

No. 711,021.

Patented Oct. 14, 1902.

S. W. THAXTER.
REVERSIBLE PROPELLER.

(Application filed May 21, 1902.)

3 Sheets—Sheet 1.

(No Model.)

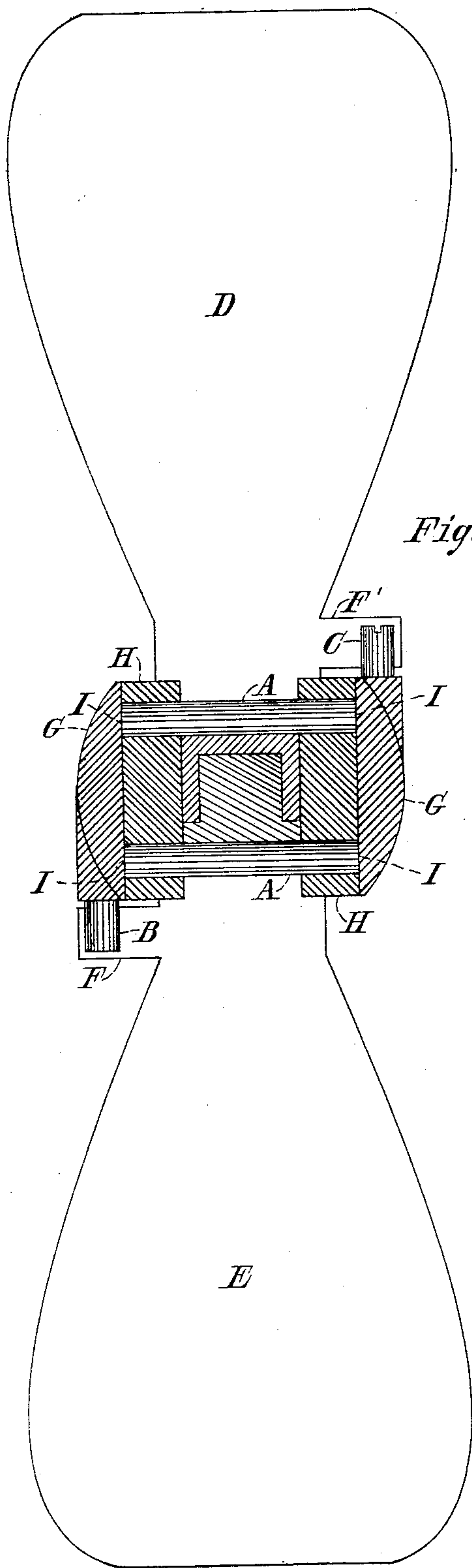


Fig. 1.

