

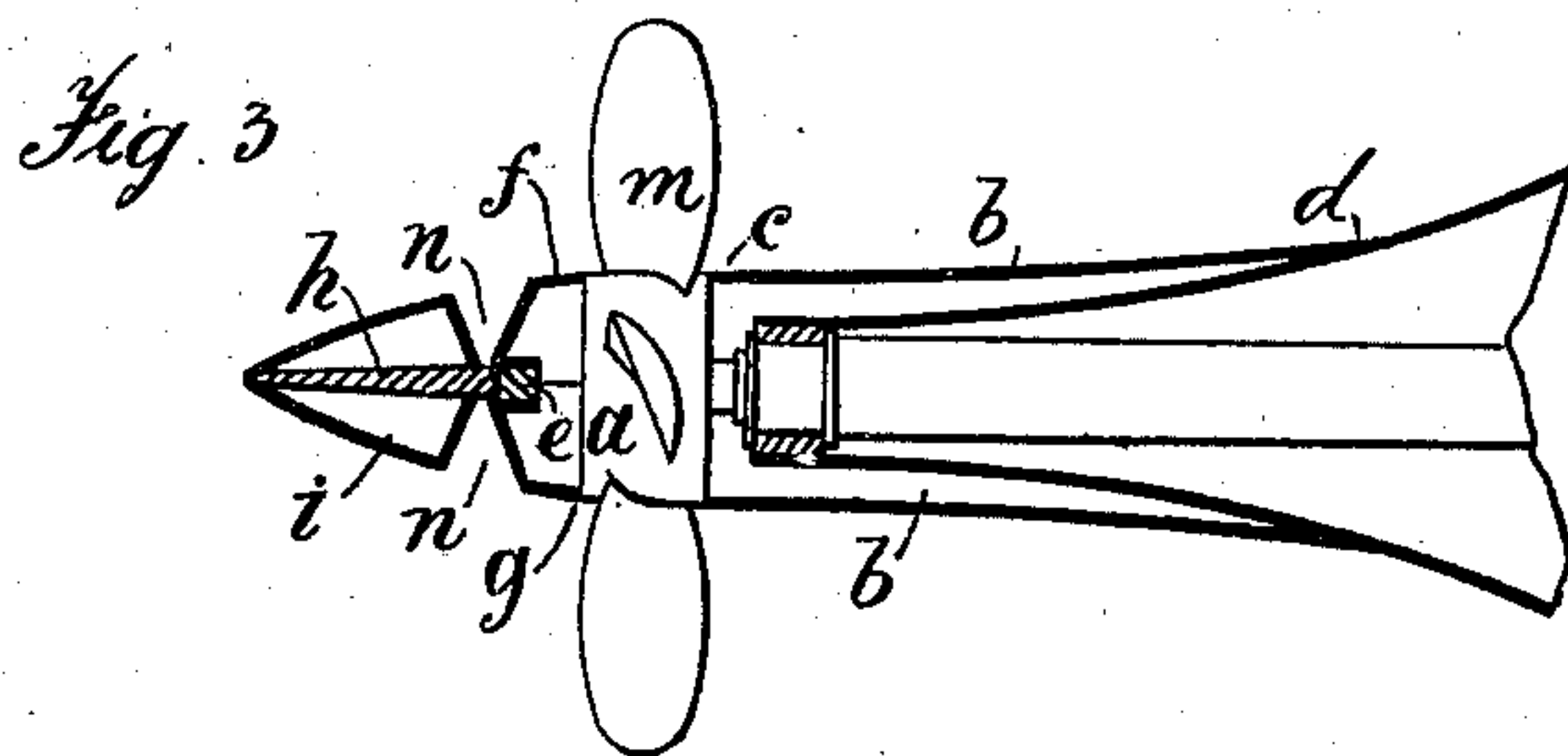
