

W. P. MAXSON.
ROTARY PUMP AND ENGINE.

No. 174,373.

Patented March 7, 1876.

Fig. 1.

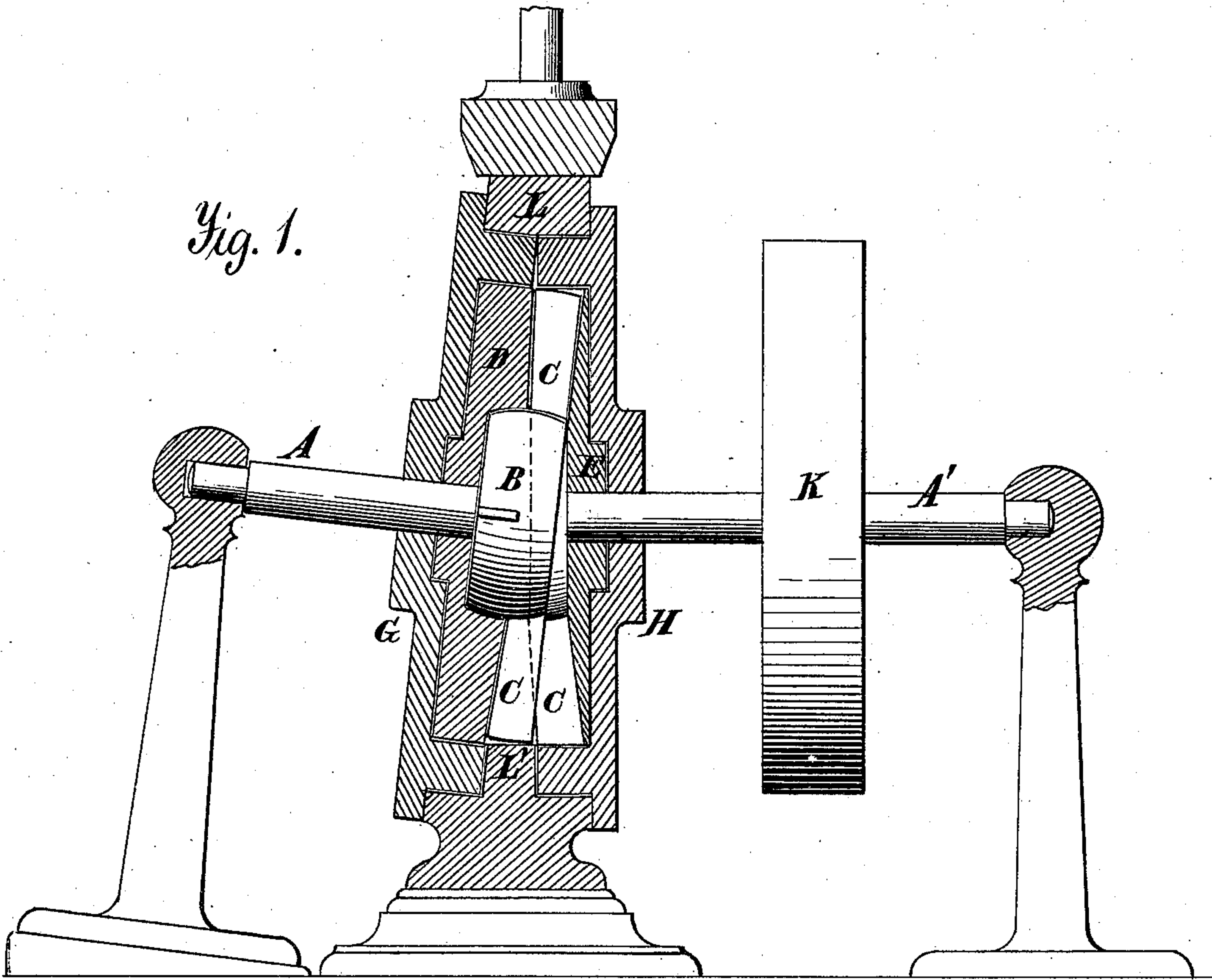
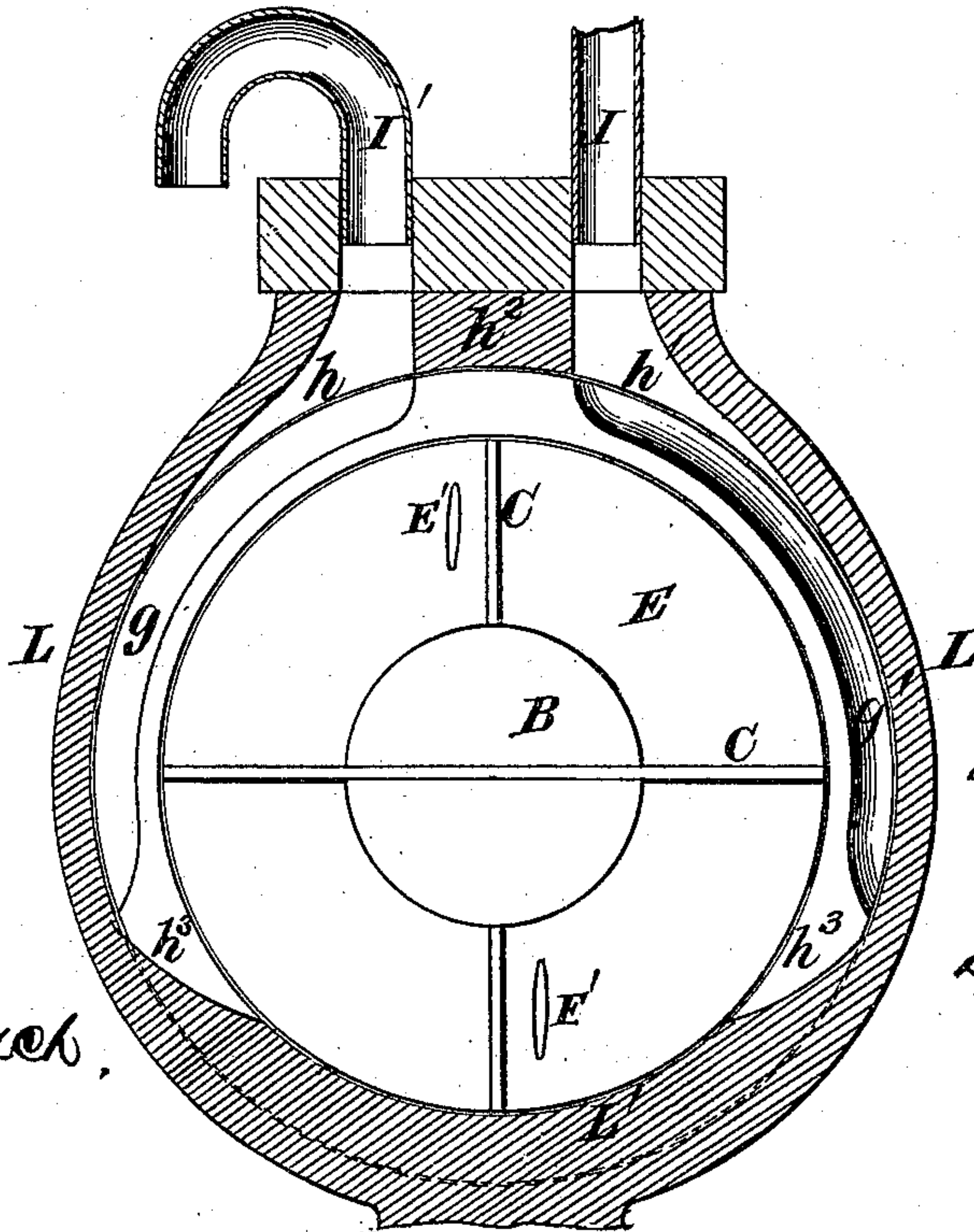


Fig. 2.



Witnesses.
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Harvey O. Birch.

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Fig. 3.