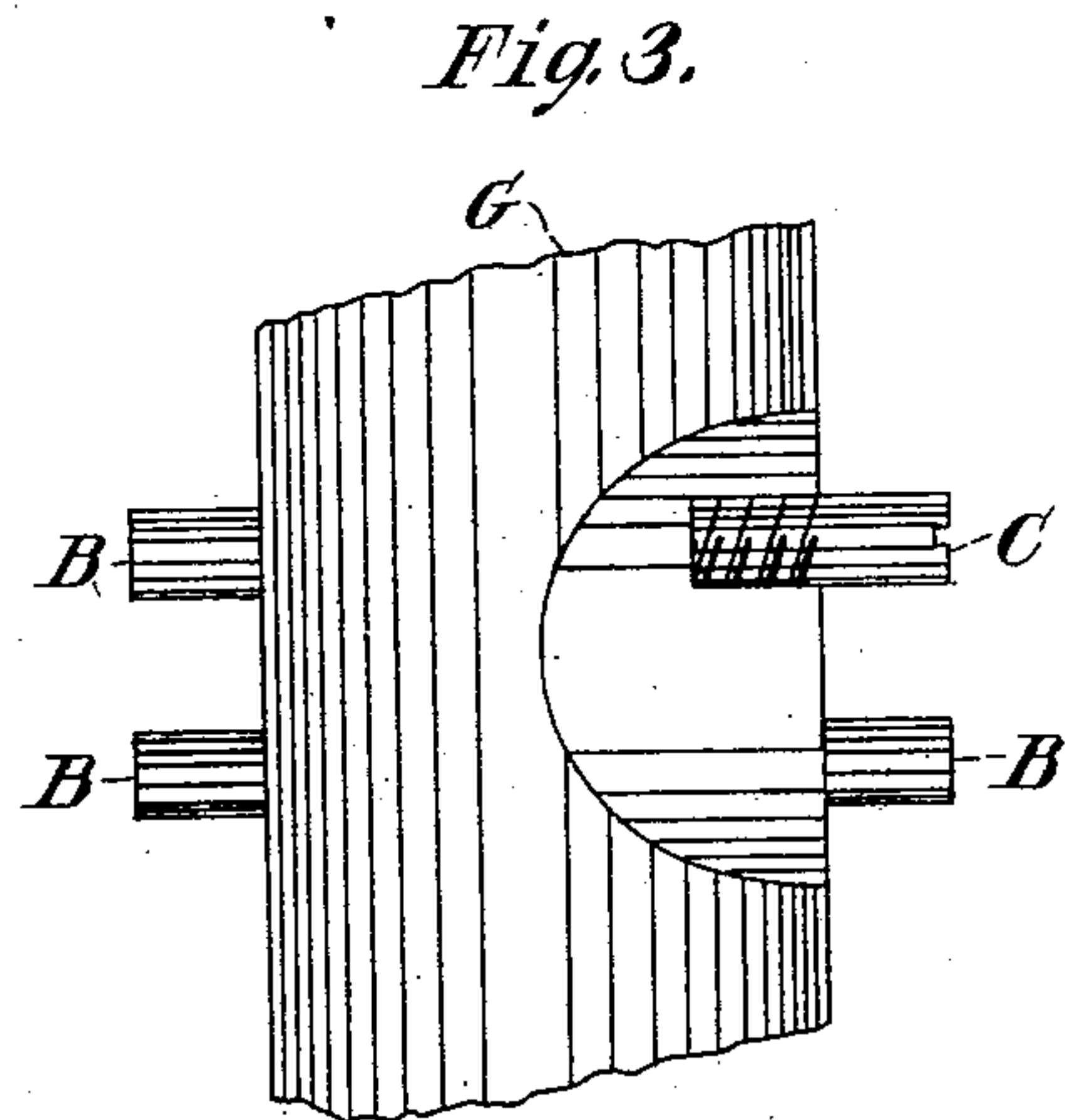


Fig. 3.

