

(No Model.)

A. G. BRUST & W. H. DOUGLAS.
Double Acting Pump.

No. 239,436.

Patented March 29, 1881.

Fig. 1.

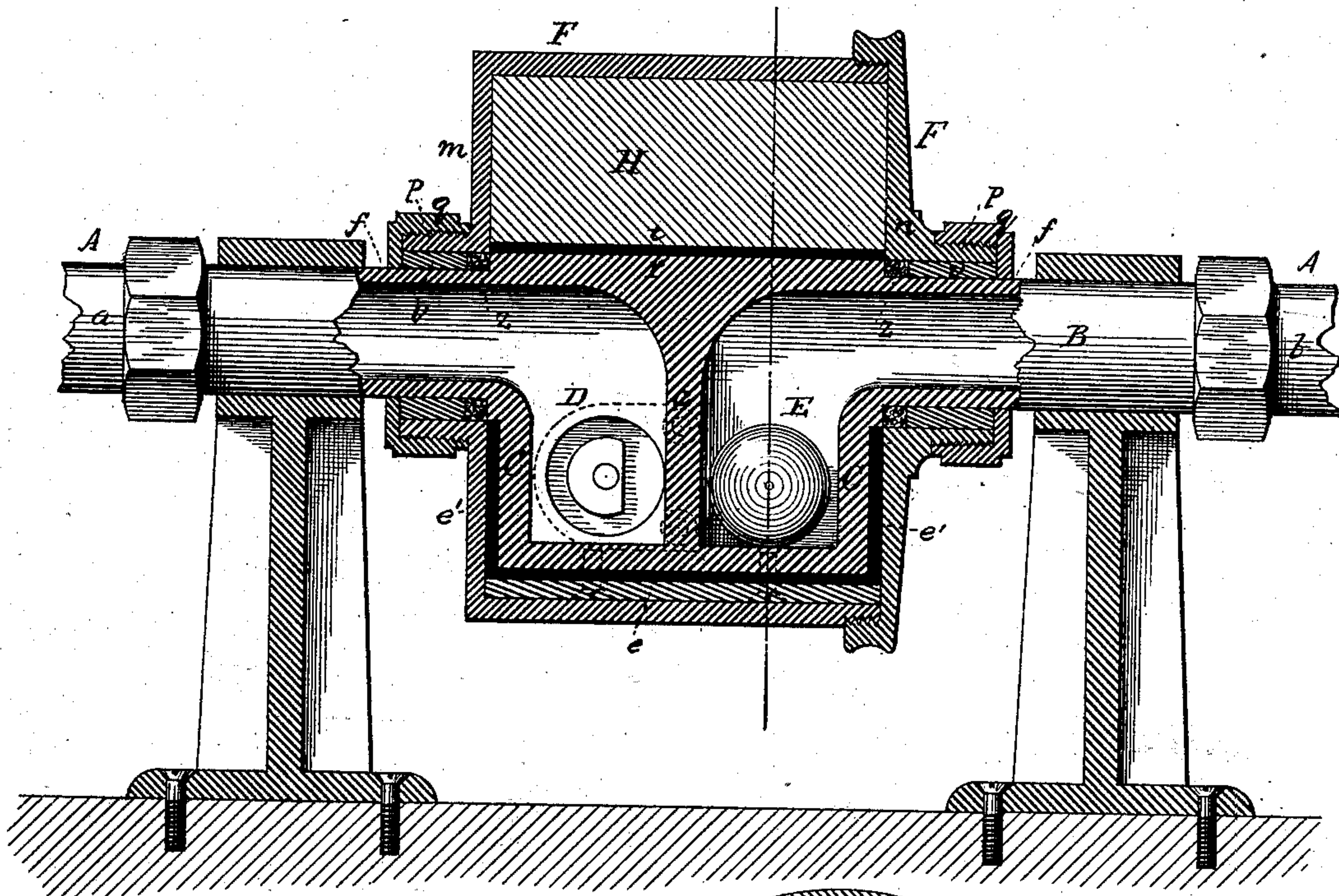


Fig. 3.