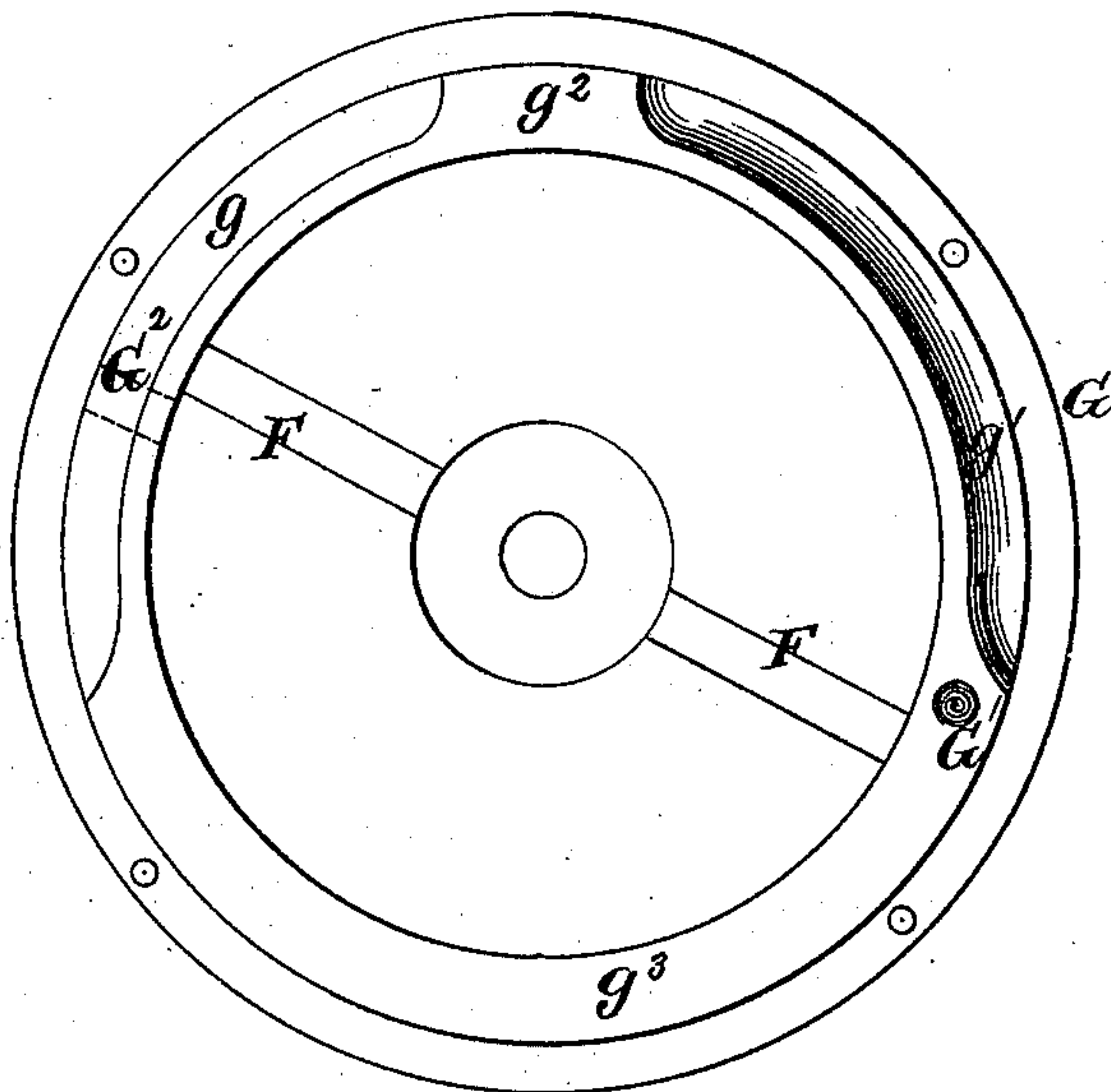


Fig. 4.

