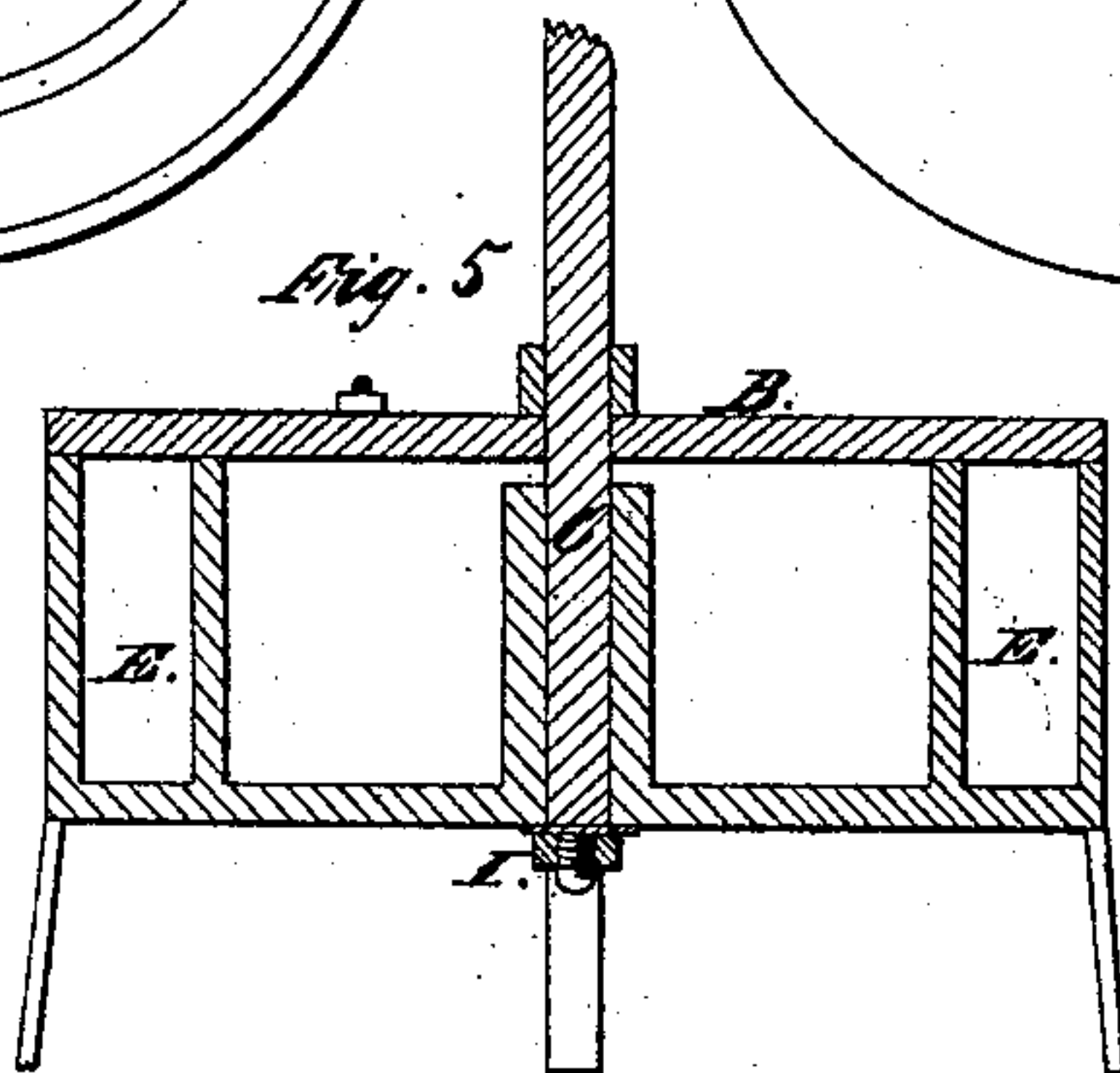
