

No. 617,969.

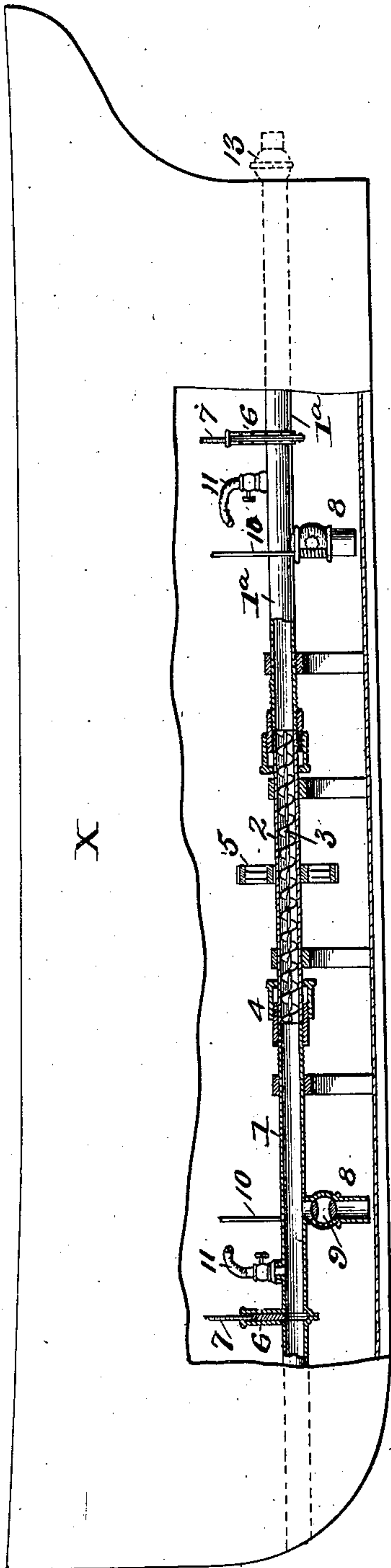
Patented Jan. 17, 1899.

A. PLECHER.  
HYDRAULIC PROPELLER FOR SHIPS.

(Application filed May 10, 1898.)

(No Model.)

Fig. 1.



WITNESSES:

*M. B. Blondell*  
*Amos W. Hart*

Fig. 2.