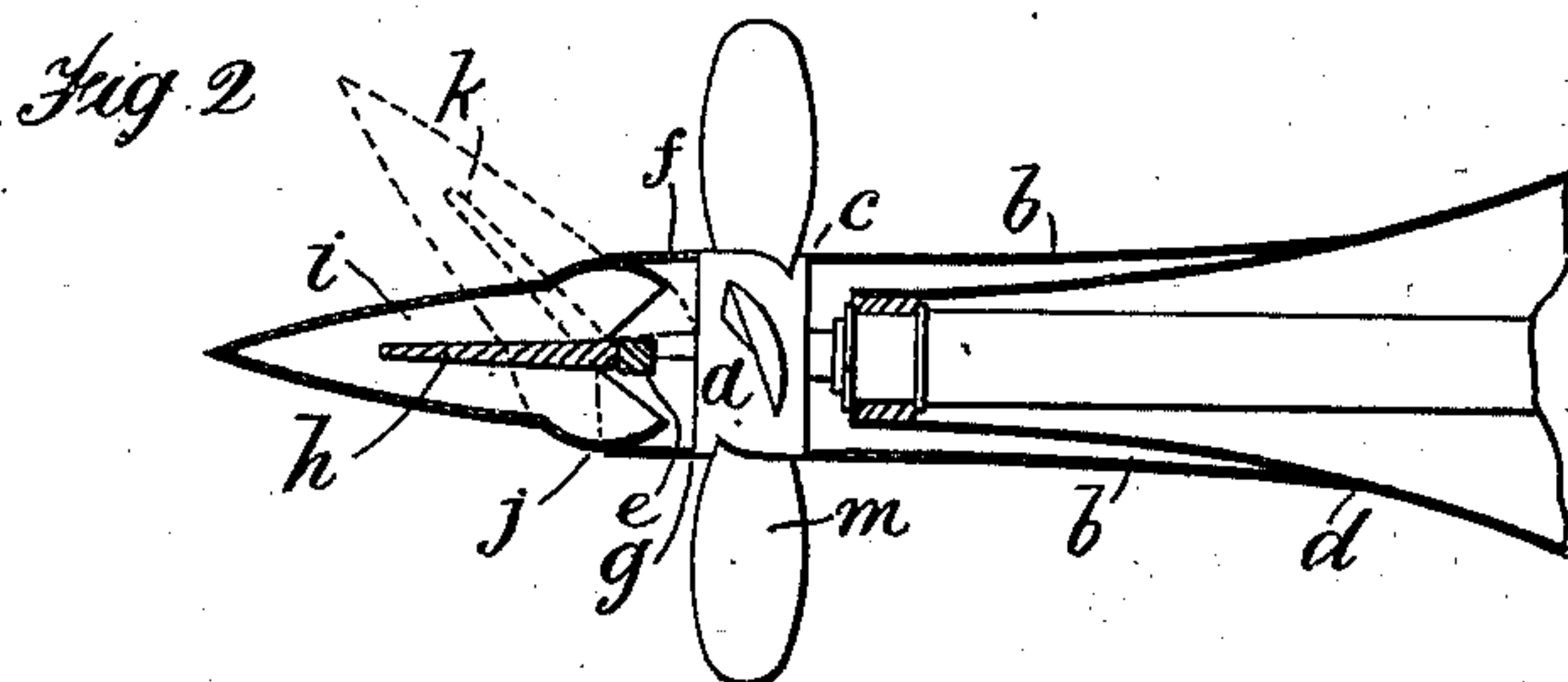
