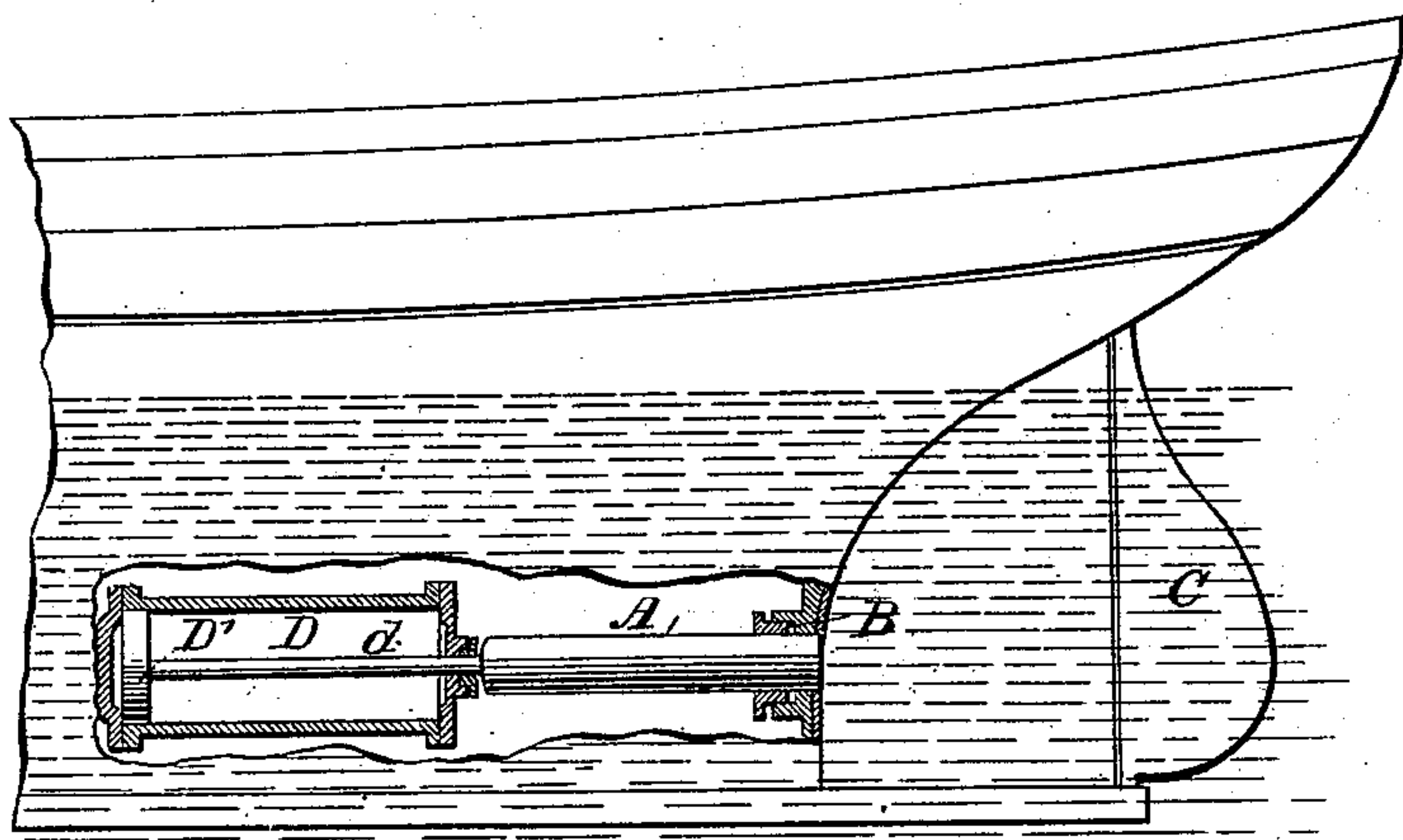
