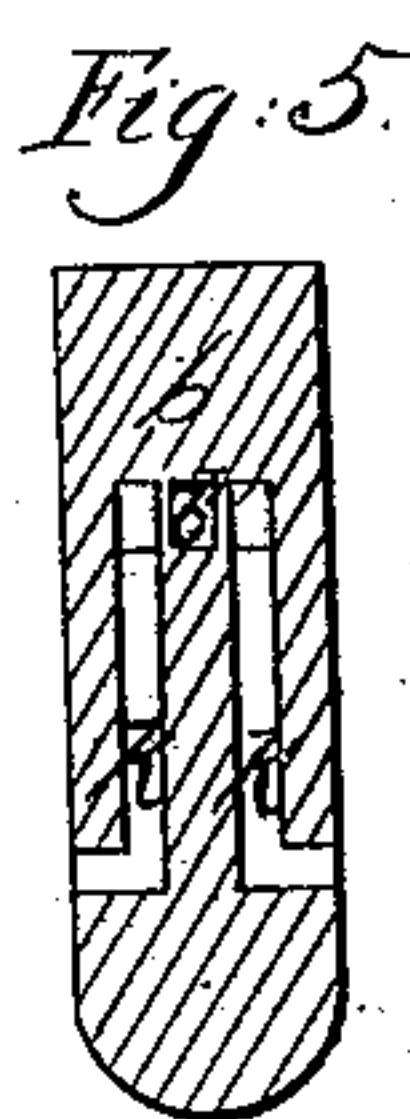
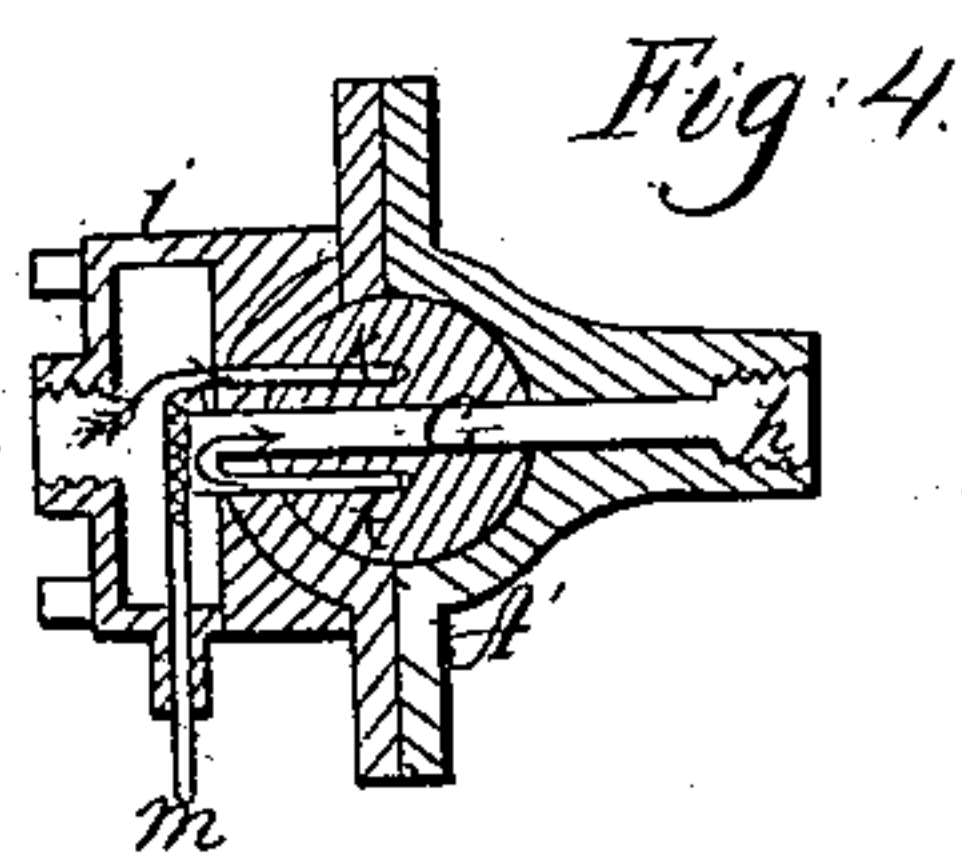
