

No. 713,441.

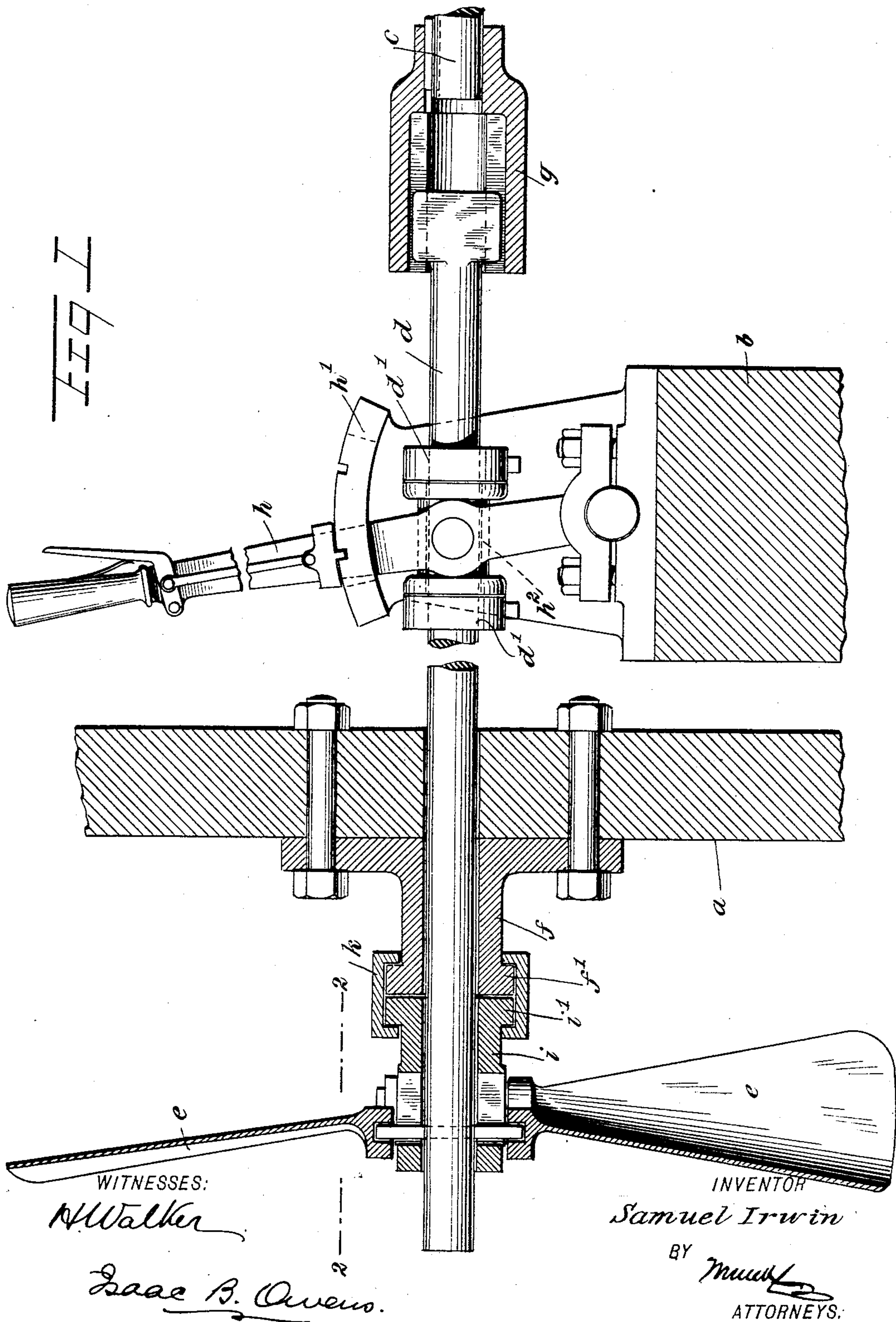
Patented Nov. 11, 1902.