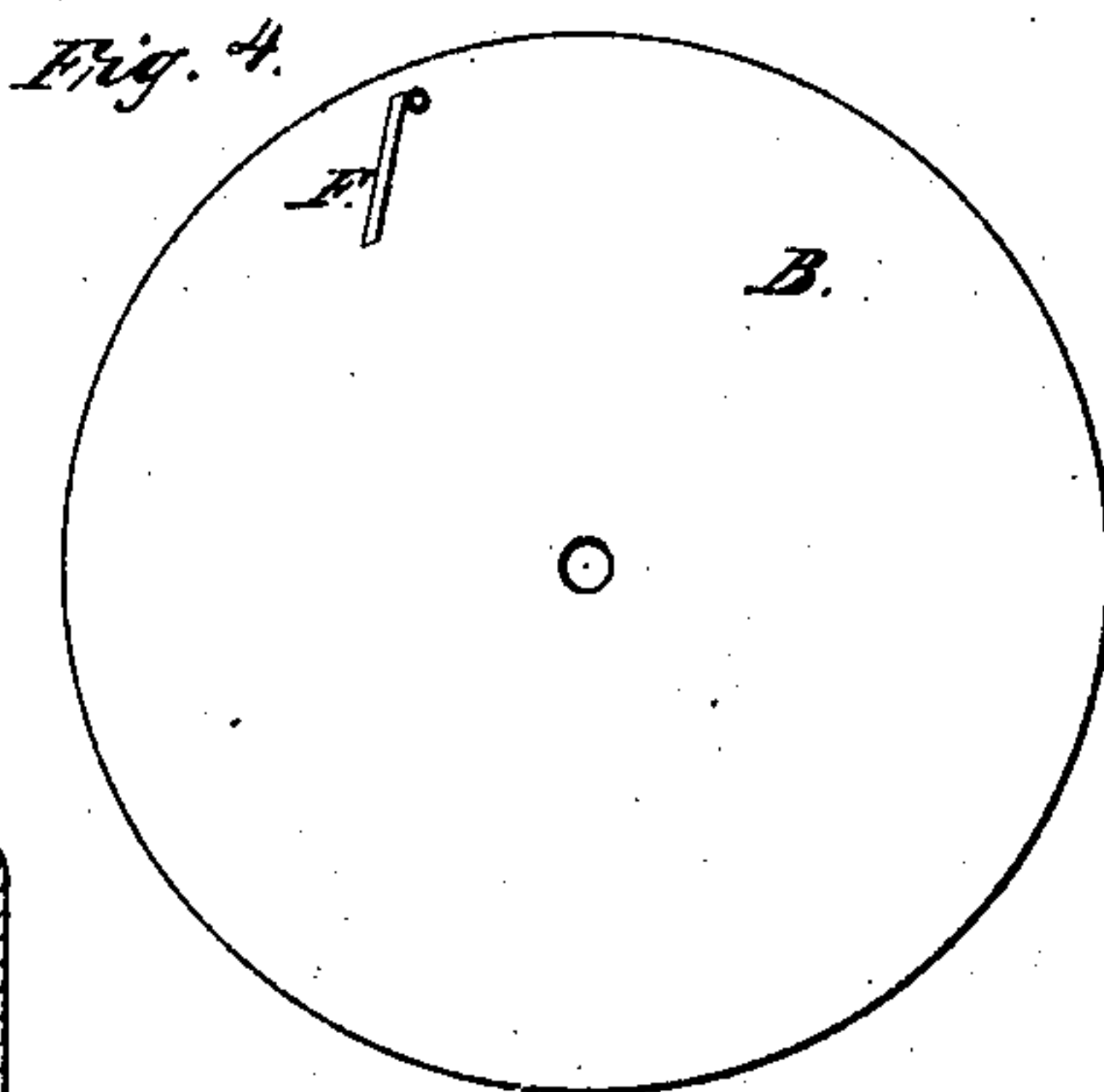