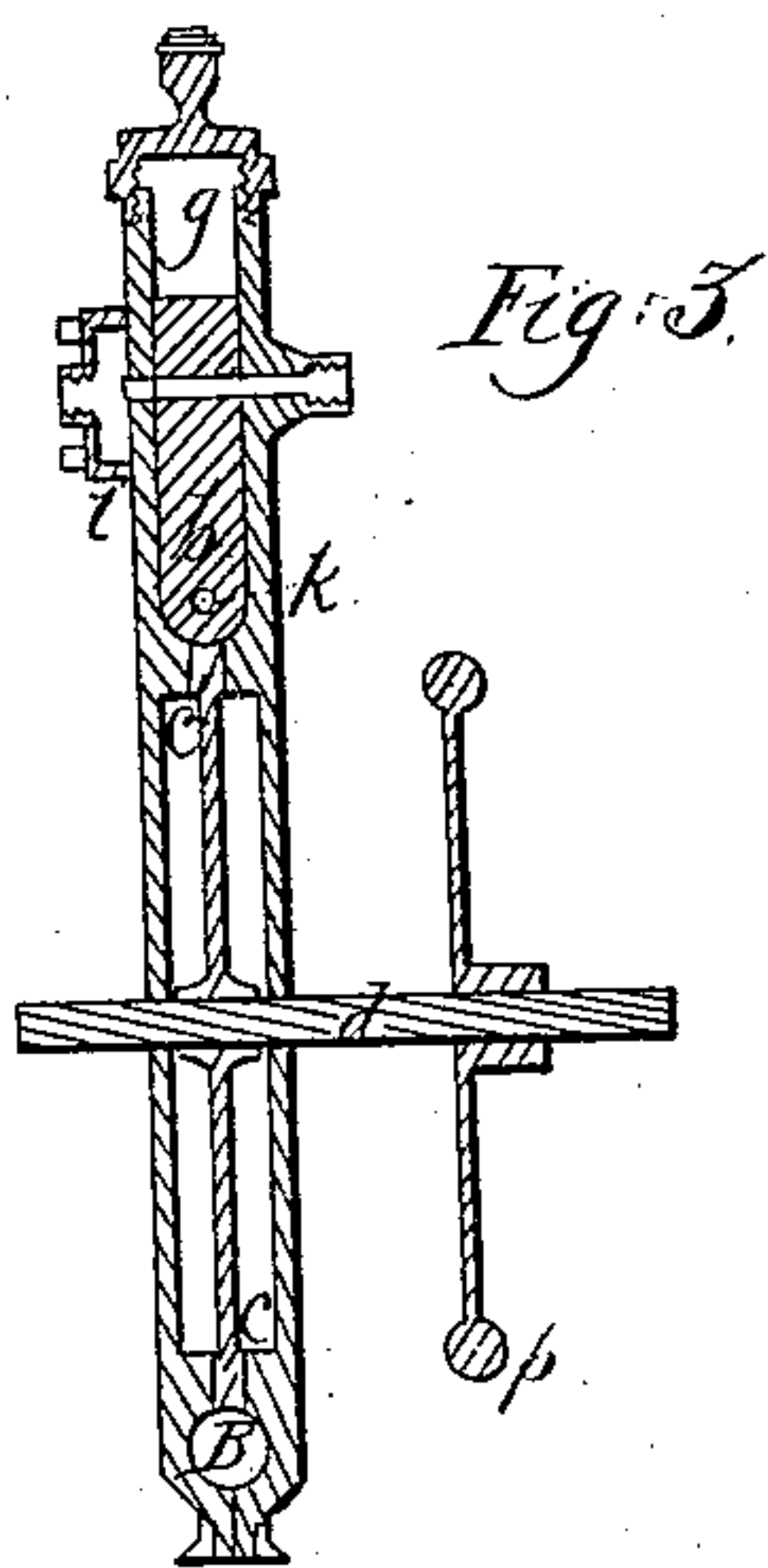