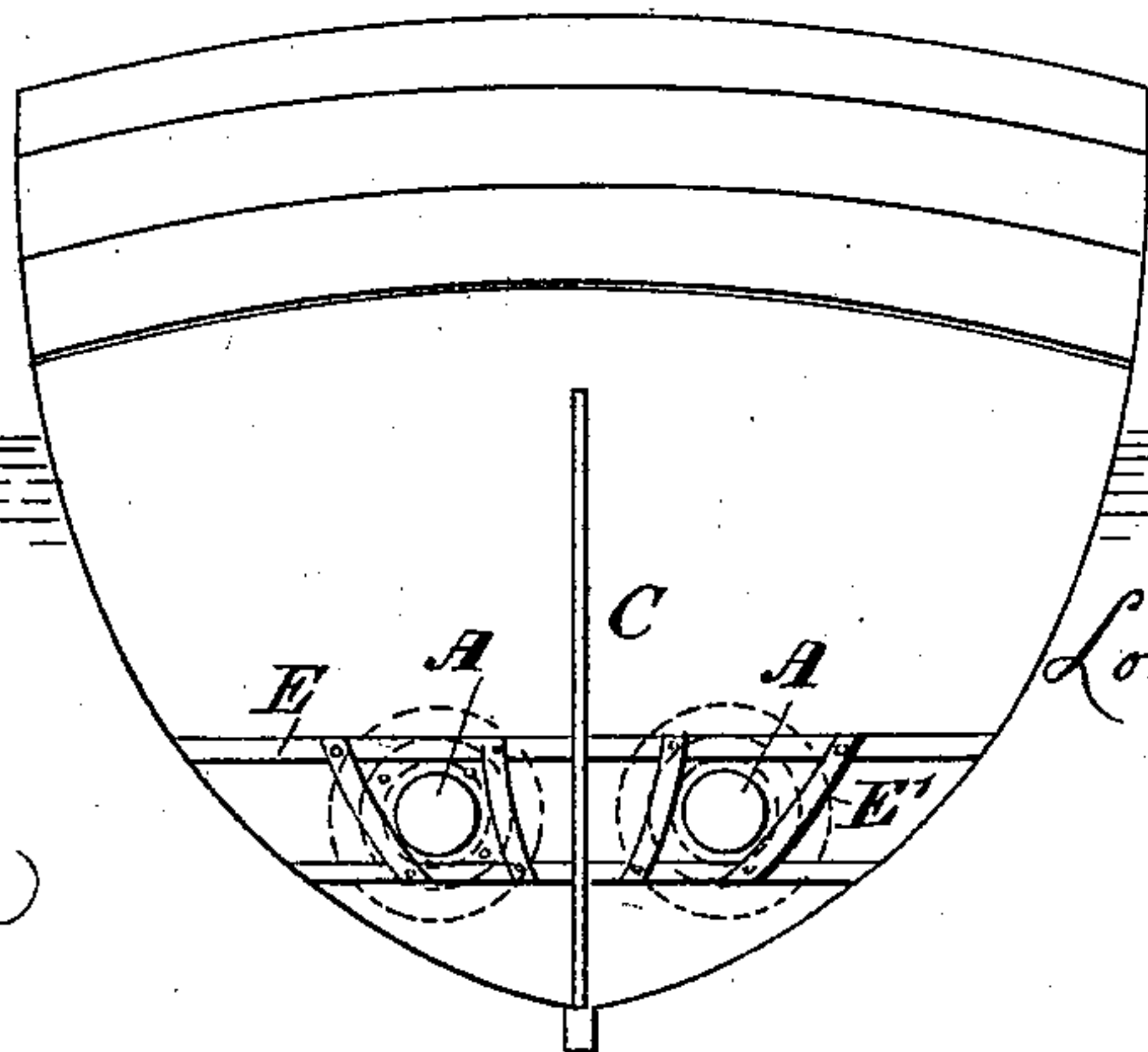


