

(No Model.)

J. & H. W. RITCHIE.

HYDRAULIC STEERING MECHANISM FOR VESSELS.

No. 601,679.

Patented Apr. 5, 1898.

Fig. 1.

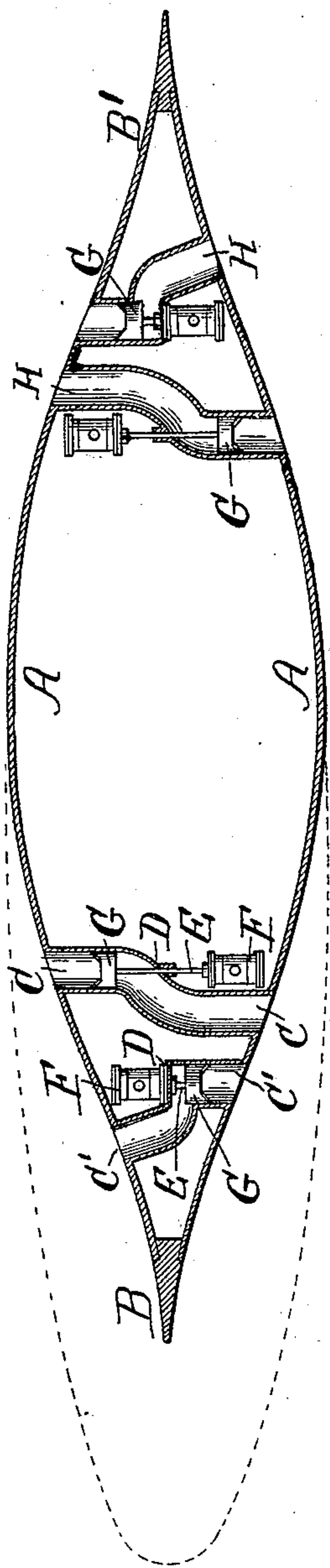


Fig. 3.