S. IRWIN.
PROPELLER.

(Application filed Apr. 19, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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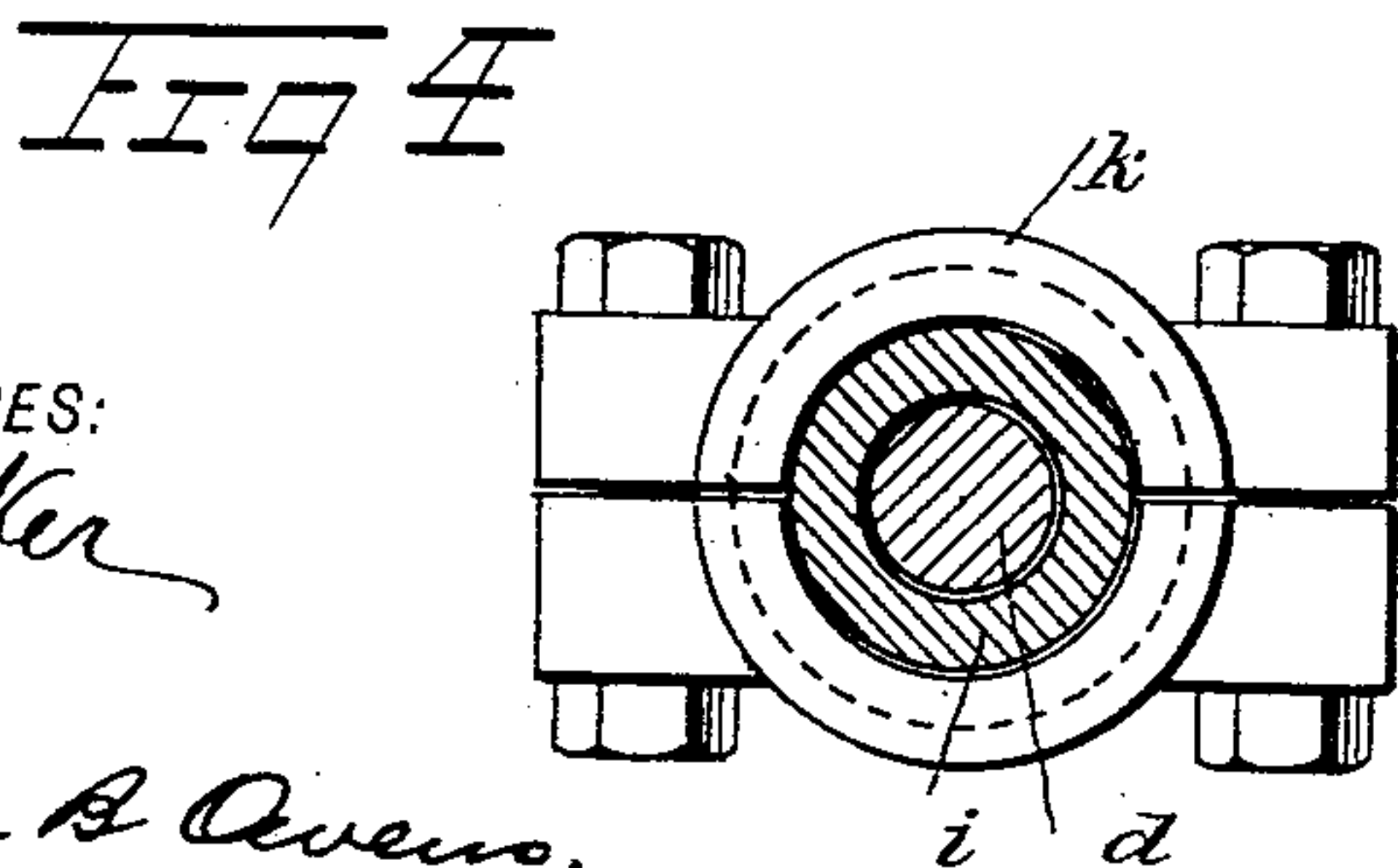
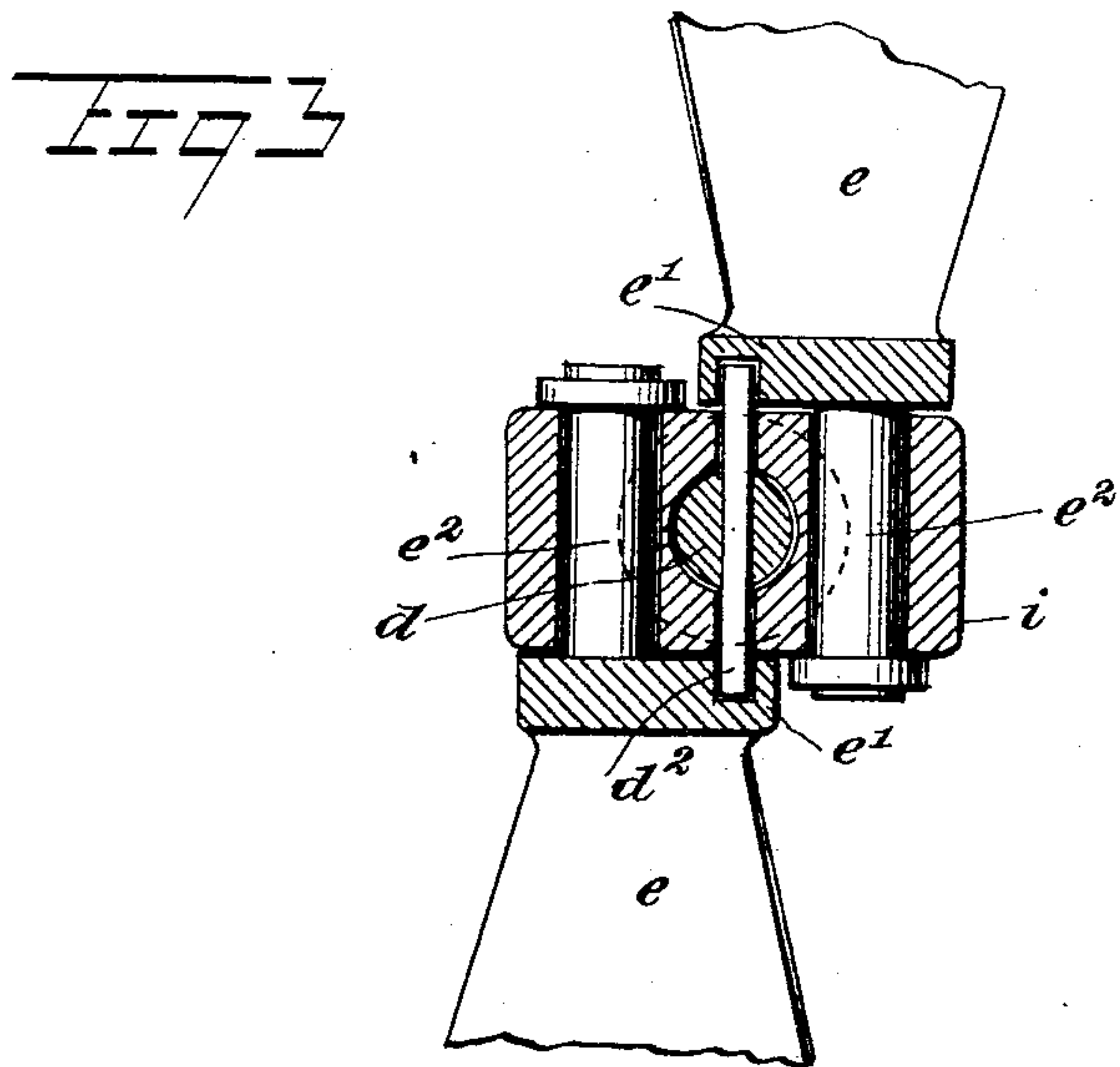
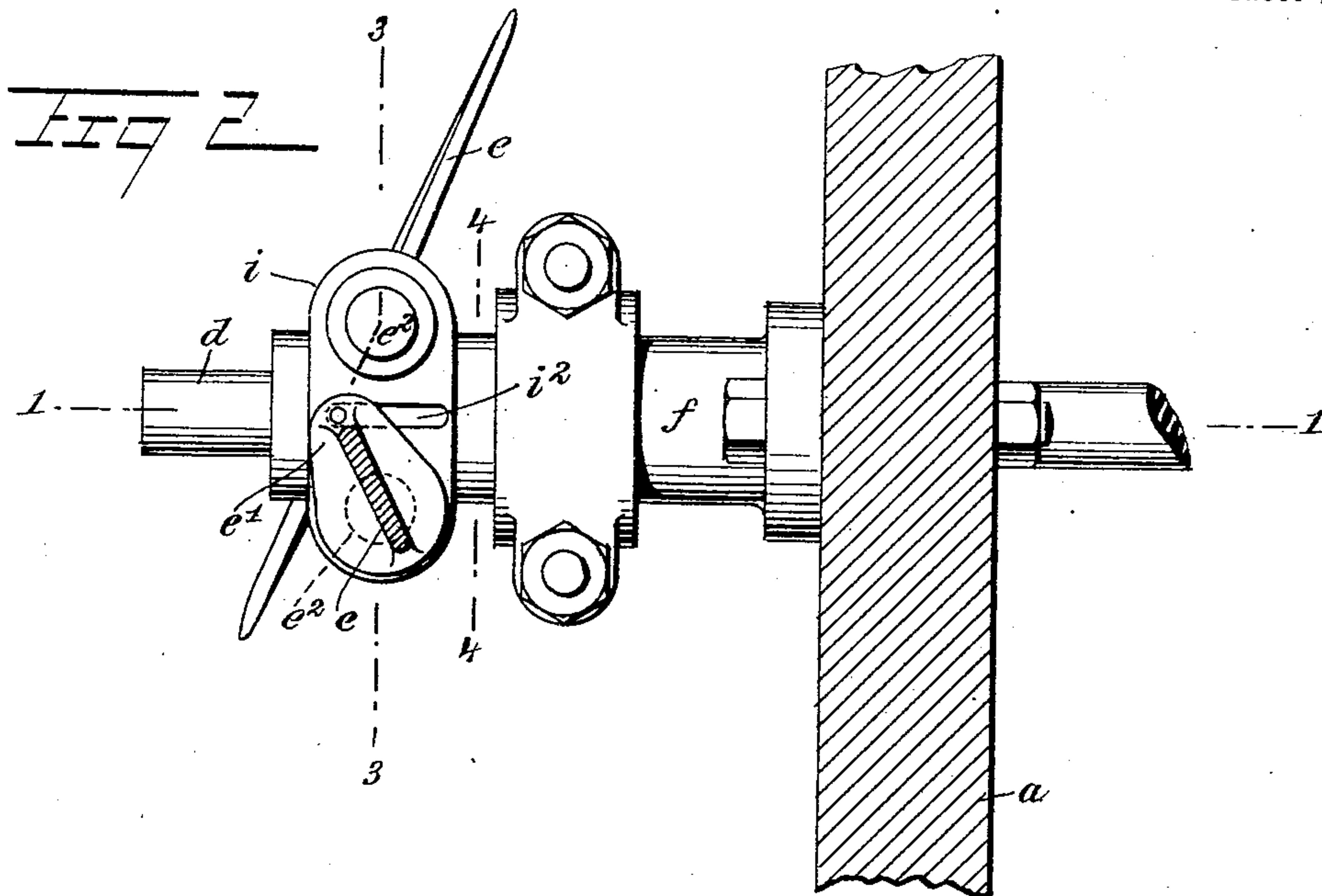
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2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL IRWIN, OF LINDSAY, CANADA.