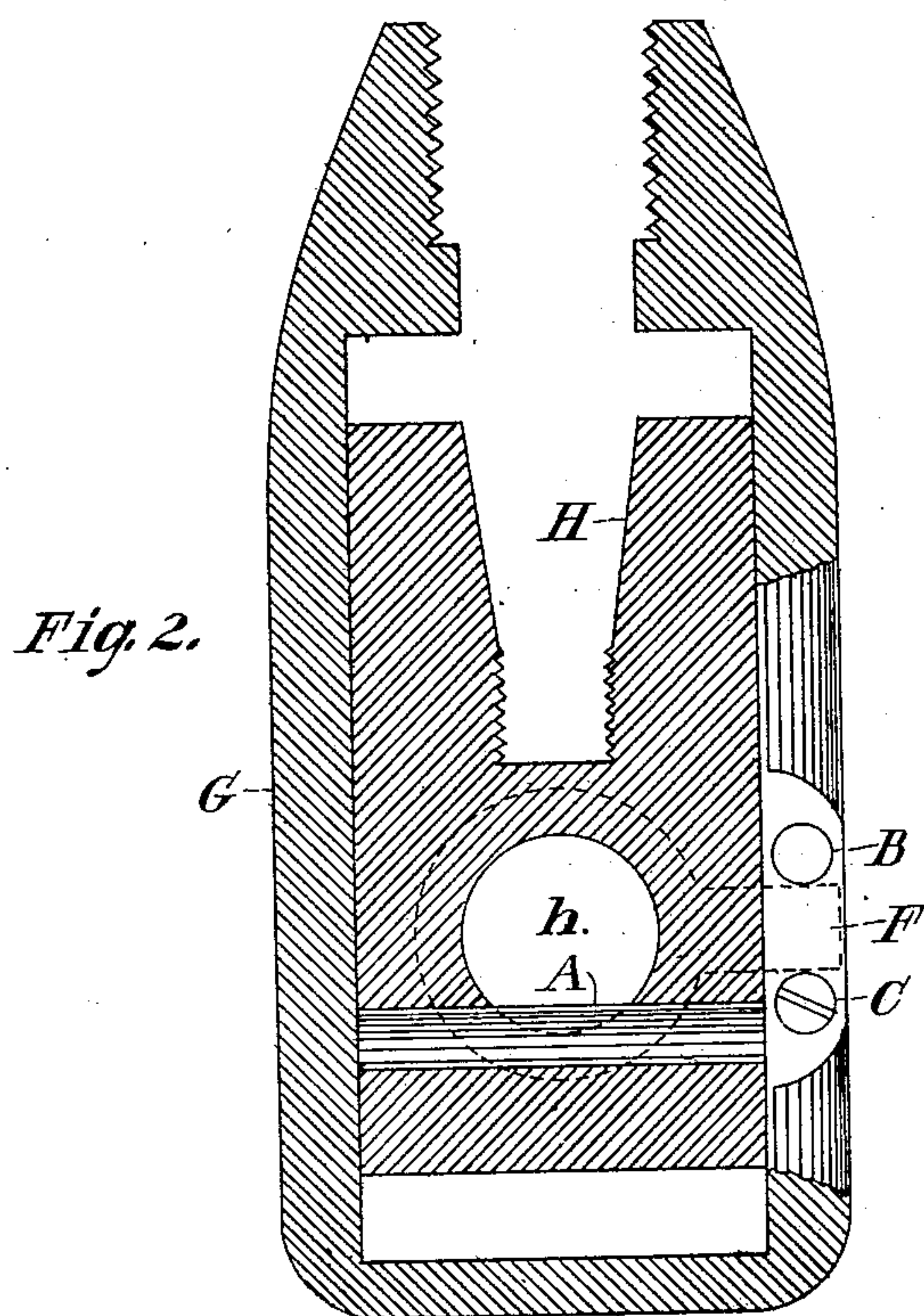


Fig. 2.

Witnesses.
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Fig. 5.