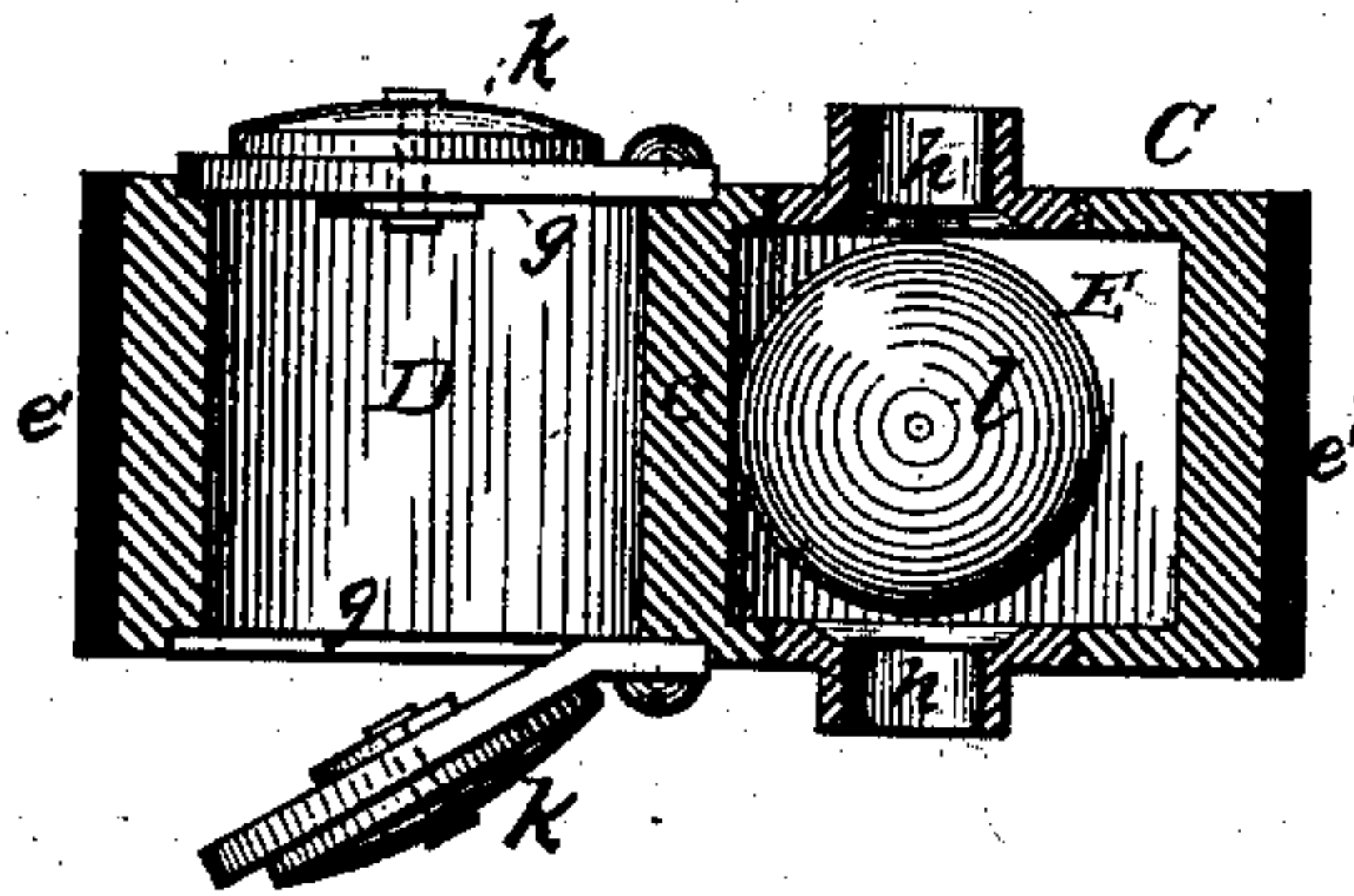