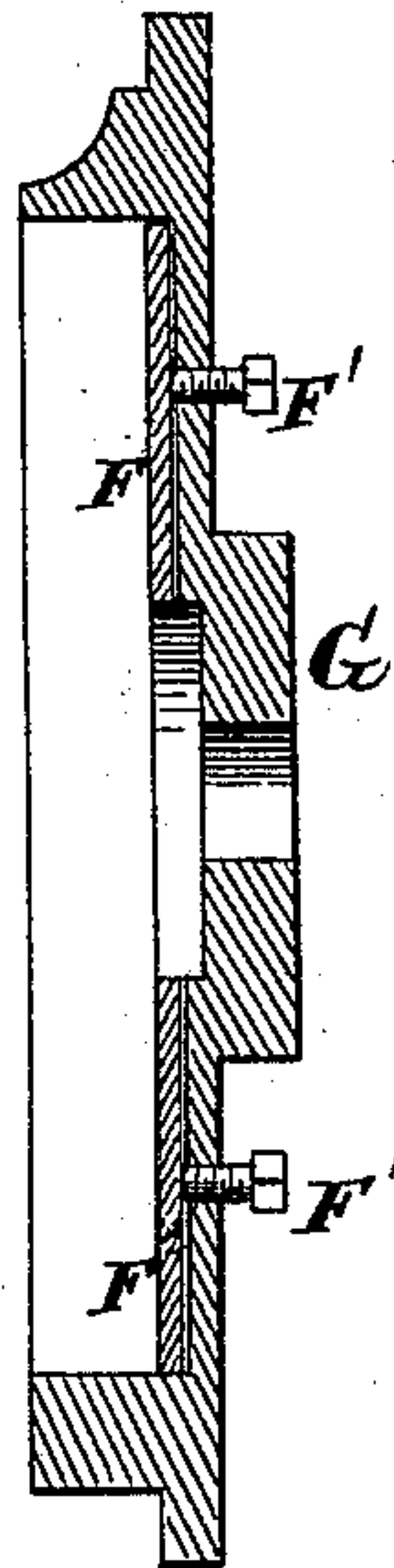


Fig. 5.