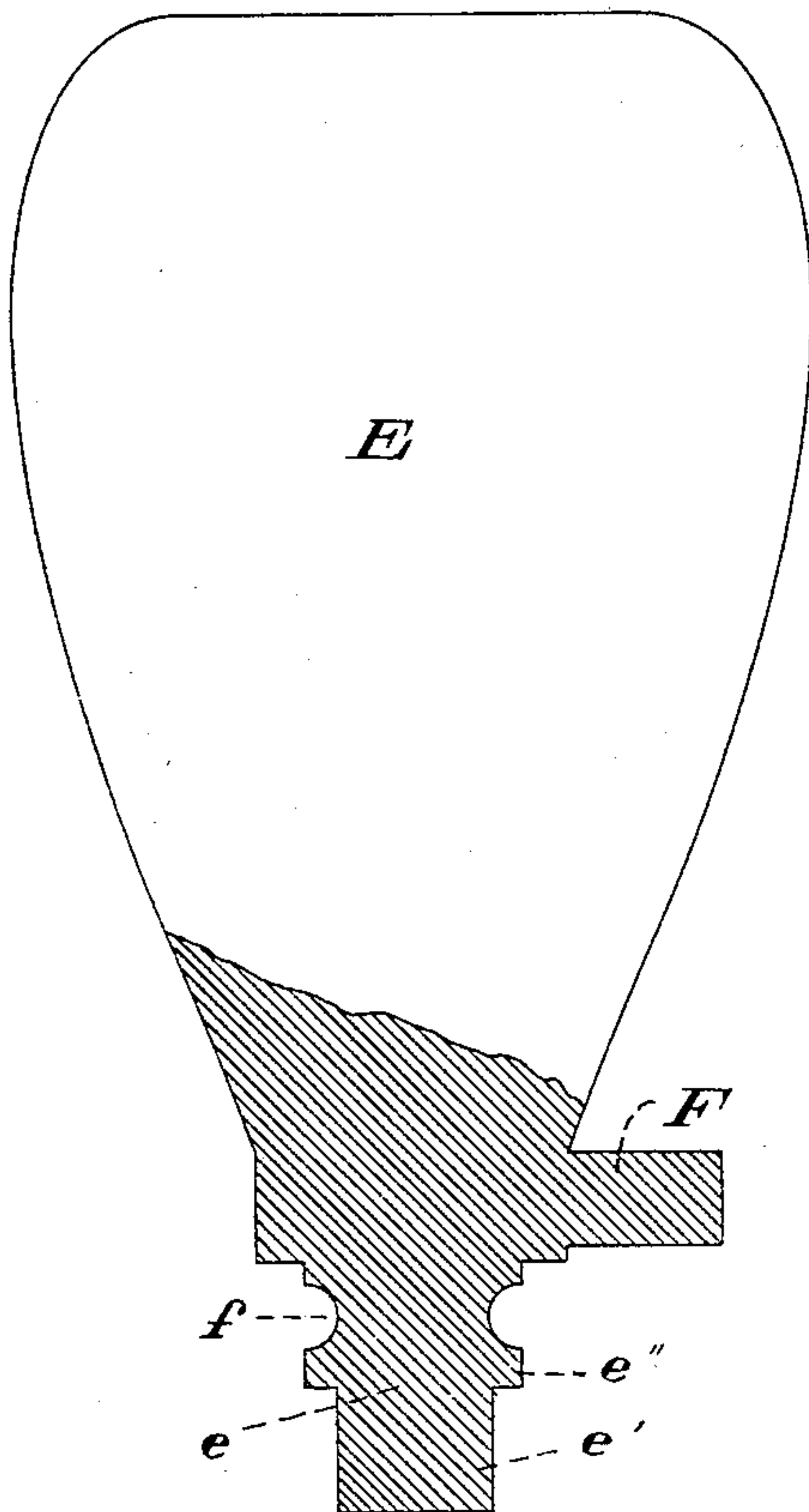