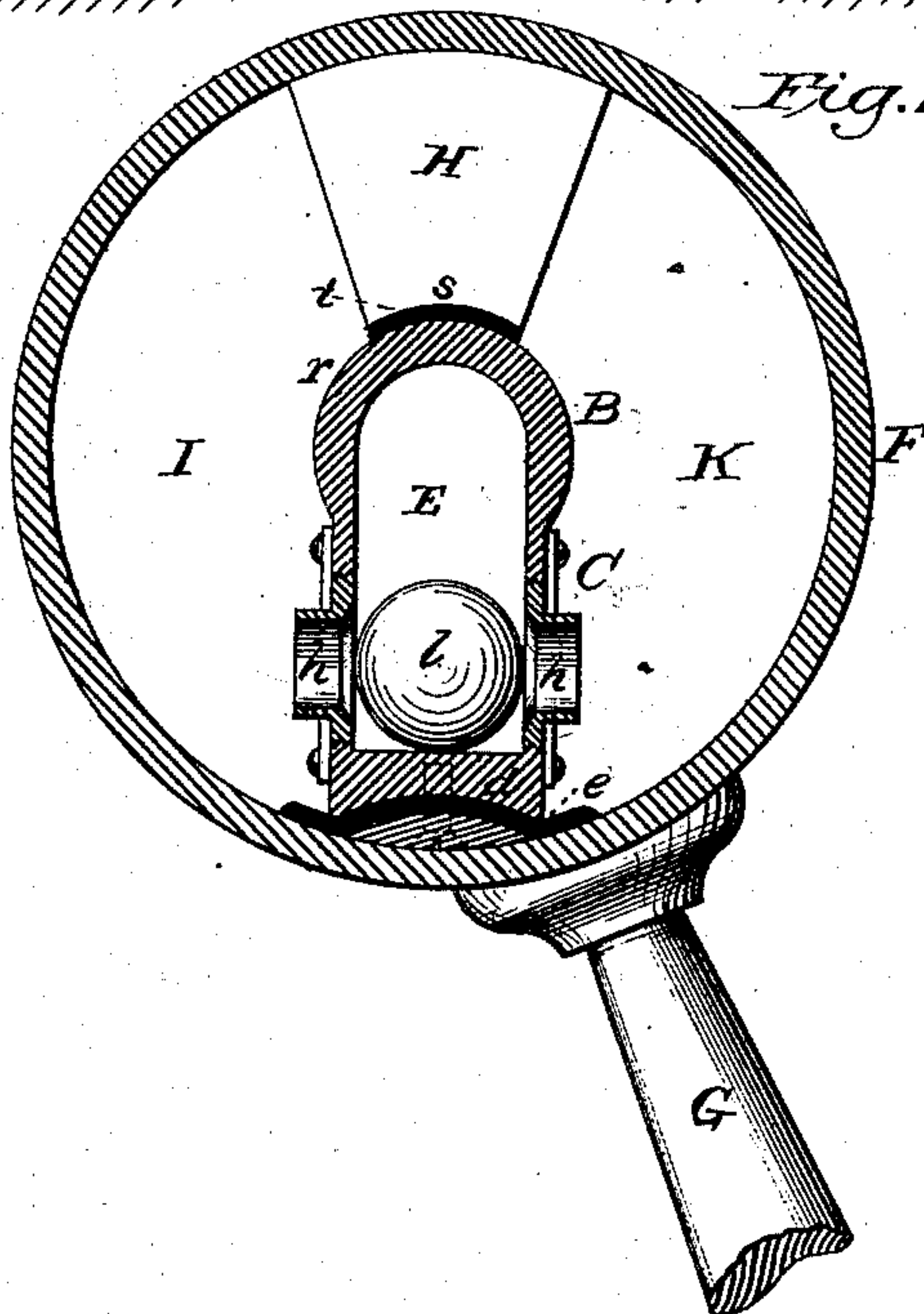