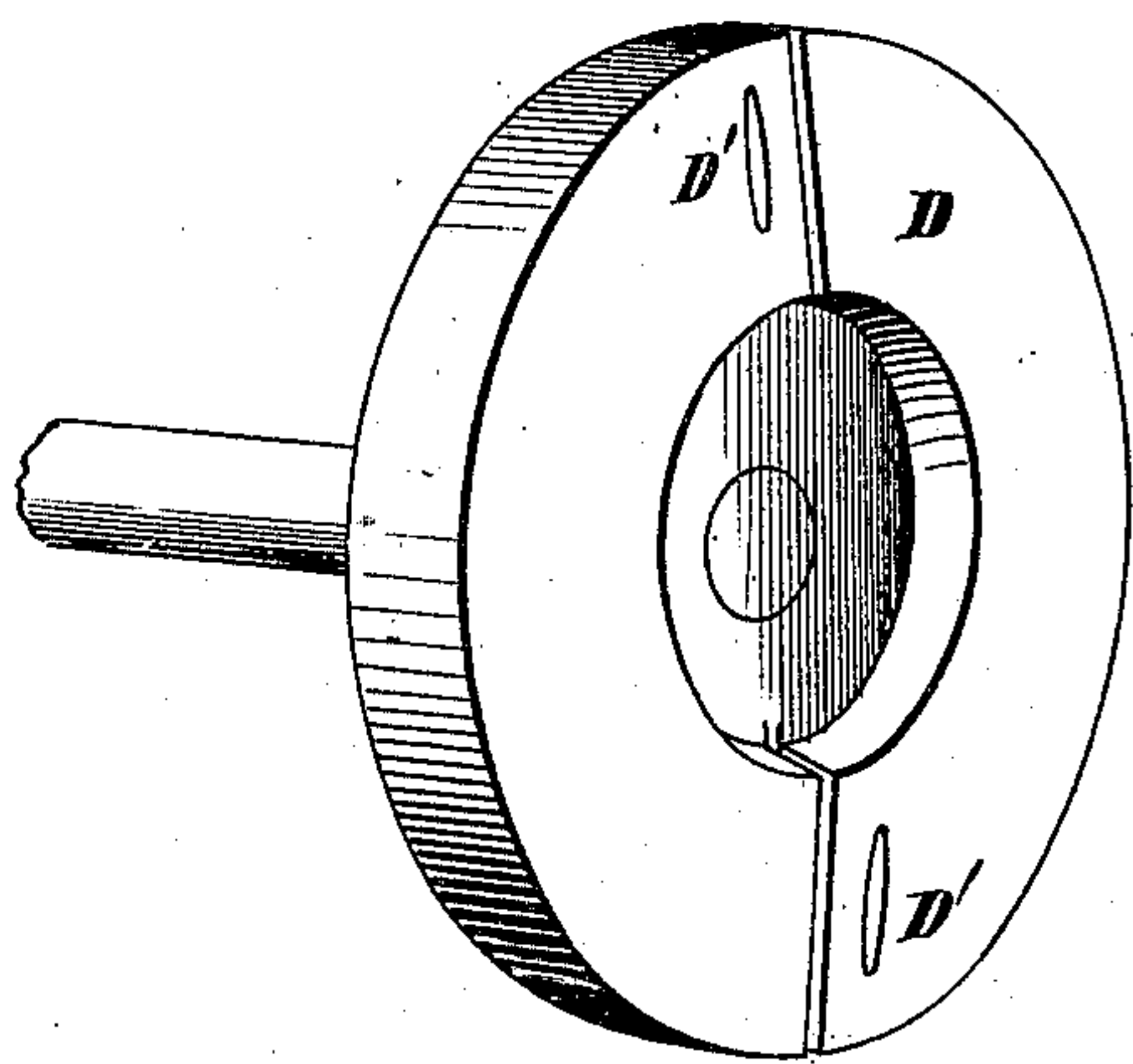


Fig. 6.