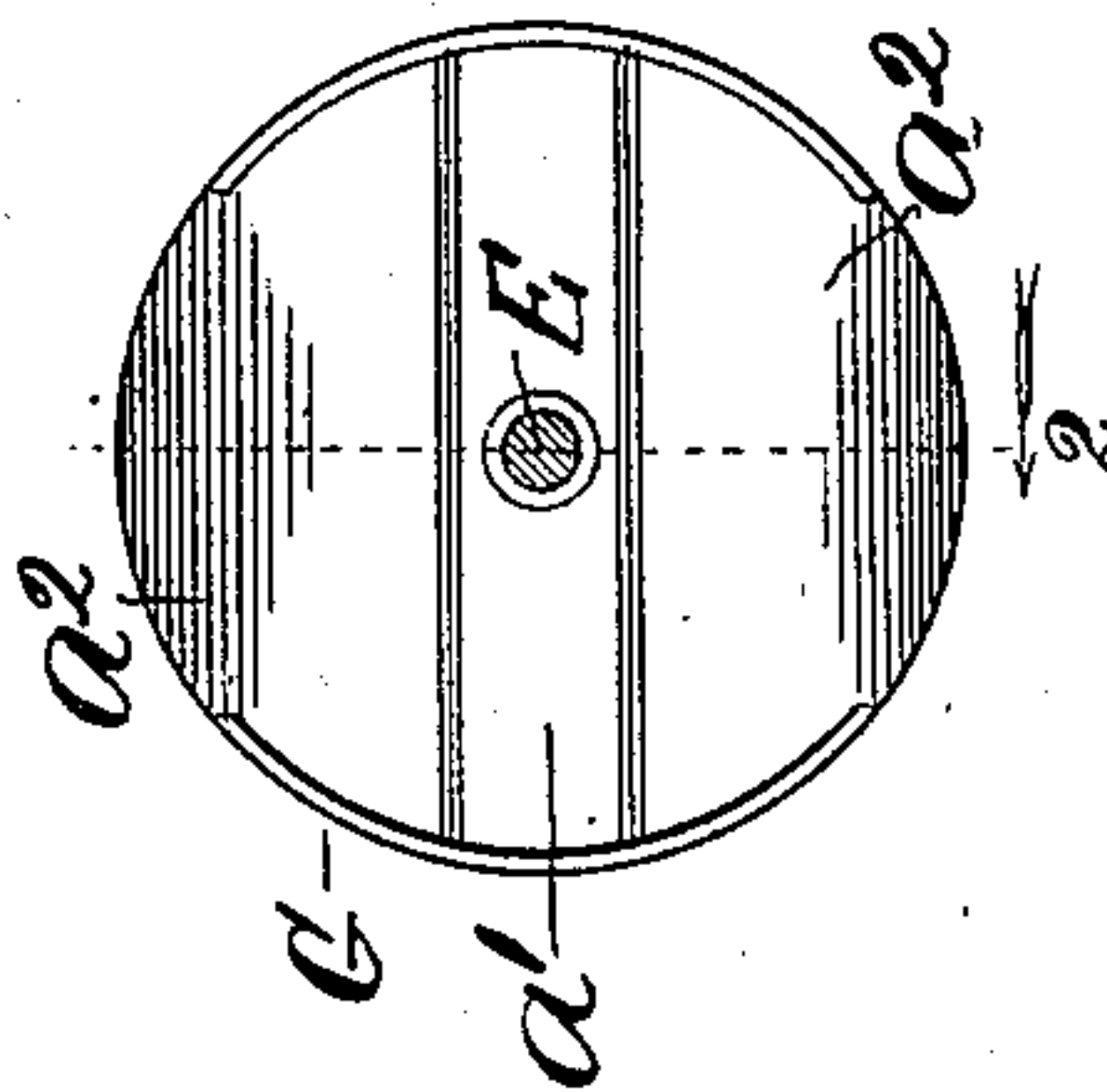
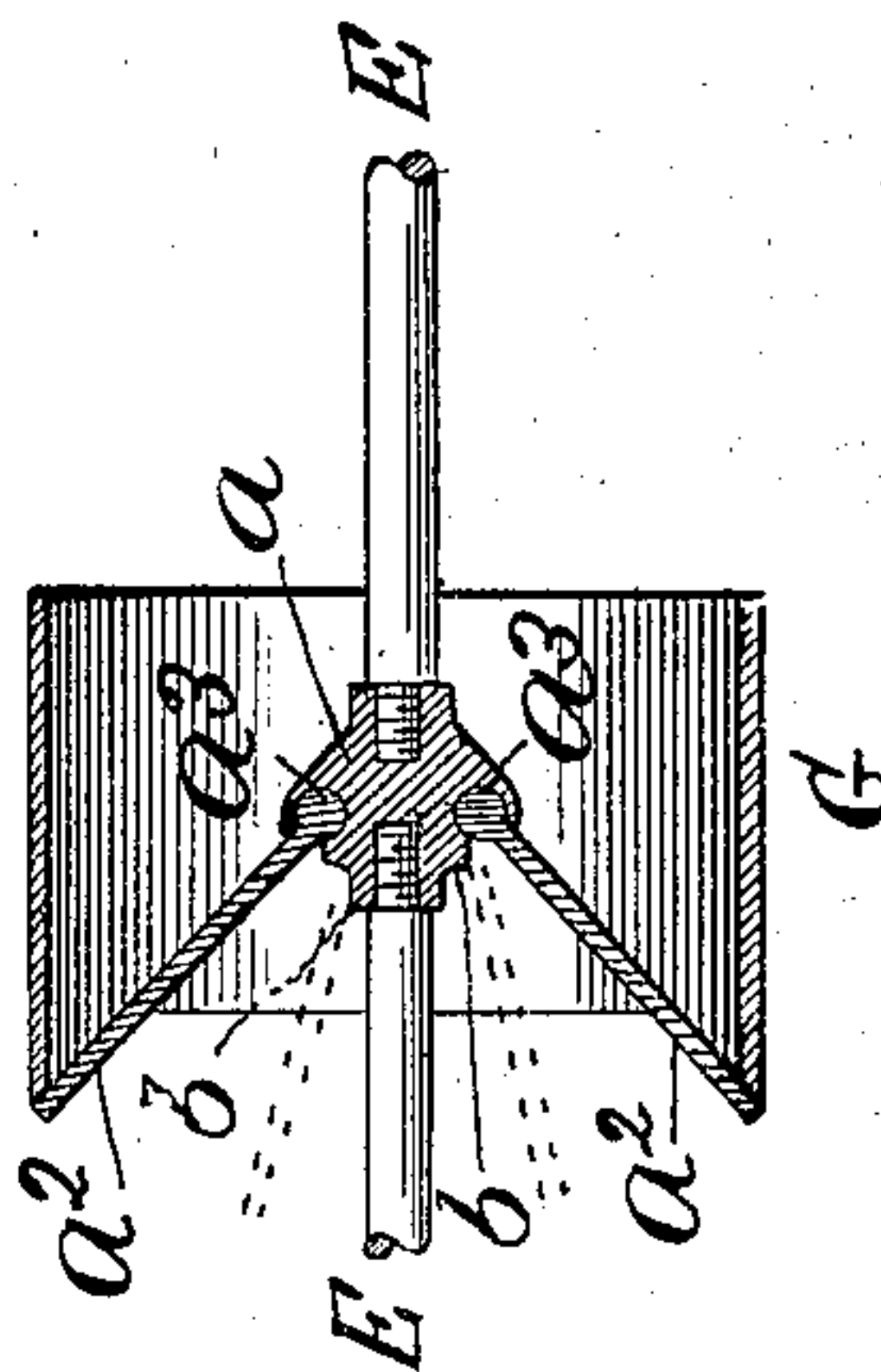


Fig. 2.



