

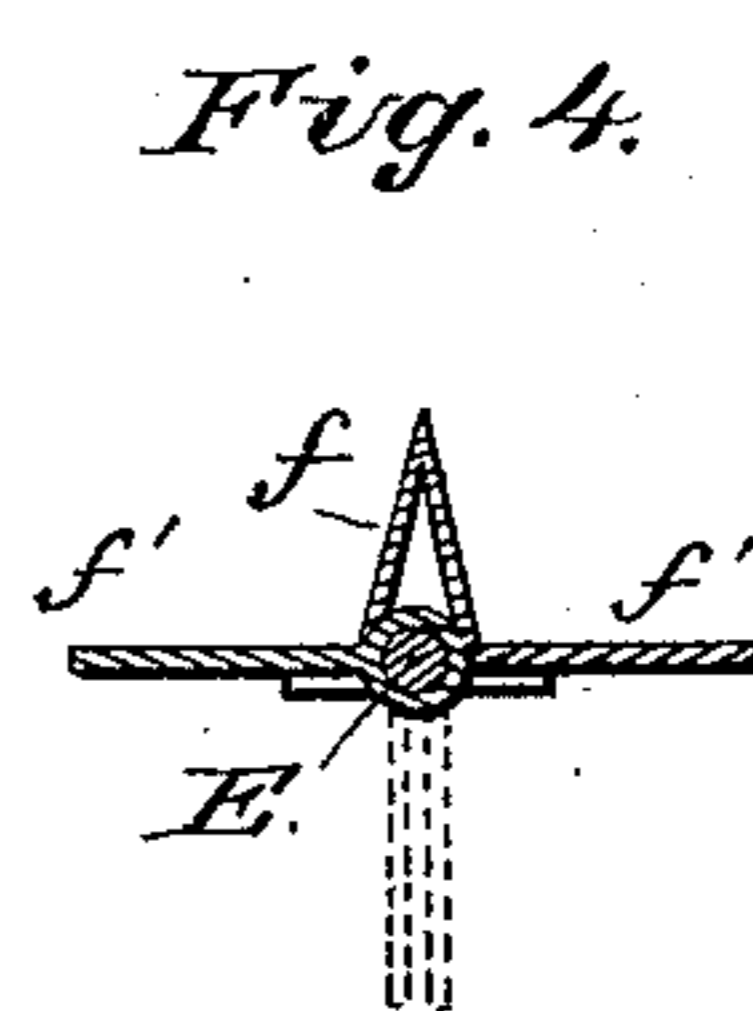