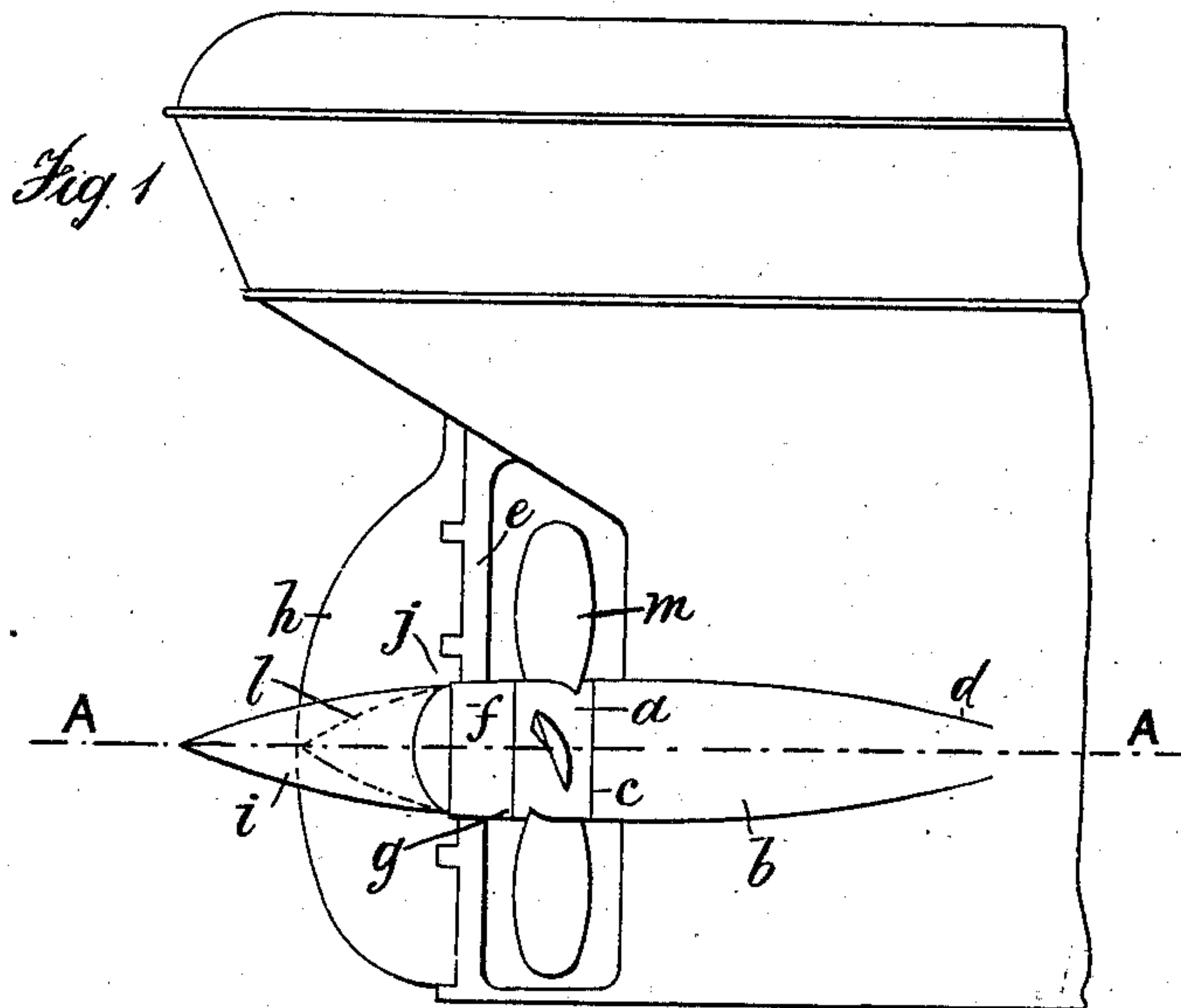
No. 666,077.