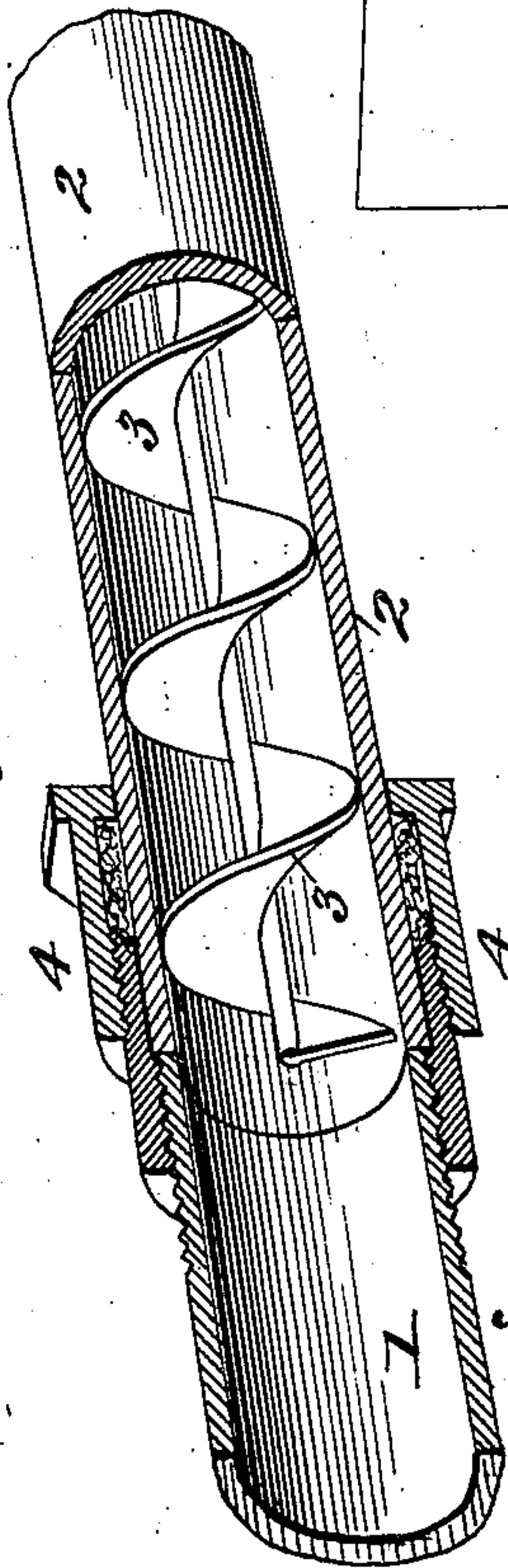
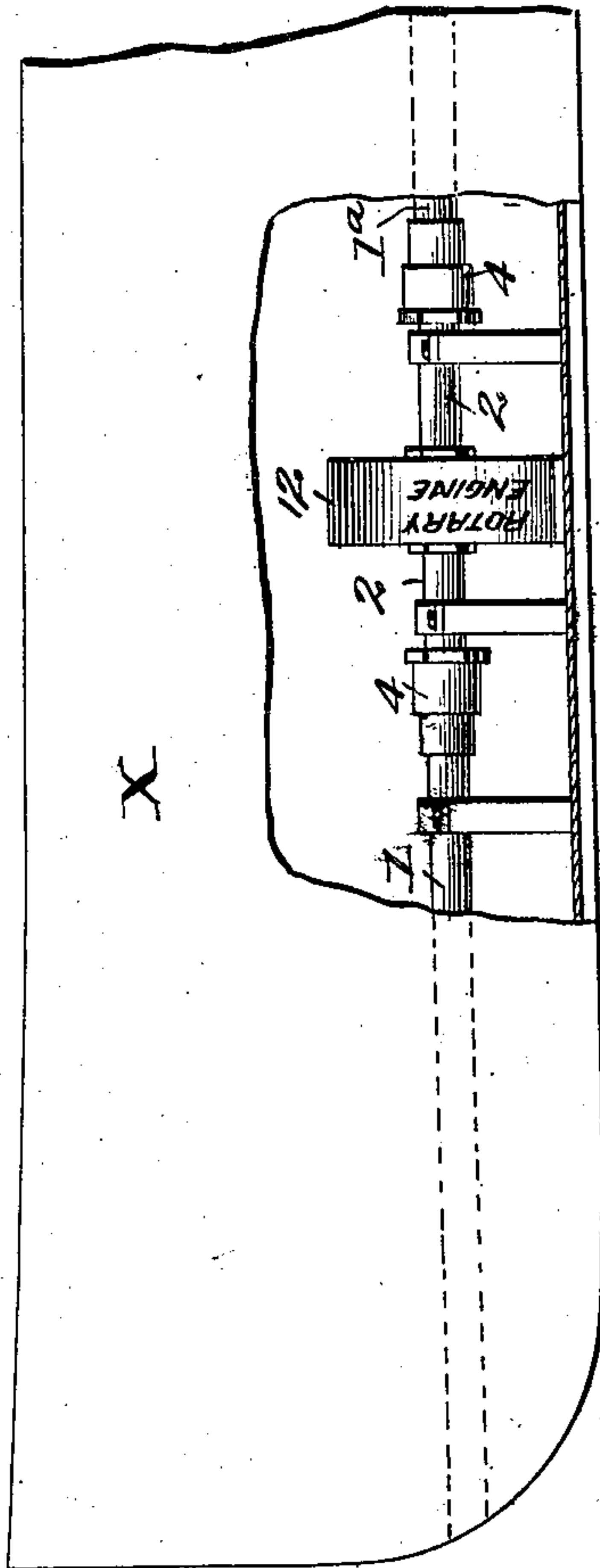


Fig. 3.



INVENTOR

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# UNITED STATES PATENT OFFICE.

ANDREW PLECHER, OF RICHMOND, VIRGINIA.

## HYDRAULIC PROPELLER FOR SHIPS.

SPECIFICATION forming part of Letters Patent No. 617,969, dated January 17, 1899.

Application filed May 10, 1898. Serial No. 680,297. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW PLECHER, of Richmond, in the county of Henrico and State of Virginia, have invented a new and useful  
5 Improvement in Hydraulic Propellers for Vessels, of which the following is a specification.

My invention pertains to that class of "jet" or hydraulic propellers for various marine vessels in which a rotatable screw or spiral-  
10 blade propeller is arranged in a tube that traverses the vessel from stem to stern and takes in water at its front end and discharges it at the other. I have devised certain improvements in the construction of the propeller  
15 proper and in valve attachments for the jet or water-conducting tube, whereby certain important advantages are attained.

The construction and arrangement of parts are hereinafter described, with reference to  
20 accompanying drawings, in which—

Figure 1 is in part a side view and in part a vertical section of the hull of a vessel provided with my improvement. Fig. 2 is an enlarged perspective and partly-sectional view  
25 of the tube and propeller proper. Fig. 3 is a side view showing a modification.

A jet or water-conducting tube extends longitudinally of the hull  $x$  from stem to stern. It is composed of fixed sections 1 1<sup>a</sup> and an  
30 interposed rotatable section 2—that is to say, at some point in the length of said tube, preferably at the middle, it is divided transversely and a rotatable section 2 is inserted, the same being aligned with the others, 1 1<sup>a</sup>, as  
35 shown in Fig. 1. This section 2 has an interior spiral or screw blade 3, (see Fig. 2,) which is preferably formed integrally with the tube proper that surrounds it, or its side edges are permanently and rigidly attached  
40 to the tube in some suitable manner. The ends of this rotatable screw-section 2 are held in stuffing-boxes 4, applied to the adjacent ends of the fixed sections 1 1<sup>a</sup>, as shown in Fig. 2.