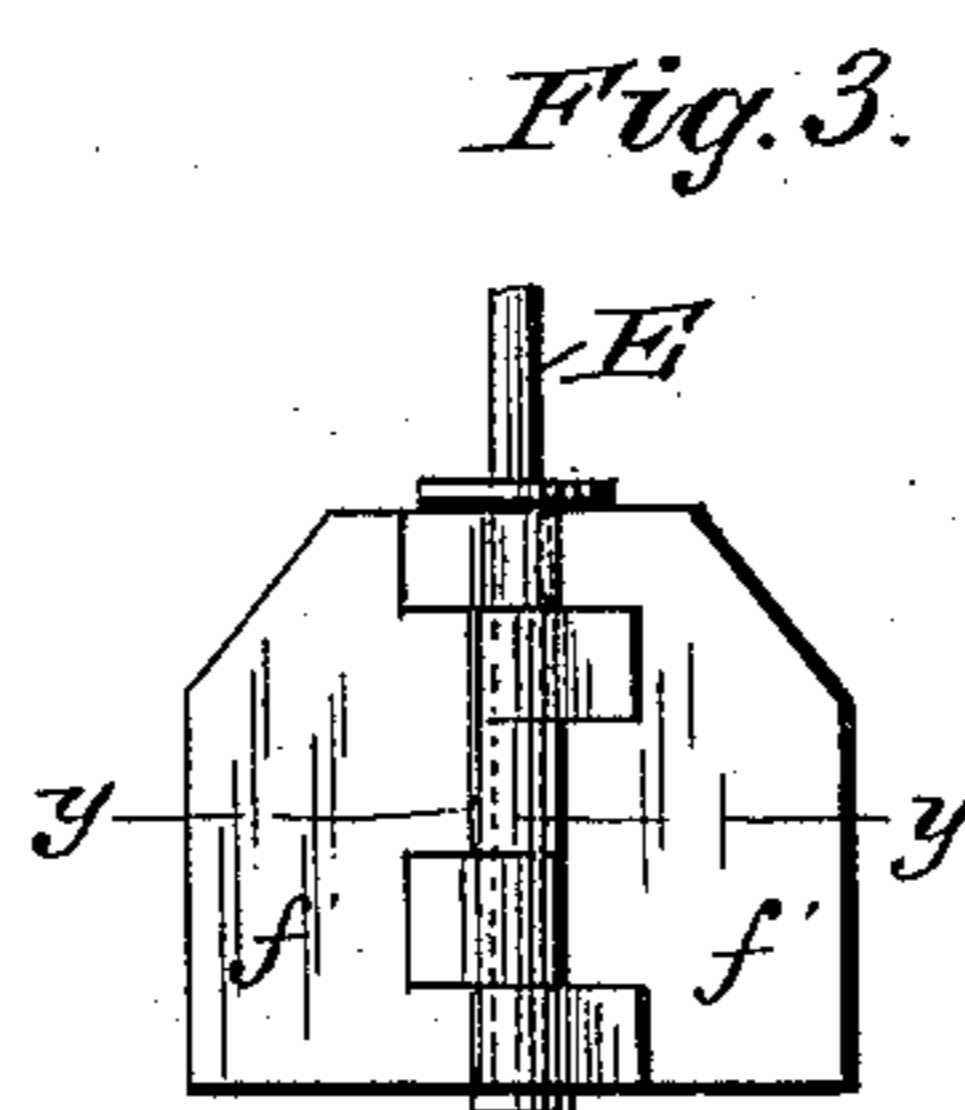
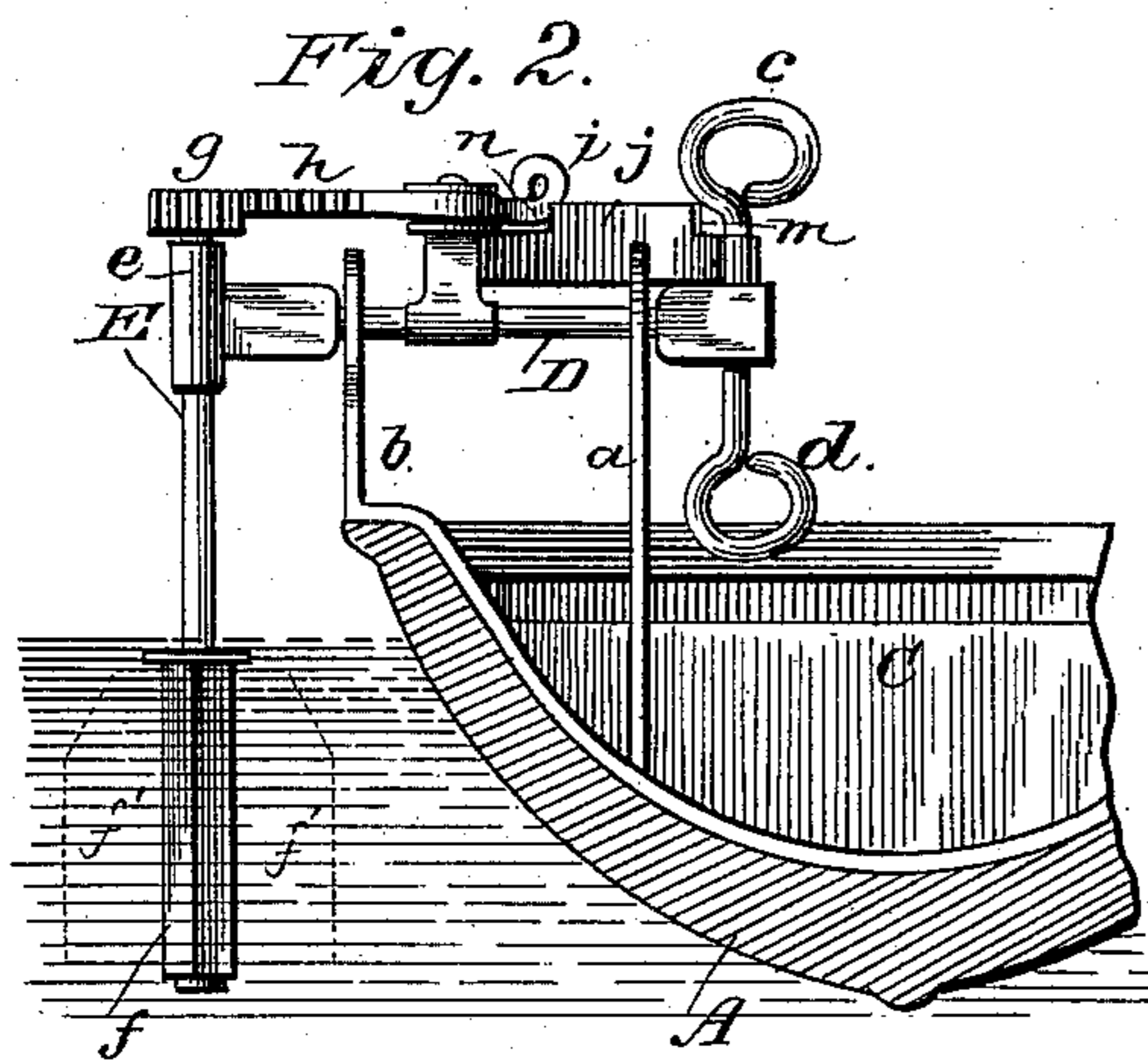