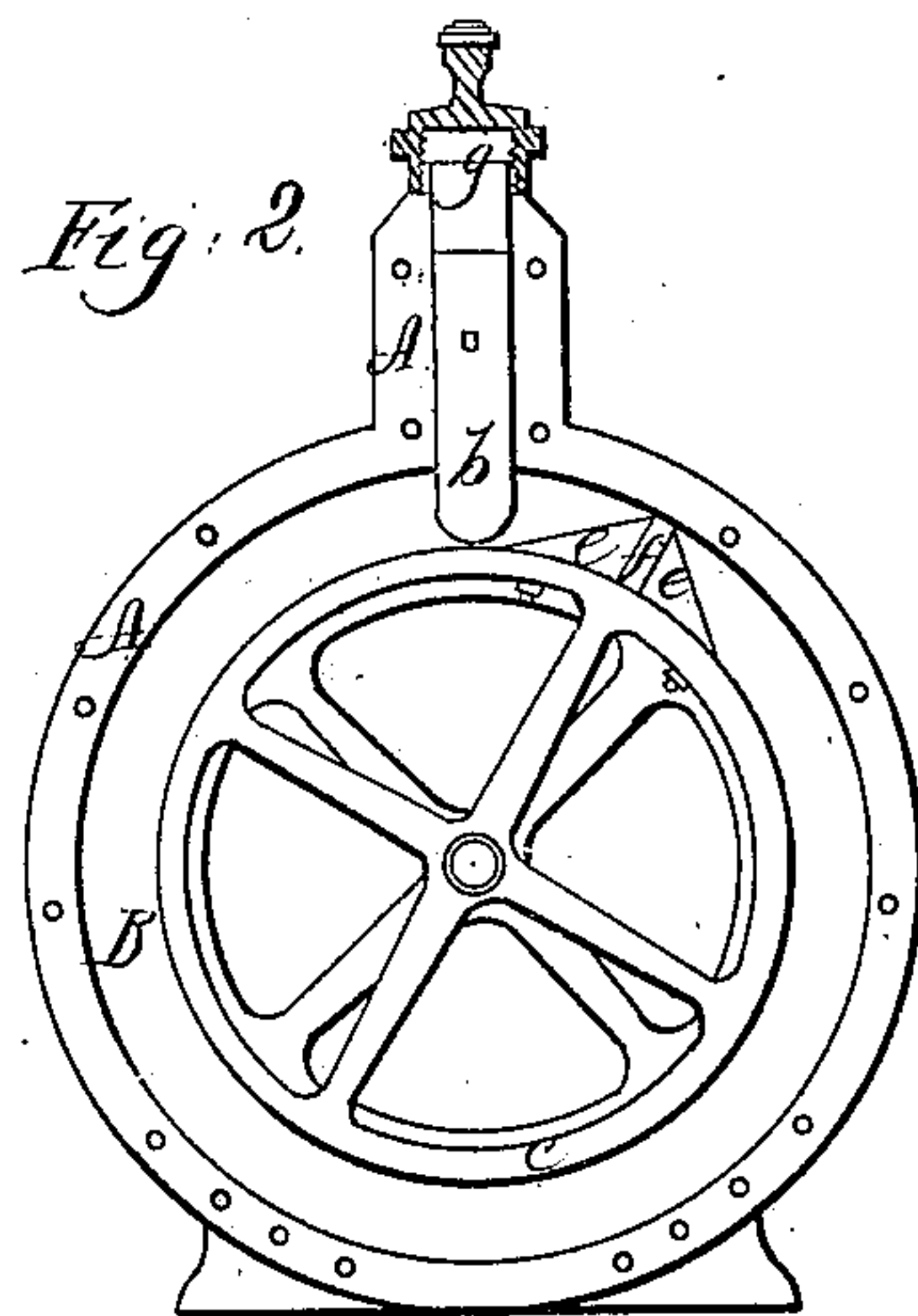
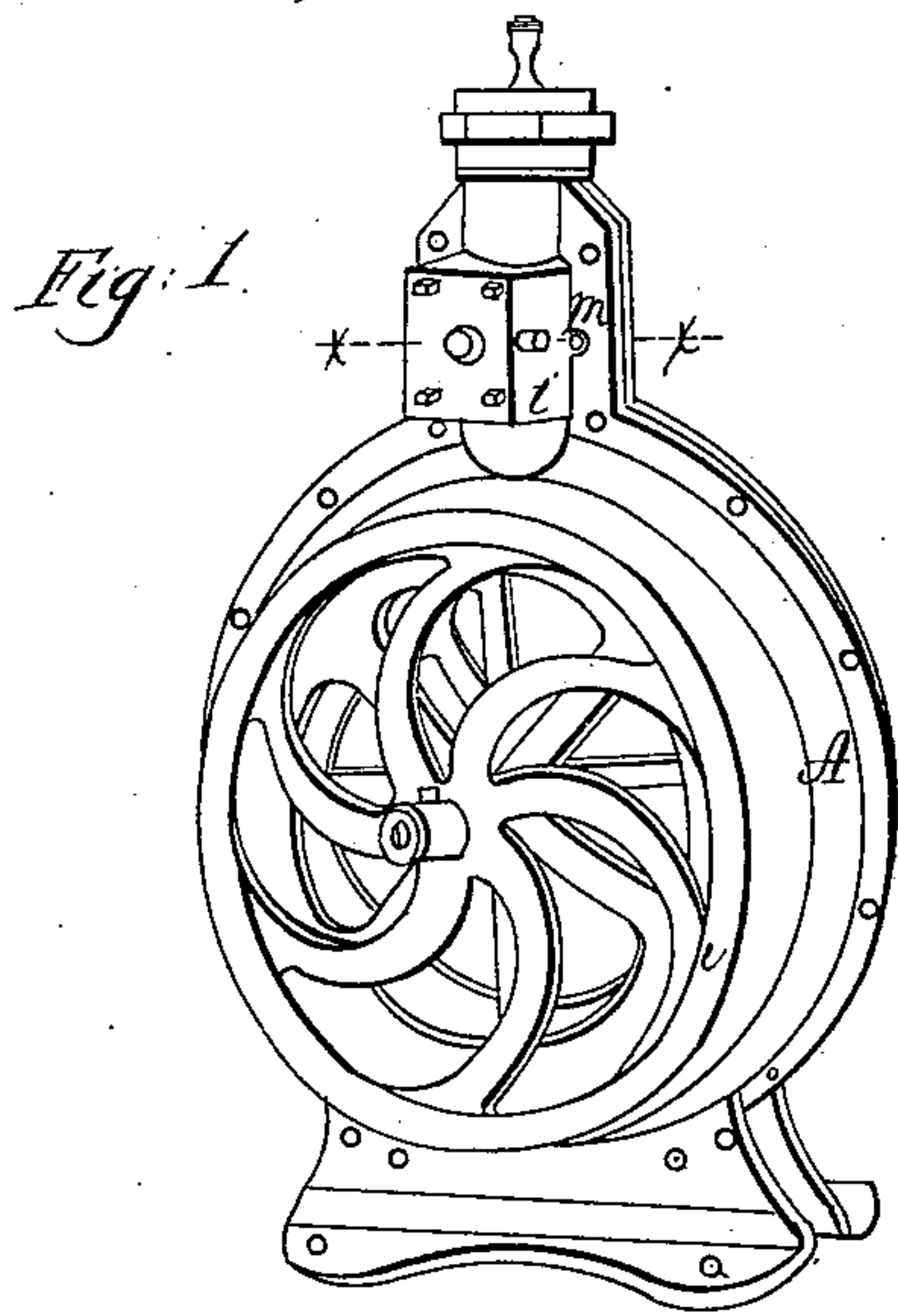