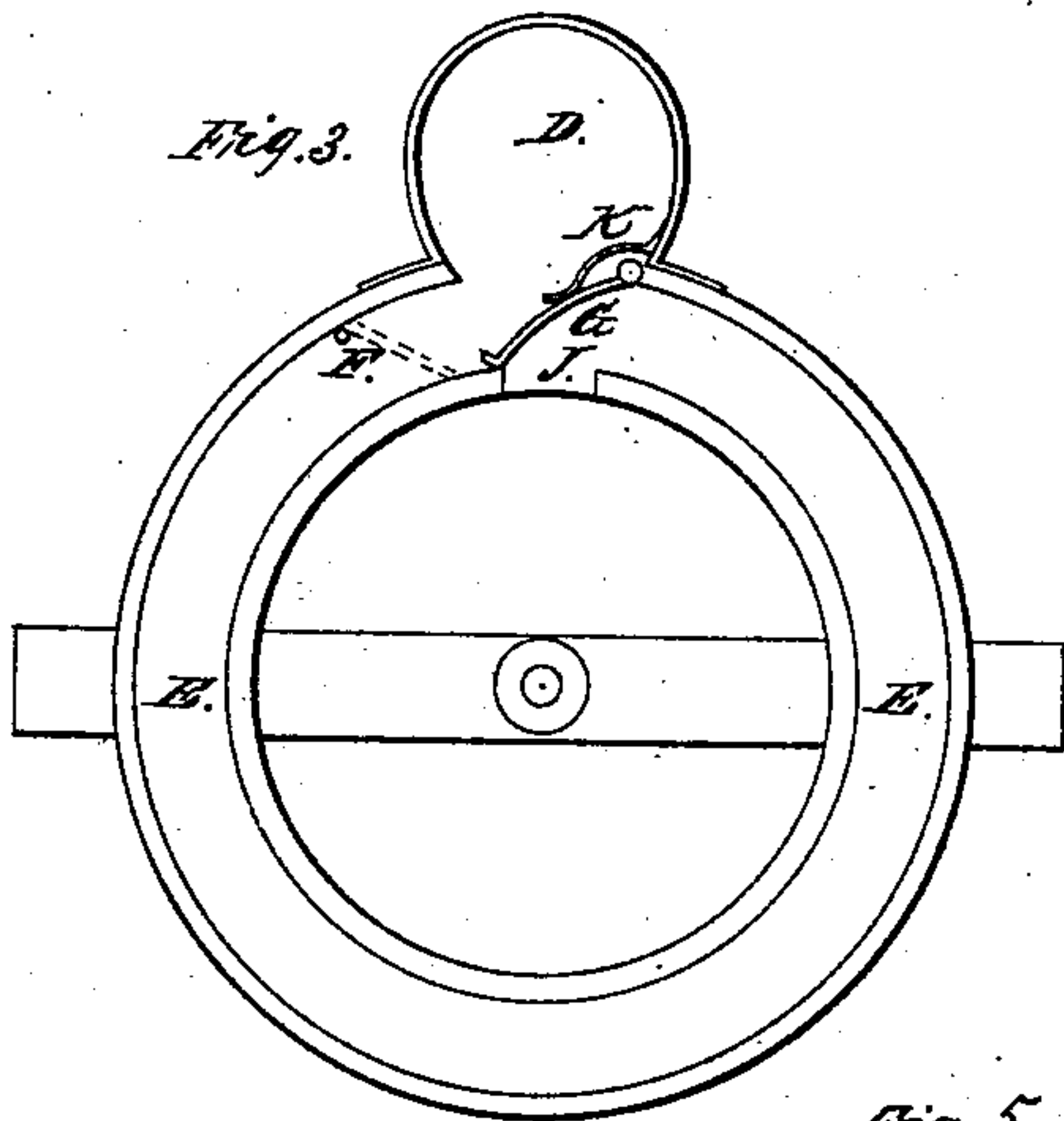