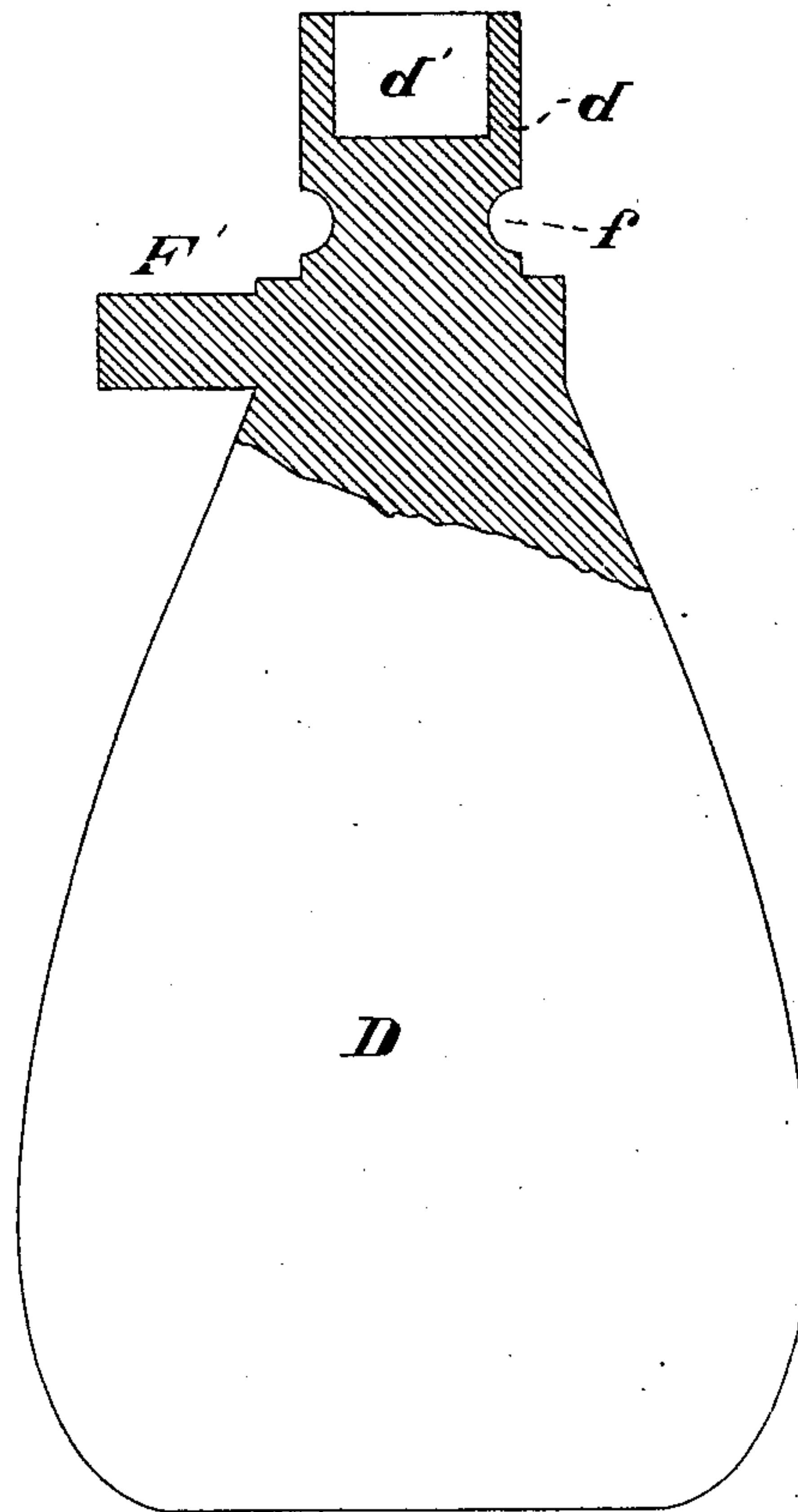