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALBERT G. BRUST AND WILLIAM H. DOUGLAS, OF WASHINGTON, D. C.

DOUBLE-ACTING PUMP.

SPECIFICATION forming part of Letters Patent No. 239,436, dated March 29, 1881.

Application filed September 4, 1880. (No model.)

To all whom it may concern:

Be it known that we, ALBERT G. BRUST and WILLIAM H. DOUGLAS, of Washington, in the county of Washington and District of Columbia, have invented a new and valuable Improvement in Double-Acting Pumps; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal section of this invention. Fig. 2 is a cross-section of the same. Fig. 3 is a detail view, in section, of the valved projection.

This invention has relation to pumps for use in connection with water-supply pipes; and it consists in the construction and novel arrangement, in connection with the piping, of an intermediate section having a recessed projection on one side formed with two independent valve-chambers, respectively, for the supply and discharge, the outer and inner valves connected therewith, the vibratory cylinder having a sector-piston attached to its inside surface and working on the side of the cylinder-section opposite to its recessed projection, the packings, glands, and the lever-handle attached to the vibratory cylinder, all as hereinafter shown and described.

In the accompanying drawings, the letter A designates any ordinary water-supply pipe from which a portion has been removed, which is replaced by the recessed and valved section B, with reference to which the portion *a* of the main pipe becomes the supply, and *b* the discharge, the intermediate section, B, being connected thereto by means of threaded unions or other water-tight couplings. The intermediate section, B, is cylindrical in form, having at its middle portion a projection, C, on one side, which is made with a supply-chamber, D, and a discharge-chamber, E, which are independent of each other, being separated by a wall, *c*, in the section. The exterior surfaces of the cylindrical ends of the section form gland and axis bearings *f*, as hereinafter described. The outer surface, *d*, of the projection C is concave usually, as shown in the drawings, and is covered with a packing, *e*, and packings *e'* are secured to the ends of the projection. The side

walls of the projection are provided with openings *g* and *h*, communicating, respectively, with the supply and discharge chambers of the section, each chamber having an opening on each side, as shown. These openings are provided with valves, the openings on the supply side having the valve *k* external, and the openings on the discharge side having the valve *l* internal. For the latter, in small pumps, a ball-valve may be conveniently used, acting in common for the opposite openings, *h*.

F represents the working or vibratory cylinder, the interior surface of which is concentric with the valved section B. This cylinder is provided with ends or heads, or with one end, *m*, and one head, *n*, each having a box-projection, *p*, threaded to engage with a cap, *q*, and forming the sleeve-box of the gland-bearing *v*, upon or with which the cylinder F turns, when operated by means of an external lever-handle, G, secured thereto. Packings *z* are applied within the gland.

To the interior wall of the cylinder D is secured a sector-piston, H, which is formed with a concave inner surface, *s*, upon which is secured a packing, *t*, working upon the cylindrical bearing-surface, *r*, of the valved section, which is opposite the valved projection C, as shown in the drawings.

The cylinder F turns easily on its axis-bearings at the ends of the valve-section. Being vibrated by means of its handle, it is apparent that the inwardly-projecting piston H is alternately brought nearer each side of the valved projection C than it is to the other, so that its water-chambers I and K become each alternately greater or less than the other. As these chambers each communicate with both the supply and discharge chambers of the valved section B on one side thereof, it is apparent that the valves of each section are put in action at each movement of the cylinder, so that as the water-chamber I contracts the water therein closes the supply-valve *k* of one side, and the water therein is driven through the opening *h* of the same side into the discharge-chamber E, closing its opposite valve-opening *h* and flowing out through the discharge-pipe *v*. At the same time the water-chamber K of the cylinder F enlarges, drawing the water in through the opposite supply-opening *g*, raising its valve *k*.

This pump is very readily attached to water-

pipes in houses and yards and operates with great effect, while but little power is needed to work it. Being double-acting, the pump produces a continuous discharge.

5 For large constructions it is designed to form a longitudinal slot in the piston H, and introduce packing, and a T-formed gland, which is adjustable upon threaded posts, nuts being applied on these posts and bearing on the back
10 of the gland.

Having described this invention, what we claim, and desire to secure by Letters Patent, is—

15 The double-acting pumping attachment for supply-pipes, consisting of the valve-section B, having the side projection, C, formed with the independent supply-chamber D and discharge-

chamber E, their respective opposite openings *g h* and valves *k l*, the curved packed surface *d*, and end packings, *e'*, and the axis-bearings *f*, 20 in combination with the vibratory cylinder F, having the end sleeve-boxes, *p*, the gland-bearings *v*, and the sector-piston H, attached to its inside wall and working against the cylindrical back *r* of the valved section, substantially 25 as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

ALBERT G. BRUST.
WM. H. DOUGLAS.

Witnesses:

JOHN R. WHITE,
WM. C. DERBY.