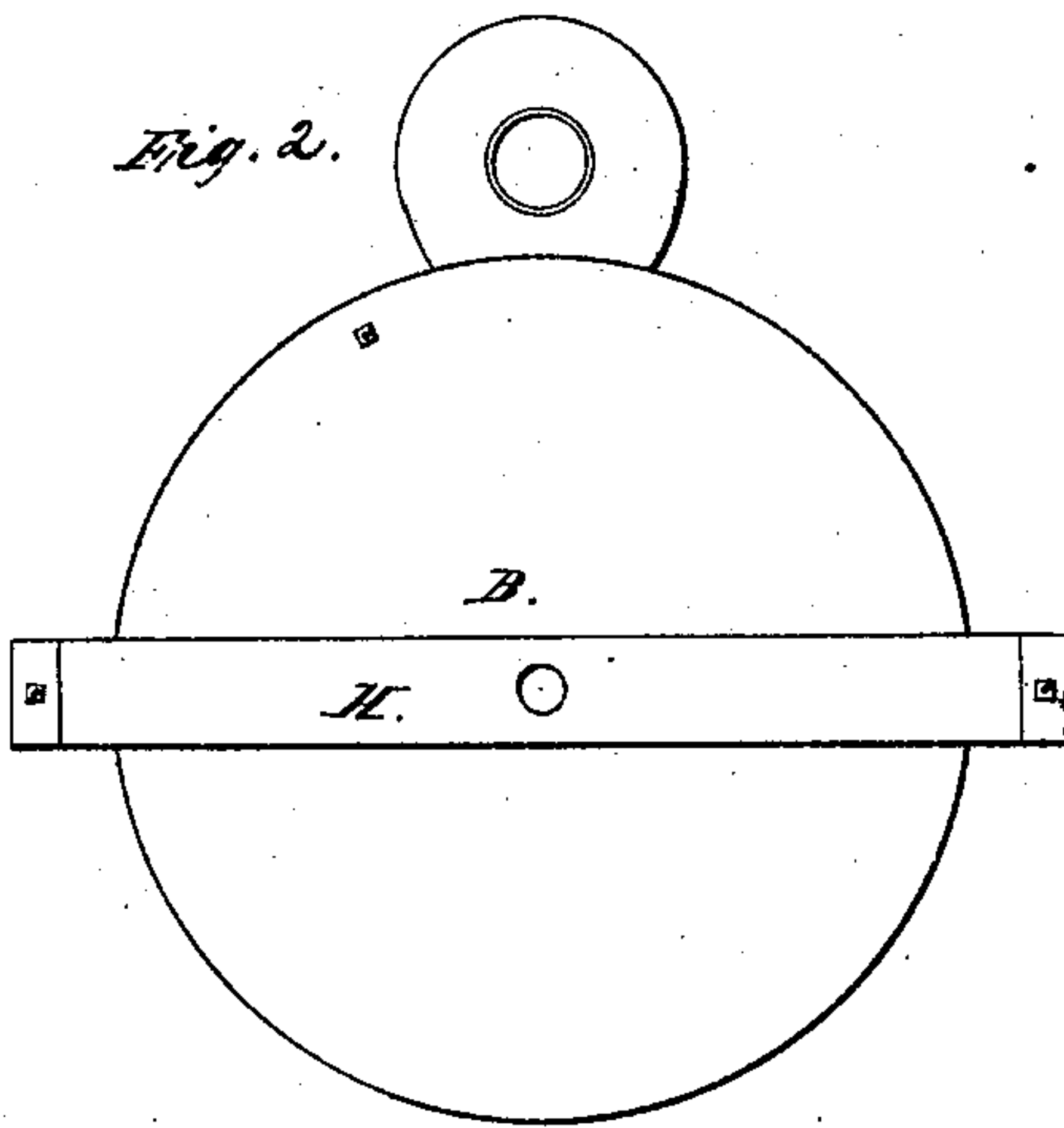