Patented Jan. 15, 1901.

W. M. WALTERS.
SCREW PROPELLER AND RUDDER.

(Application filed July 5, 1900.)

(No Model.)



Witnesses

W. B. Johnson
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Inventor

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UNITED STATES PATENT OFFICE.

WILLIAM MILLER WALTERS, OF LIVERPOOL, ENGLAND.

SCREW-PROPELLER AND RUDDER.

SPECIFICATION forming part of Letters Patent No. 666,077, dated January 15, 1901.

Application filed July 5, 1900. Serial No. 22,505. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILLER WALTERS, a subject of the Queen of Great Britain, residing at Liverpool, in the county of Lancaster, England, have invented new and useful Improvements Connected with Screw-Propellers and Rudders, of which the following is a specification.

In screw-propellers it is a well-known disadvantage that the parts of the blades near the boss are ineffective for propulsion, and they, together with the boss, cause considerable drag on the ship and also waste of power by churning of the water.

The object of this invention is to provide means whereby the above-mentioned disadvantages may be obviated. I attain this object by arrangements and construction of parts such as are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of part of the stern of a ship, showing the propeller and rudder. Fig. 2 is a horizontal section at the line A A on Fig. 1. Fig. 3 is a horizontal section of a modification.

Referring to Figs. 1 and 2, for the purposes of my invention I form the boss *a* of the propeller of comparatively large diameter, so as to include within its circumference that part of the area of the propeller-blades which is most ineffective—that is, the central part to an extent of about one-third the diameter of the propeller—and forward of the boss I form with or attach to the stern of the ship a piece *b*, which may be either tapering or cylindrical, with a circular base at *c* about equal in diameter to the boss *a* and with its forward portion or edges gradually merging into the lines of the ship at *d*. Behind the boss *a* I affix, preferably to the rudder-post *e*, a piece *f*, with a circular base at *g* equal in diameter to the boss *a*. The piece *f* may be cylindrical or, as shown, may taper somewhat aft. On the rudder *h* I affix a tapering or conical piece *i*, with its base at *j* nearly equal in diameter to the after end of the piece *f* on the rudder-post. The base of the piece *i* is made spherical and the end of the piece *f* is made hollow, so as to form a ball-and-socket joint, which will allow of the rudder *h* and piece *i* being moved to one side or the other for steering purposes, as shown by dotted lines *k*, without liability

of the piece *i* becoming fouled or jammed with the piece *f*. The tapering or conical pieces *b f i* may be made of wood or hollow metal and arranged to form buoyancy-spaces. The piece *i* instead of having its end projecting beyond the rudder, as shown by the solid lines, may be shorter, so as not to project beyond the rudder, as shown by the dotted lines at *l*. The piece *i* may form part of the rudder. By the above arrangements water is directed in easy flowing lines past the enlarged boss *a*, and there are no projections or abrupt changes of surfaces to cause eddies or drag on the ship. The propeller-blades *m* spring from the boss at an effective angle, so that there is no loss by churning the water in a circular direction.

Referring to Fig. 3, in this modification the parts and arrangements are the same as in Figs. 1 and 2, excepting that instead of the parts *f* and *i* forming a ball-and-socket joint such pieces are cut away or formed so as to leave V-shaped spaces at *n* to allow sidewise motion of the rudder.

The enlarged diameter of the boss *a* allows of a number of blades *m*, more than four being conveniently attached to such boss, and by using a considerable number of blades the vibration caused by the propeller is greatly reduced.

What I claim, and desire to secure by Letters Patent, is—

1. In combination with a screw-propeller, stationary pieces on the ship forward and aft of the propeller, the bases of the pieces being of approximately equal diameter to the boss of the propeller, and a conical or tapering piece on the rudder, the piece on the ship aft of the propeller and the piece on the rudder being arranged to allow lateral motion of the rudder and piece thereon, substantially as described.

2. In combination with a screw-propeller, stationary pieces on the ship forward and aft of the propeller, the bases of the pieces being of approximately equal diameter to the boss of the propeller, and a conical or tapering piece on the rudder, the base of the piece on the rudder being adapted to move within the piece on the ship aft of the propeller to allow lateral motion, substantially as described.

3. In combination with a screw-propeller a

stationary piece on the ship aft of the pro-
peller the base of the piece being of approxi-
mately equal diameter to the boss of the pro-
peller, and a conical or tapering piece on the
5 rudder, the base of the piece on the rudder
and the after end of the stationary piece be-
ing arranged to form a ball-and-socket joint,
substantially as described.

In testimony whereof I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

WILLIAM MILLER WALTERS.

Witnesses:

W. B. JOHNSON,
R. CRAIL.