Fig. 4.



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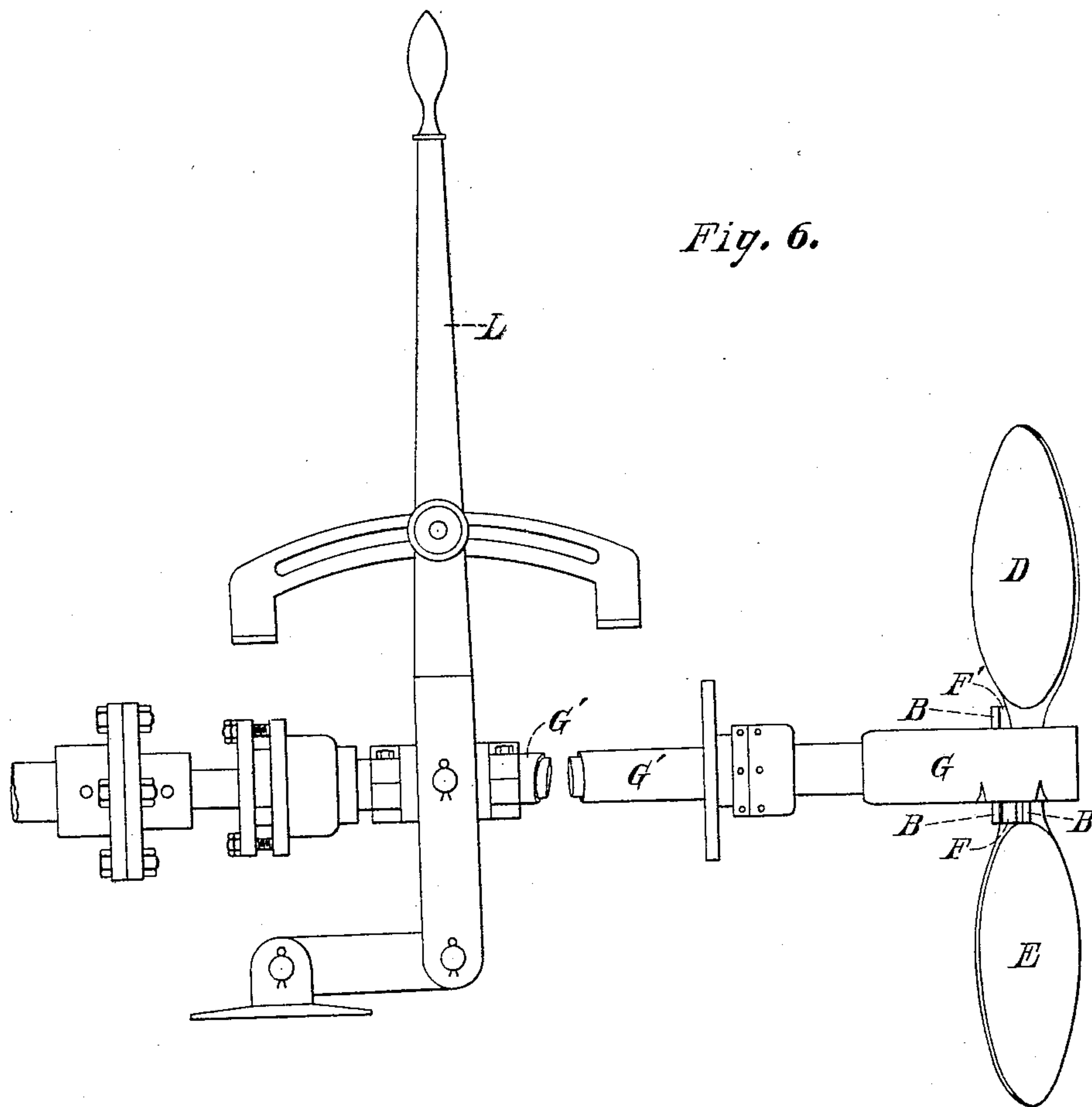
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Witnesses
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UNITED STATES PATENT OFFICE.

STORER W. THAXTER, OF BANGOR, MAINE.

REVERSIBLE PROPELLER.

SPECIFICATION forming part of Letters Patent No. 711,021, dated October 14, 1902.

Application filed May 21, 1902. Serial No. 108,355. (No model.)

To all whom it may concern:

Be it known that I, STORER W. THAXTER, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Reversible Propellers; and I 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.

My invention consists of an improved reversible propeller, and is fully illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of blades with block, sliding sleeve, and shanks in section. Fig. 2 is a longitudinal section of block and of a part of sliding sleeve, but showing a part of one edge of sleeve and the removable pin and one of the fixed pins in plan, the dotted lines showing the radial arm in engagement with pins on sliding sleeve. Fig. 3 is a plan of part of sleeve with a small portion broken away to show how the removable pin is screwed down. Fig. 4 is an elevation of the blade D with shank and radial arm in section. Fig. 5 is an elevation of the blade E with shank and radial arm in section. Fig. 6 is a side elevation of propeller with shaft, sleeves, and lever.