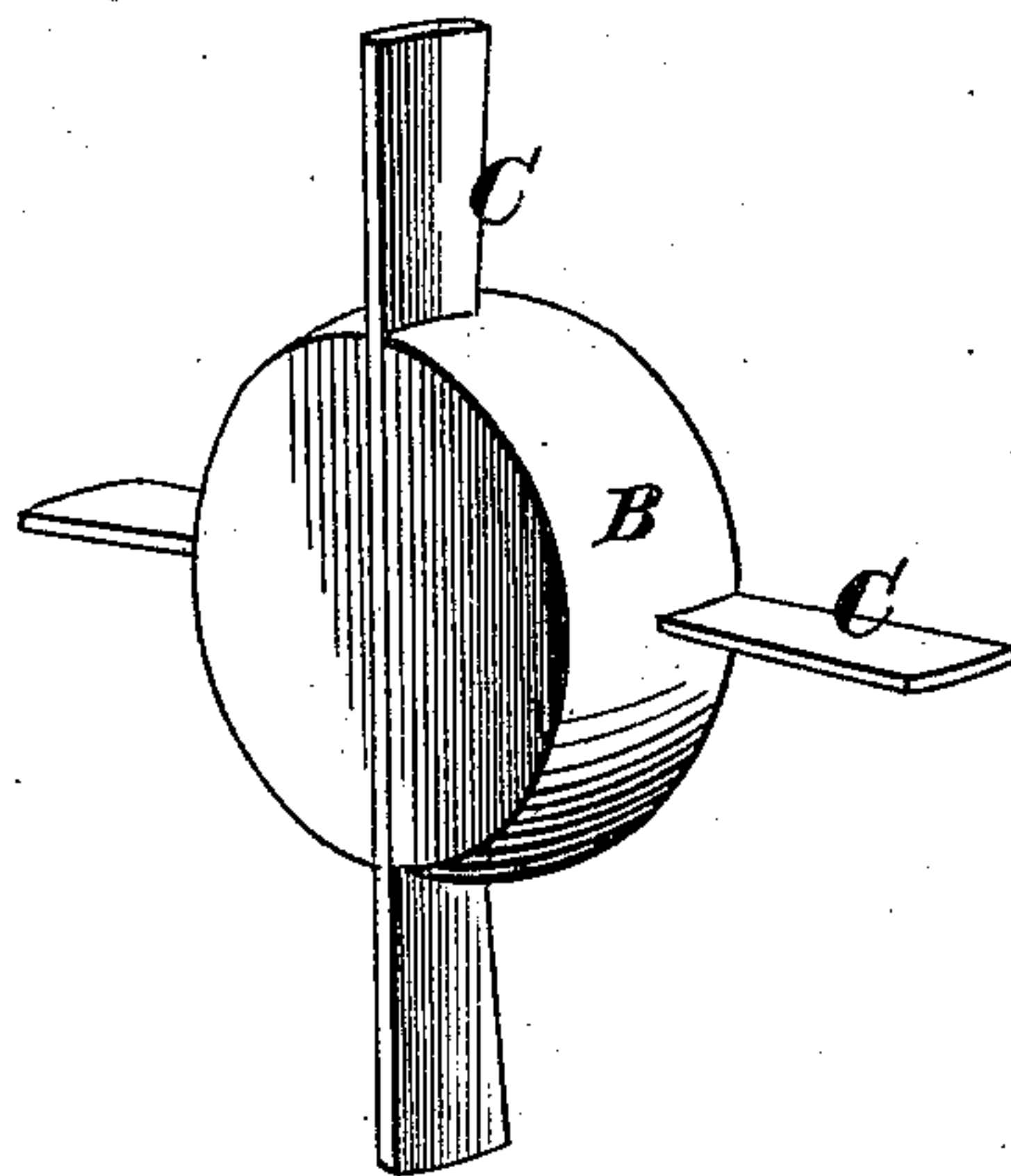
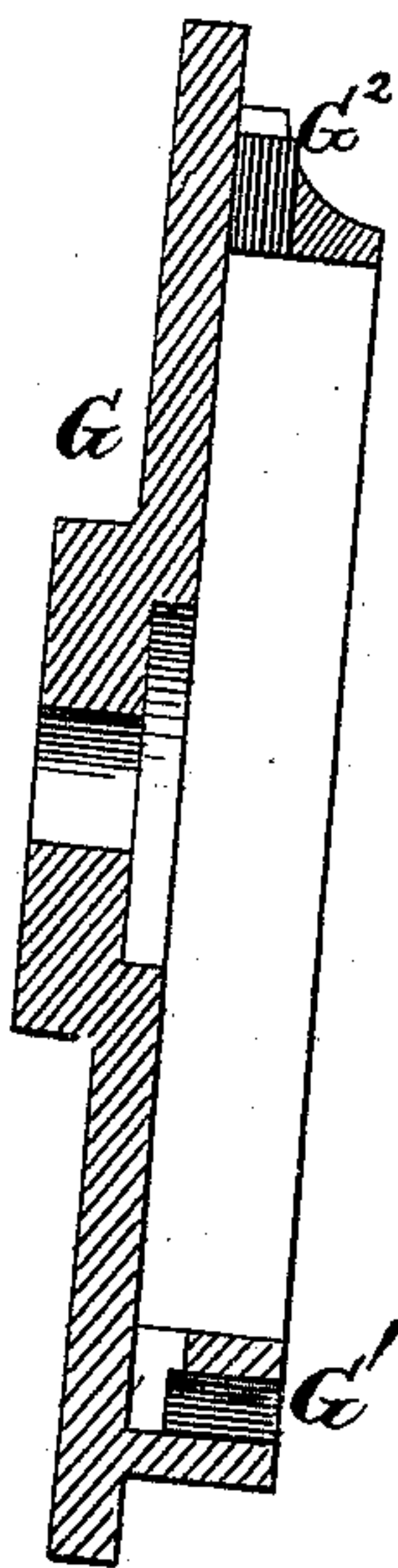


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM P. MAXSON, OF ELMIRA, NEW YORK.