PROPELLER.

SPECIFICATION forming part of Letters Patent No. 713,441, dated November 11, 1902.

Application filed April 19, 1902. Serial No. 103,686. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL IRWIN, a subject of the King of Great Britain, and a resident of Lindsay, Province of Ontario, and Dominion of Canada, have invented a new and Improved Propeller, of which the following is a full, clear, and exact description.

This invention relates to a screw-propeller of a certain construction which enables it to be reversed by a sliding movement of the propeller-shaft. It does not require the use of the hollow or tubular shaft usually employed in connection with the propeller-shaft in the usual reversing-propellers, and therefore requires the use of only one stuffing-box and other features incident to the two shafts. Further, it enables several reversible propellers to be mounted in tandem on the same shaft, thus securing great efficiency and at the same time the advantage of reversible propellers.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

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

Figure 1 is a sectional view taken longitudinally of the shaft on the line 1 1 of Fig. 2. Fig. 2 is a sectional plan view on the line 2 2 of Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 2, and Fig. 4 is a section on the line 4 4 of Fig. 2.

a indicates the stern-post of the vessel, and *b* one of the transverse frames or floor-timbers of the hull of the vessel.

c indicates the engine-shaft, and *d* the propeller-shaft.

e indicates the blades of the propeller.

The propeller-shaft *d* is mounted in a box *f* and is arranged to slide fore and aft of the vessel, a coupling being applied, as indicated at *g*, which allows the shaft *d* to slide, but rotates it, nevertheless, continuously from the shaft *c*.

h indicates a hand-lever mounted on the frame *b* and working with a quadrant *h'*. This hand-lever carries a collar *h²*, which bears between the collars *d'* on the shaft *d*, the collars *d'* being fast and the collar *h²* being loose on the shaft *d*.

The hub *i* of the propeller has a flange *i'*, which mates with a flange *f'* on the box *f*, and these two parts *i'* and *f'* are connected together, so that the hub may turn freely with the shaft *d* by means of a collar *k*.

Each blade of the propeller is provided with a cranked base *e'* and a pin *e²*. These pins *e²* are mounted rockably in the hub *i* transversely to the shaft *d*, while the cranks *e'* at the bases of the blades are engaged with the ends of a pin *d²*, such pin being carried by the shaft *d* transversely thereto and playing through a slot *i²* in the head *i*. Now it is clear that as the shaft *d* is slid in the hub *i* the pin *d²* throws the blades around the centers of the journals *e²*, and the blades may therefore be reversed, so as to drive the vessel forward or astern. The hub *i* turns with the shaft when the propeller operates, and it is held against longitudinal movement by its connection with the box *f*. From this it will be seen that merely the movement of the shaft *d* reverses the propeller. It will also be observed that the thrust of the propeller is borne principally by the stern-post of the vessel, such thrust as may be transmitted to the shaft *d* being received by the transverse timber *b*.

The invention is applicable particularly to small vessels, although, of course, it may be used on larger craft, if desired. The box *f* is applied outside of the stern-post.

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

1. The combination of a box, a hub juxtaposed thereto, said parts being formed with annular flanges, a collar inclosing said flanges rotatably to connect the hub to the box, propeller-blades adjustably mounted on the hub, a shaft longitudinally movable through the box and hub, and a connection between the shaft and the propeller-blades.

2. The combination of a box, a hub juxtaposed thereto, said parts being formed with annular flanges, a collar inclosing said flanges rotatably to connect the hub to the box, propeller-blades adjustably mounted on the hub, a shaft longitudinally movable through the box and hub, and a connection between the shaft and the propeller-blades, said connection comprising a pin carried transversely in

the shaft and projecting through longitudinal slots in the hub, said pin being engaged with the propeller-blades.

3. The combination of a gland, a hub, said
5 parts having annular flanges, a collar loosely inclosing the flanges revolubly to mount the hub, a shaft longitudinally movable in the hub, a pin carried transversely by the shaft, the ends of said pin being projected through
10 longitudinal slots in the hub, blades reversibly mounted on the hub, said blades having

cranked bases, and the pin of the shaft being loosely connected with the cranked or eccentric portions of said bases of the blade.

In testimony whereof I have signed my 15
name to this specification in the presence of two subscribing witnesses.

SAMUEL IRWIN.

Witnesses:

ALEX. JACKSON,
THOMAS WEBSTER.