Similar letters refer to corresponding parts throughout the figures.

My objects are to provide a means of holding the reversible blades of the propeller, a means of holding and operating the radial arms which reverse the blades, and a means of connecting and locking the shanks of the blades, so that while they may be turned independently of each other the shanks may form a continuous connection between the blades.

I provide a block H, preferably in the shape of a square prism, into the forward end of which the tail of the propeller-shaft is firmly screwed. The block H is bored transversely at *h* to receive the shanks *d e* of the propeller-blades D E. The end of the shank *d* is formed with a socket *d'* to receive the head *e'* of the shank *e*, and the shank *e* is formed with head *e'* and shoulder *e''*, so that when the head *e'* is fitted into the socket *d'* the shanks of the two blades are socketed together and mutually support each other and distribute

the strain through the combined length of the two shanks, which are also formed with a half-round circumferential groove near the blades at *ff* for the purpose hereinafter described.

Two holes are bored through the block at I I in such position as that they shall coincide with the grooves *ff* in the shanks and admit the entrance of the lock-pins A A, whereby the blades when socketed together are locked together in the block, as shown in Fig. 1, but may still be rotated on their longitudinal axes independently of each other.

At the beginning of the shank on each blade are formed radially-projecting arms F F', the arm F shaped to rest between the two fixed pins B B, projecting from one edge of the sleeve G, and the arm F' between the fixed pin B and the removable pin C on the diagonally opposite edge of the sleeve G.

As in similar devices an outer sleeve G' surrounds the main shaft for a portion of its length and is rigidly connected at its rear end with the forward end of the sleeve G and is operated longitudinally by a hand-lever L, and when so operated the pins B B and B C, engaging with the radial arms F F', turn the blades D E to reverse the action of the propeller.

To take down the propeller, remove the pin C, turn the blade D so that the radial arm F' will not strike the sleeve G, drop the block H, with the blades attached, through the sleeve G far enough to be able to drive out the pins A A, when the blades D and E can be removed, and the propeller is then in its component parts. The parts are assembled by reversing this process.

The advantages of my device lie in socketing the shanks of the blades and locking them together, thus forming a very rigid connection and affording a continuous bearing for the united shanks through the whole width of the block and enabling each shank to assist in supporting the other; in the fact that one removable part only—viz., the pin C—is exposed when the parts are assembled and the propeller is in operation and that it is practically impossible for this pin to come out after being screwed down, as at this point there is no jar to disturb it; in the fact that no other part can get out of position until

the pin C is removed and the block removed from the sleeve, and in the ease with which the parts can be assembled and taken apart.

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

1. In a reversible propeller the combination of two propeller-blades having their shanks shaped and adapted to socket together in a bore in a block or bearing, each shank having an annular circumferential groove near the junction of the shank and blade; a block or bearing bored to receive said shanks of said blades and having two smaller bores at right angles to said first bore concentric with the grooves in said shanks and two lock-pins adapted to fit said two bores and said grooves.

2. In a reversible propeller the combination of a transversely-bored block rigidly attached

to the propeller-shaft; two propeller-blades the shanks of which are adapted to socket together in the transverse bore of said block, each shank being circumferentially grooved and having a radially-projecting arm; a sleeve fitting the sides and surrounding the ends of said block and sliding longitudinally thereon; two fixed pins on one edge of said sleeve and one fixed and one removable pin on the diagonally opposite edge of said sleeve, each pair of pins so placed as to engage one of said radially-projecting arms; and two lock-pins engaging the grooves in said shanks through bores in said block coincident and concentric with said grooves.

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Witnesses:

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