IMPROVEMENT IN ROTARY PUMPS AND ENGINES.

Specification forming part of Letters Patent No. 174,373, dated March 7, 1876; application filed October 26, 1875.

To all whom it may concern:

Be it known that I, WILLIAM P. MAXSON, of Elmira, in the county of Chemung and State of New York, have invented new and useful Improvements in Rotary Pumps and Engines, of which the following is a specification:

In the annexed drawings making part of this specification, Figure 1 is a vertical transverse section. Fig. 2 is a section cutting the wheels radially. Fig. 3 is an elevation of one of the caps. Fig. 4 is a section of the same. Fig. 5 is a perspective view of one of the wheels. Fig. 6 is a perspective view of the hub and metallic wings. Fig. 7 is a section of the same cap, as in Figs. 4 and 5, but on a different plane.

The same letters are employed in all the figures in the indication of the same parts.

The two inclined shafts A A' are respectively attached to the wheels D and E cored out at the center, with radial grooves across their faces at right angles to one another, to receive the hub B, which carries two metallic wings, C C, set at right angles to one another across the opposite faces of the hub, as clearly shown in Fig. 6, and received in the radial slits in the inclined wheels D and E. As the wheels D and E are rotated their upper edges are brought close together at the top, and a space is continually maintained between them below. The depth of the radial slits in the inclined wheels is sufficient to allow the hub B to oscillate in both directions, so that when the wheels D and E approach at the top they will force in the end of the wing C on that side, and at the same time project the opposite end to fill the wider space left between the wheels below. Thus the wings C and hub B will be continually oscillated as the ends of the wings are alternately carried up.

Grooves E' D' are cut in front of the radial slits to form sand-buckets in front of the wings C. G and H are two caps, bolted to a ring, L, forming a chamber wider at the bottom than at the top, to receive the inclined wheels, which run within the flanges on the inner and opposed faces of the caps. These flanges are cut away, as shown at $g g^1$ and $h h^1$, be-

ing left full at the top at g^2 and h^2 , where the flanges come together to form a partition between the induction and eduction pipes I' I, and also at the bottom at g^3 and h^3 , where they respectively fit against the opposite faces of the central rib L'.

In order to relieve from pressure and friction, communications are formed between the ducts $g h$ and $g^1 h^1$ and the chambers back of the wheels; holes are formed in the flanges of the caps, as shown at G^1 and G^2 , through which water may pass, and to prevent the passage of sand in the water these holes should be filled with porous plugs.

Plates F F are set in recesses in the faces of the caps, which may be set out, by means of set-screws F', against the backs of the inclined wheels D and E, to prevent leakage, and adjusted from time to time as the surfaces wear.

The machine may be employed as a rotary pump or as a rotary engine, to be driven by a belt on the pulley K or to communicate power through the same means.

The operation is as follows: I being the eduction and I' the induction pipe, receiving water from the well or other reservoir, as the wing at the top descends it is forced out, carrying the water in front of it down through the chamber formed between the wheels, and drawing in a fresh supply behind it, to be in turn carried forward before the next wing in series, and transferred to the other side of the case, and expelled through the eduction-pipe.

When used as an engine, the steam is let on at I, and, striking upon the plates, forces them around, and is discharged at I', communicating power to the shafts.

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

1. The wheels D E and hub B and wings C, combined and arranged to operate in relation to each other within the case, substantially as set forth.

2. The combination of the induction and eduction pipes, and recesses $g h$ and $g^1 h^1$, and inclined wheels, and hub and wings, substantially as set forth.

3. The openings $G^1 G^2$ through the flanges

of the side pieces, in combination with the water-ways and the chamber between the wheels and side pieces, substantially as set forth.

4. In combination with the chambers and openings G^1 G^2 , the plugs of porous material, substantially as set forth.

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

WILLIAM P. MAXSON.

Witnesses:

N. P. FASSETT,

E. A. TOUSEY.