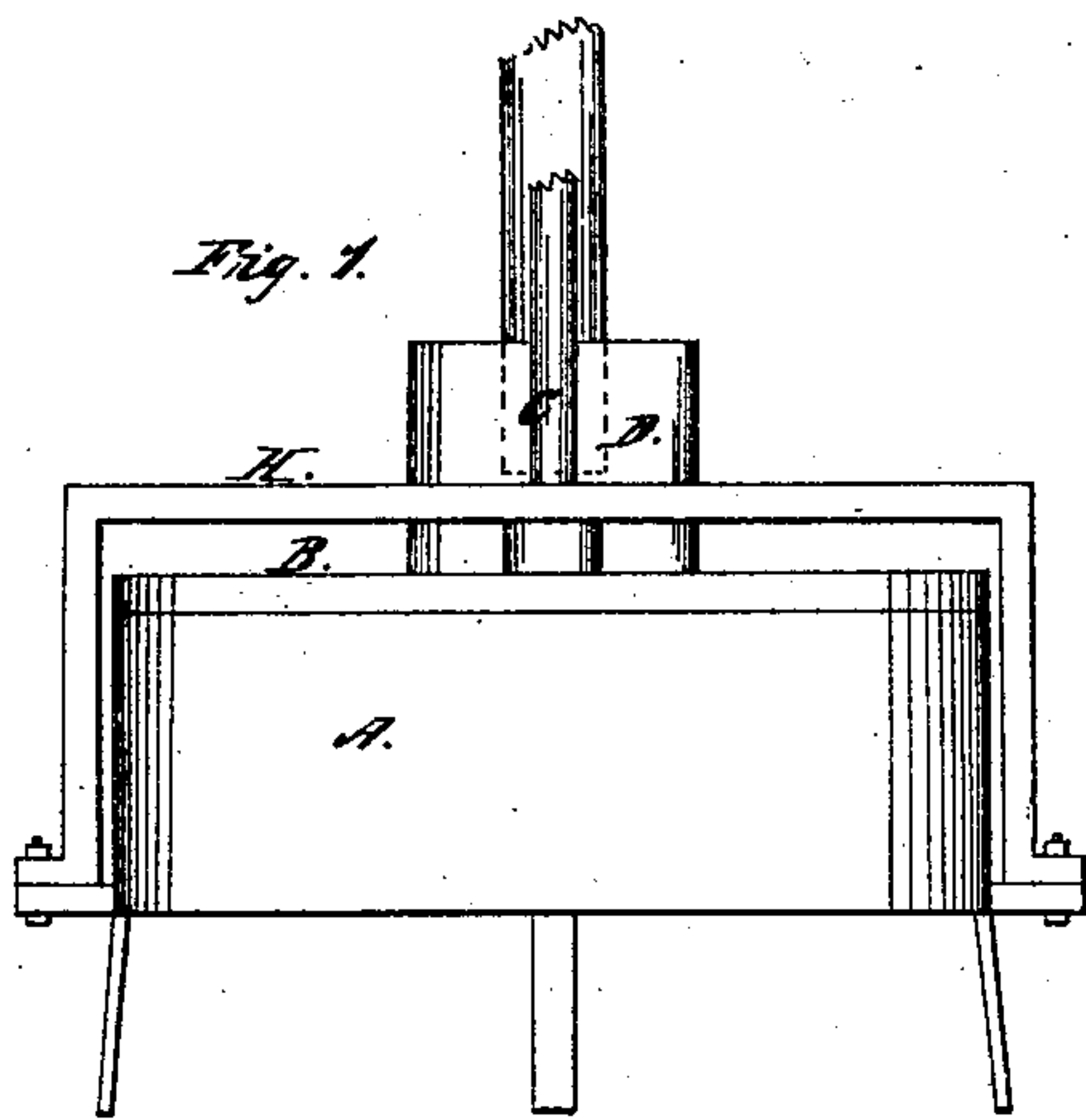