The screw-section 2 is provided exteriorly with a concentric annular spur-gear 5, Fig. 1, which meshes with a gear (not shown) forming part of driving mechanism connected with a steam-engine or electric or other form  
50 of motor. The said gear 5 not only serves as a driving medium, but also as a fly or balance wheel which steadies the rotation of the

screw-section 2. It is apparent that the rotation of such screw-section 2 drives a current of water through the tube, which issues  
55 as a large jet at the stern or at the bow, if required, to arrest the motion of the vessel or to propel it sternward. The screw proper, 3, has practically a uniform thickness at all points in its cross-section. In consequence  
60 of this construction and the attachment of the screw or spiral 3 directly to the tube proper the propeller offers the least possible obstruction to the water passing through it, whereby a proportionally greater propulsive  
65 effect is produced:

In case of a leak or the accumulation of the water in the hold of the vessel from any cause it may be removed through the tube. I provide the fixed sections 1 1<sup>a</sup> with a slidable cut-  
70 off valve 6 between the rotatable section 2 and the bow and stern, as shown. These valves 6 may be operated by a screw rod or shaft 7, and the latter may be provided with a hand-wheel or be connected with other  
75 mechanism under the control of the engineer. Short tubes 8 extend downward from the main tube and are provided with globe-valves 9, which are operated by a worm-shaft 10. The  
80 latter may be manipulated by hand or connected with mechanism under the control of the engineer.

It is apparent that by closing the bow or forward cut-off valve 6 and opening either  
85 globe-valve 9 and then rotating the screw-section 2 water may be rapidly removed from the vessel's hold either forward or aft. In brief, the mechanism shown constitutes a very effective ship's pump, with the advantage that the water removed may be utilized  
90 for propulsion of the vessel.

To enable the apparatus to be conveniently utilized for extinguishing fires or raising water for washing deck or other purposes, I provide the tube-sections 1 1<sup>a</sup> with two fire-hose  
95 attachments 11, one being arranged between the screw-section 2 and each of the cut-off valves 6. By closing one of the latter water may be driven through the adjacent hose 11, and by closing both cut-off valves 6 and one  
100 globe-valve 9 water may be taken from the hold and forced through either hose 11. The advantages of this combination and arrangement of parts are apparent.



I show in Fig. 3 a rotary engine 12, applied to the tube-section 2 for rotating it. In such case the wheel proper will be attached directly to the tube and the casing of the wheel

5 fixed concentrically.

As a means of avoiding a direct backward current in the stern-water or for aid in steering the vessel I may provide a swiveled extension 13, Fig. 1, of the fixed tube-section

10 1<sup>a</sup>. A suitable device will be provided for directing such section 13 at any angle.

It will be understood that the tube-sections 1 and 1<sup>a</sup> may be arranged with their inlet and discharge openings in rear of the bow and in

15 front of the stern, respectively, if desired.

What I claim is—

1. The combination, with a vessel's hull, of a jet or water-conducting tube traversing the same from stem to stern a rotatable screw-section, alined with fixed tube-sections, and

20 journaled on the latter, such rotatable section being composed of a tube proper and a spiral blade, or screw proper, whose side edges are secured to the tube, substantially as shown

25 and described.

2. The combination, with a vessel's hull, of fixed tube-sections traversing the same as described, an interposed alining tube-section arranged rotatably in stuffing-boxes and having

30 an interior spiral or screw proper, and a rotary driving-wheel applied to such tube-section, exteriorly, as shown and described.

3. The combination with a vessel's hull and a tube traversing the same, of a propeller located in mid-length of the tube, cut-off valves

arranged on each side of the screw, and other valves for controlling admission of water from the hold, substantially as shown and described.

4. The combination with a vessel's hull, 40 and a tube traversing the same, of valves for controlling admission of water from the hold, and a rotatable, screw tube-section, as shown and described.

5. The combination, with a vessel's hull, 45 and a tube traversing the same, of cut-off valves, valves for controlling admission of water from the hold, fire-hose attachments, and a rotatable screw-section, substantially as shown and described.

6. The combination, with a vessel's hull, 50 and a tube traversing the same, of fire-hose attached to the latter, cut-off valves arranged in said tube exterior to such fire-hose, and a propeller, substantially as shown and described, to operate as specified.

7. The combination, with a vessel's hull, and a tube traversing the same, of a cut-off valve arranged in said tube, a propeller connected with the tube, cut-off valves located 60 exterior to the propeller, hose attachments arranged between the cut-off valves and the propeller, and short tubes pendent from the main tube, and having valves for regulating the inlet of water, substantially as shown and 65 described.

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Witnesses:

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