Fig 3.



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PROPELLER.

SPECIFICATION forming part of Letters Patent No. 534,518, dated February 19, 1895.

Application filed December 30, 1892. Serial No. 456,782. (No model.)

To all whom it may concern:

Be it known that I, LORENZO JULIÁ Y PUIG, a subject of the King of Spain, residing at Guayaquil, Ecuador, have invented a new and useful Improvement in Propellers, of which the following is a full, clear, and exact description.

My invention relates to propellers, and has for its object to provide a propeller of simple and durable construction and which may be located almost entirely within the hull of a vessel, thereby rendering it readily accessible if repairs are to be made.

Another object of the invention is to provide a cylindrical propeller adapted to propel a vessel by displacement of the water at the stern thereof.

A further object of the invention is to provide a cylindrical propeller having the same weight as the water to be displaced, thus requiring applied power to drive it in one direction only, an outward direction, it being returned when pressure is removed from its rearward path, by the action of the water in the rear, and thus great economy in applied power is obtained.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a partial side elevation of a vessel's hull, a portion being broken away illustrating the improved propeller applied and in longitudinal section, the propeller being at the end of its outward stroke. Fig. 2 is a similar view, except that the propeller is in side elevation and at the end of its inward stroke; and Fig. 3 is a view of a stern of a vessel's hull, fitted to receive the improved propeller.

In carrying out the invention two propellers A, are ordinarily employed, and they are preferably placed one at each side of the keel within the vessel's hold and at the stern.

The propeller is of cylindrical construction, and is made hollow, as shown in Figs. 1 and 2, in order that the greatest possible diamet-

rical area may be obtained with the least possible weight.

Each propeller is adapted to move in a stuffing box B, located around an opening made in the counter of the vessel. The openings are so placed at each side of the rudder C that when the propellers are forced outward they will not in the least interfere with the action of the rudder. The stuffing box is open at both ends, and is considerably shorter than the propeller, so that the major portion of the latter will be exposed and accessible from the interior of the vessel when the propeller is in the inner position (Fig. 2) while during the outward movement the propeller will project approximately to the same extent into the water at the rear of the stuffing box.

In front of each stuffing box B a cylinder D is properly supported within the vessel's hull, the cylinders being of any desired size, and in each cylinder a piston head D', is held to travel, the piston head and the propeller being connected by a rod d, or its equivalent. The length of each cylinder and the length of its piston rod is preferably substantially the same, and the distance between the outer ends of the cylinders and the outer edges of the openings surrounded by the stuffing boxes B is approximately of the same length as that of the propeller. Steam is employed to move the piston head, and is admitted only in front of the head. Steam may be applied to the cylinders in any well known manner.

In operation, when steam is admitted into the front end of the cylinder the piston head is forced outward and the propeller connected with the head is carried outward from its casing beyond the stern of the vessel, as shown in Fig. 1, the outward thrust of the propeller and its impact upon the water serving to force the vessel ahead, while when the steam is discharged from the cylinder D, the hydrostatic pressure exerted by the water will force the propeller to travel forward within its casing until the piston head reaches a point where it is to be again acted upon by the steam.

Owing to the fact that the propeller is of the same weight as the water it displaces, it will have a very easy motion, as it will practically have no tendency either to rise or to lower. The friction between the propeller and the

stuffing box will thus be reduced to a minimum, as the stuffing box will not be required to act as a support for the propeller, and the wear of the stuffing box will be uniform.

5 It will be observed that the steam is used only to force the propeller outward, the water upon which the propeller acts serving to properly return the propeller. By reference to Fig. 2 it will be seen that the front head of
10 the piston D forms a stop to limit the forward movement of the propeller, when its rear end is essentially flush with the rear face of the stuffing box.

Stay plates or bars E and E' are placed
15 around the outer edges of the openings through which the propellers move, as shown in Fig. 3, in order to strengthen them; and face plates may also be employed for the same purpose.

20 It will be observed that all of the propelling mechanism is located within the hull, and is therefore readily accessible in the event that repairs are needed.

The length of stroke of the piston will be
25 calculated with relation to the displacement of the boat and the motive power employed.

A propeller constructed as above described is not only simple, durable and effective, but it is likewise economic in its construction and
30 provides for economy of steam, while the action of the propeller is powerful and direct.

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

35 1. In a propelling mechanism for vessels, the combination with the hull having an

opening provided with a stuffing box open at both ends and having a bore of uniform diameter, and a steam cylinder disposed within the hull a predetermined distance from the
40 box, of a propeller member held to snugly fit the aforesaid stuffing box and having a piston rod connected therewith operating in the cylinder, said rod carrying a piston, such piston cylinder, the hull stuffing box and the pro-
45 peller member being arranged relatively, whereby the piston will form a stop to limit the outward thrust of the propeller member, and the major part of the sliding surface of such member will be exposed within the hull
50 when the said member is forced to its innermost position.

2. The combination with the hull having an opening, and a stuffing box therein, said stuffing box being open at both ends, of a propeller
55 of uniform cross section fitting tightly into said stuffing box, but of greater length than the same, said propeller being adapted to reciprocate in the stuffing box in such a manner as to alternately project from the outer
60 end of the stuffing box to propel the vessel, and then project inwardly beyond the inner end of the stuffing box to expose the sliding surface of the propeller, whereby the said surface is rendered readily accessible from
65 the interior of the vessel, substantially as described.

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