D. S. Hamilton;
Rotary Pump.

N^o 33,643.

Patented Nov 5 1861.



Witnesses:
W. P. H. Smith
Wm. L. Loring

Inventor:
Danl. S. Hamilton

UNITED STATES PATENT OFFICE.

DANIEL S. HAMILTON, OF ELMIRA, NEW YORK.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. 33,643, dated November 5, 1861.

To all whom it may concern:

Be it known that I, DANIEL S. HAMILTON, of Elmira, in the county of Chemung and State of New York, have invented a new and useful Improvement in Rotary Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is an elevation of the pump; Fig. 2, a plan thereof; Fig. 3, a plan of the same, the cap being removed; Fig. 4, a plan of the under side of the cap showing the piston attached thereto; Fig. 5, a central vertical section of the whole pump.

Like letters designate corresponding parts in all of the figures.

My improved rotary pump belongs to that class in which a piston revolves in an annular space, and lifts or opens a hinged-valve abutment situated between the induction and eduction pipes. According to the usual construction of such pumps, the piston projects from a central cylinder, which itself revolves and thus moves the piston round, the abutment being forcibly pressed against it till the piston reaches it and forces a passage under it.

The first feature of my improvement obviates the friction of the abutment, thus pressing strongly on the revolving piston-cylinder by making the central cylinder, which closes the interior of the annular piston-space E, stationary, as well as the outer cylinder or case A, the piston F being attached to the cap or head B, which revolves with the driving-shaft C, and gives motion to said piston.

The second feature of my improvement consists in the arrangement of abutment G immediately between the induction pipe or aperture J and eduction pipe or chamber D, the one opening or communicating through the inner cylinder or case and the other through the outer cylinder or case of the pump, and one being radially opposite to the other, as shown in Fig. 3. The abutment is hinged just at one edge of the eduction-aperture, and at the opposite or free edge thereof said abutment just reaches over the edge of the induction-aperture J farthest from the hinge, substan-

tially as shown. The advantages of this arrangement are that there is no intervening room in the annular space E required to be occupied by the abutment not utilized for forcing water, as is the case with other arrangements. The abutment, also, as it opens to allow the piston to pass, retreats into the eduction-aperture or chamber D, and thus a recess provided for that special purpose is not required, as in other pumps.

The third feature of my improvement (which is partly included also in that just described) consists in having the abutment G inclined inward in the direction toward the approaching piston F, so that the said piston enters beneath the foot or free edge of the abutment, (slightly turned up for the purpose, as represented in Fig. 3,) and opens it in the direction contrary to that of its own motion. The piston is also inclined inward in the direction toward the abutment, which it approaches as shown in Fig. 3, and opens it in the manner of a wedge; the abutment continually bearing against it by the pressure of the water flowing into the eduction chamber or pipe D. There is generally a slight spring K to insure the closing of the abutment; but the whole pressure of the spring and water is not so great as that required to keep the ordinary abutment closed against the pressure of water. The abutment gradually closes again as the piston passes on. The influx and efflux of water also diminish and increase proportionally as the piston and abutment vary the size of the induction and eduction aperture, so that the piston passes the abutment with comparatively very little disturbance of the flow of water.

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

1. The combination of the annular piston-space E, having both annular sides fixed with the abutment G bearing on one of the said fixed annular sides, substantially as and for the purpose herein set forth.

2. The combined arrangement of the abutment G and induction and eduction apertures J and D so that the said apertures shall be nearly or quite radially opposite to each other and the abutment shall close diagonally

between the two, and open into the eduction-aperture, for the purpose specified.

3. Inclining the closed abutment and approaching piston toward each other so that the piston shall open the abutment in the direction contrary to that of its own motion, substantially as and for the purpose herein specified.

The above specification signed and witnessed this 12th day of November, A. D. 1860.

DANL. S. HAMILTON.

Witnesses:

NEWTON P. FASSETT,
DUANE THOMPSON.