Witnesses:

Chas. E. Gaylord,
Lute J. Lee

Inventors:

John Ritchie,
H. W. Ritchie.

By G. B. Coupland & Co.
Attys.

UNITED STATES PATENT OFFICE.

JOHN RITCHIE AND HARVEY W. RITCHIE, OF COOK COUNTY, ILLINOIS.

HYDRAULIC STEERING MECHANISM FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 601,679, dated April 5, 1898.

Application filed June 9, 1897. Serial No. 639,947. (No model.)

To all whom it may concern:

Be it known that we, JOHN RITCHIE and HARVEY W. RITCHIE, citizens of the United States, residing in Cook county, State of Illinois, have invented certain new and useful Improvements in Hydraulic Steering Mechanism for Vessels; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates more especially to improved arrangements for steering, handling, and docking marine vessels, as will be hereinafter set forth.

With the present arrangements it is very often an exceedingly difficult matter to handle and shift vessels in confined quarters and often requires the employment of tugs and other auxiliary appliances, which are also an additional expense. The object, therefore, of this invention is to provide an improvement whereby a vessel may be turned on its own axis, moved bodily sidewise, or shifted in any other way required without the necessity and expense of employing outside assistance.

Figure 1 is a horizontal plan section through the hull of a vessel, showing the improved features and their relative position; Fig. 2, a longitudinal section of a propelling device embodying our improved features, and Fig. 3 an outer end elevation.

A may represent the hull of a vessel, B the stern, and B' the bow end.

The hull at the stern is provided with passages C C', extending horizontally there-through from side to side. These passages will ordinarily be cylindrical in cross-section and are provided with an offset D from a right line, as shown. This feature provides for the proper connection between the source of motive power and the propeller-shafts, on which the propelling mechanism is mounted.

The propeller-shafts E E are inserted through the walls of the passages at one side and have a reciprocating endwise movement. The inner ends of these shafts are suitably connected with the steam-motor cylinder F F, which connection may be of a direct character, as shown, or otherwise arranged, as may be best in practical working. The propellers are mounted on the outer ends of the propeller-shafts, which work in opposite directions in the passages. The propeller consists of a number of parts, which will next be described.

The propeller-case G is open at both ends and is provided with a hub *a*, connecting with the sides of the case by means of a cross-bar *a'*, and is rigidly mounted on the shaft. The blades *a² a²* have a hinged connection with the hub and cross-bar, as at *a³*, so that they may assume the open position shown and the closed or folded position indicated by dotted lines in Fig. 2. In their open position the blades stop against the edges of the inclosing casing and close the passage therethrough. This is the working position of the blades on the outward thrust of the shaft in its endwise movement. The stop-shoulder *b* limits the folding movement of the blades and holds them at an angle slightly oblique to a parallel line of the shaft. The blades are thrown out to their working position by the pressure of the water on the outer side as the shaft moves outwardly in the volume of water filling the passage and fold up by the pressure on the opposite side on the return movement, thus offering the slightest possible resistance on the return stroke, but presenting all the surface of the blades on the propelling side.

The transverse passages H H shown in the bow end of the vessel are provided with the same propelling mechanism, so that the description of the one will suffice for the other. Suitable means will be provided for handling and controlling the mechanism so that each propeller may be worked independently of the other. The operating arrangement will be such as to permit of one or more of the propellers being worked at the same time. It will be readily understood by this arrangement with what facility a vessel may be steered, turned, moved sidewise, or handled as may be necessary. The mechanism is all inboard and so protected that it cannot possibly be injured or disabled by outside contact. The working passages through the hull may be closed by sliding doors in the walls, which will provide for and facilitate the making of repairs.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A vessel provided with two or more pas-

sages extending transversely through the hull and having propeller-shafts located in said passages which are adapted to have a reciprocating endwise movement therein, and propellers, mounted on said shafts, substantially as described.

2. A vessel provided with transverse passages through the hull and opening outwardly from each side thereof, propeller-shafts entering said passages through the side walls and having a reciprocating endwise movement therein, and propellers, having an opening and closing action and mounted on the outer ends of said shafts; the inner ends connecting with the motive power, substantially as described.

3. A vessel having transverse passages

through the hull which curve from a right line to provide an offset, propeller-shafts extending into said passages and having a reciprocating endwise movement therein and having propellers mounted on the outer working ends thereof; the inner ends of said shafts connecting with the motive power, and each propeller being adapted to be operated independently of the other, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN RITCHIE.

HARVEY W. RITCHIE.

Witnesses:

L. M. FREEMAN,

L. B. COUPLAND.