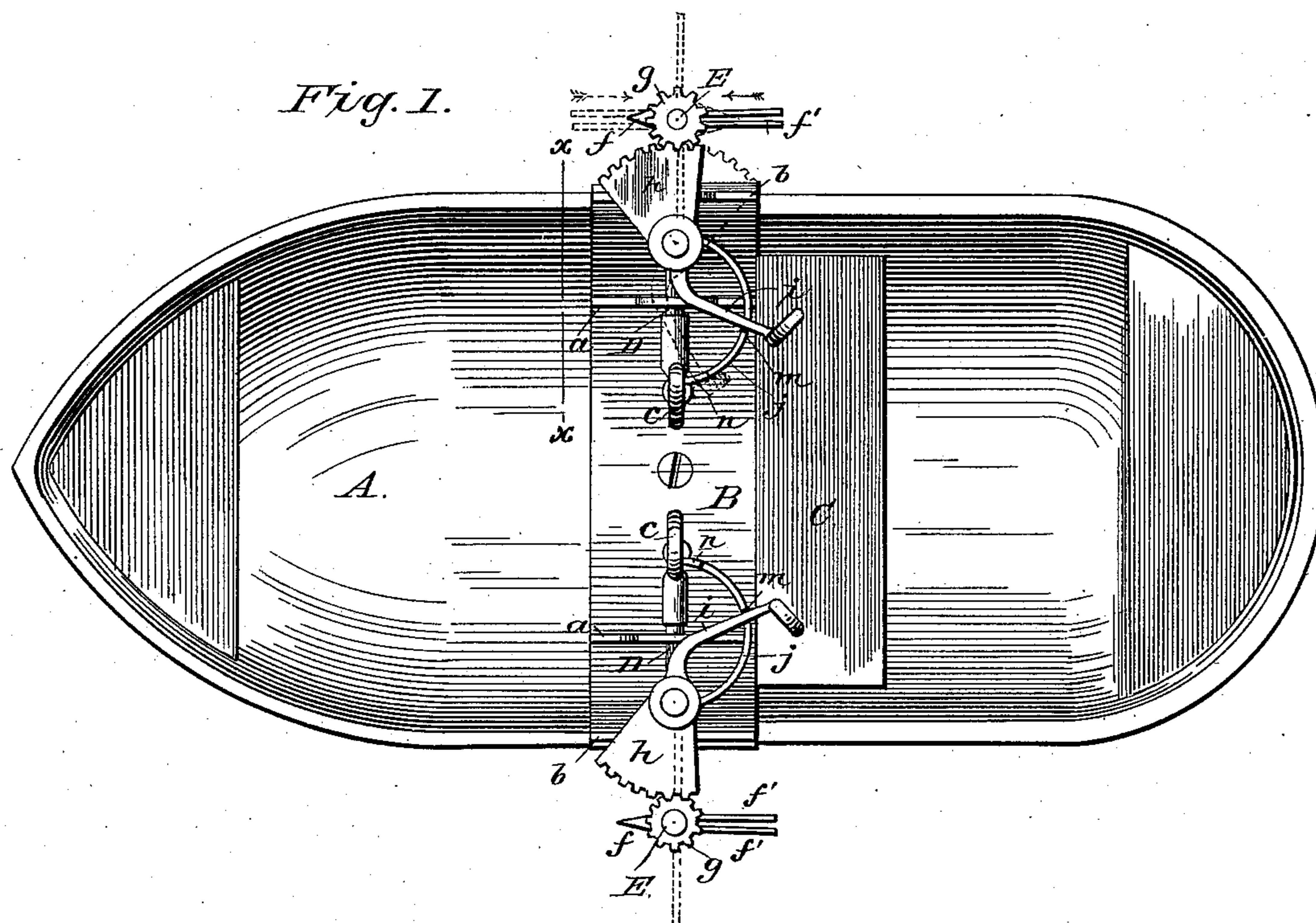
(No Model.)

S. B. LARD.

ROWING ATTACHMENT FOR BOATS.

No. 365,610.

Patented June 28, 1887.



WITNESSES:

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SELDEN B. LARD, OF WATERVILLE, KANSAS.

ROWING ATTACHMENT FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 365,610, dated June 28, 1887.

Application filed July 15, 1886. Serial No. 208,134. (No model.)

To all whom it may concern:

Be it known that I, SELDEN B. LARD, of Waterville, in the county of Marshall and State of Kansas, have invented a new and useful Improvement in Rowing Attachments for Boats, of which the following is a specification.

My invention relates to the propulsion of boats by means of valvular oars which open when forced through the water in one direction and close in returning, the same being designed to be operated either by hand or by steam.

My improvements consist in the improved construction and arrangement of parts, which I will now proceed to fully describe with reference to the drawings, in which—

Figure 1 is a plan view of the rowing attachment applied to a boat. Fig. 2 is a vertical cross-section through the line $x x$ of Fig. 1, and Figs. 3 and 4 are details of the valvular oar.

A represents a boat of any well-known form, transversely in which is firmly fixed a frame, B, for the rowing attachment. This frame fits the bottom and sides of the boat, and is placed near the middle of the boat, and with it may be formed, as a part thereof, the middle seat, C, upon which the oarsman sits. This middle frame is preferably made of metal, and upon each side of the boat has two upright portions, a and b , in which are formed journal-bearings for the rowing attachments. As these rowing attachments are exactly alike on both sides of the boat, it will only be necessary to describe one of them. Each consists of a short horizontal rock-shaft, D, journaled in bearings in the upright sections $a b$ of the transverse frame. This rock-shaft has attached to its inner end two handles, $c d$, one of which, c , projects upwardly from the rock-shaft and the other, d , downwardly from the rock-shaft. On the outer end of the rock-shaft is rigidly fixed a short vertical sleeve, e , in which is carried the vertical shaft E, having at its lower end a vertical blade, f , and two hinged wings, $f' f''$, which swing into the same plane with the fixed blade f when the latter is moved forward through the water, as in dotted lines, Fig. 4, but which, when the blade f is moved backward through the water, open out and occupy a position at right angles, so as to afford a resistance to the water, which

furnishes a purchase against the water for propelling the boat. This shaft E and the valvular blade $f f' f''$ form the oar, which is oscillated in the water by the oscillation of the rock-shaft D through the handles $c d$.

To provide for propelling the boat backward, the shaft E is adapted to be turned half-way around in its sleeve, so as to reverse the position of its valvular blade, as shown in dotted lines at top of Fig. 1; and for this purpose a pinion, g , is rigidly fixed to the top of shaft E, and with it is made to engage a toothed segment, h , mounted upon a vertical axis on the rock-shaft. This segment has an arm, i , moving upon a curved bar, j , and adapted to be locked behind either a shoulder, m , at one end of the curved bar, or another shoulder, n , at the other end of the curved bar. As the segment is moved to either of these positions, it serves, through the pinion, to reverse the valvular oar and hold it in such position.

In operating the rowing attachment the oarsman sits facing the bow of the boat, and, catching hold of the lower handles, pulls against the same. This action causes the valvular oar to open and press against the water, forcing the boat forward. On the return stroke the handles are pushed forward, which causes the valvular oar to close and pass through the water like a knife.

To back the boat, the valvular oars are reversed by adjusting the segments, as before described, and the operator then pulls upon the upper handles.

If desired, the two handles of the two oars may be coupled together to work with one hand, while the other hand may be employed to work the reversing-segments.

Among the advantages possessed by this attachment, I may mention that it permits the oarsman to face the bow, and thus enables him to see his course. The momentum of the body on the return of the oar also assists the progress of the boat, instead of retarding it. An equal leverage is obtained throughout the stroke, and in life-boats the oars are entirely submerged, thus being free from interruption or disengagement on account of rough sea or careening of the boat; also, permitting the boat to be entirely covered over.

If desired, a number of these rowing attachments may be arranged in series and sepa-

ately operated or connected in series for operation by steam, and when so driven by steam no stoppage of the engine is required for the backing of the boat.

5 Having thus described my invention, what I claim as new is—

1. The oar-shaft E, having fixed blade *f* and hinged blades or wings *f' f'*, combined with a rock-shaft bearing a sleeve or journal 10 carrying said oar-shaft and crank-handles, and means for reversing said oar-shaft on its axis, substantially as described.

2. The combination of the rock-shaft D, having handles *c d* at one end and sleeve *e* at the 15 other, the oar-shaft E, with valvular blade and pinion *g* at its upper end, the toothed segment *h*, the arm *i*, and locking-bar *j*, substantially as shown and described.

3. The combination, with a boat, of the transverse frame fitting the bottom and sides 20 of the boat, and having journal-bearings on its upright portions and rowing attachments arranged in said upright parts, substantially as and for the purpose described.

4. The transverse frame B, having the seat 25 C, connected therewith and fitted transversely to the bottom and sides of the boat, in combination with rowing attachments carried by the upright parts of said frame, substantially as and for the purpose described.

SELDEN B. LARD.

Witnesses:

GEO. HALL,
O. D. HALL.