R. D. Wright,
Rotary Steam Engine.
No 53,755. Patented Apr. 3, 1866.



Witnesses:

H. C. Clifton
M. Randolph

Inventor:
Robert D. Wright

UNITED STATES PATENT OFFICE.

ROBERT D. WRIGHT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HIMSELF AND
L. B. HOLLAND, OF SAME PLACE.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. 53,755, dated April 3, 1866; antedated March 21, 1866.

To all whom it may concern:

Be it known that I, R. D. WRIGHT, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and useful Improvement in Rotary Steam-Engines; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon and made to form a part of this specification.

This invention relates to the construction and arrangement of a certain plunger or movable cylinder-head, in combination with a revolving piston and annular cylinder, as hereinafter set forth, described, and represented.

In reference to the accompanying drawings, Figure 1 is a perspective view of my improvement as complete and ready for use. Fig. 2 is a vertical sectional elevation, showing the piston, cylinder, and plunger or movable cylinder-head. Fig. 3 is a transverse vertical sectional elevation of the engine. Fig. 4 is a sectional plan taken at the line *x x*, Fig. 1, and Fig. 5 is a vertical sectional view of the plunger.

A represents the cylinder, which may be constructed in two parts, with a projecting neck, A', adapted to receive the plunger *b*, and in such manner as to afford the annular cylindrical space B. (Seen in Figs. 2 and 3.)

c represents the piston, which will be made to fit and work steam-tight between the two parts of the cylinder, with its periphery grooved out in harmony with the space B, as seen in Fig. 2. The said piston may be secured upon the main shaft *d*, through the medium of which machinery may be actuated.

f represents the piston-head, which will be rigidly secured to the piston and formed to fit and work steam-tight within the space B.

e e represent two inclined planes secured to the piston and piston-head, constructed and arranged in such manner as to be adapted to lift the plunger *b* as the piston may be made to rotate, thereby permitting the passage of the piston-head.

The plunger *b* will be made to fit and work in the space *g* of the neck A' of the cylinder, and its lower end will be of configuration adapted to fit nicely the space B of the cylinder, so that it may serve as a cylinder-head

during the operation of the engine. The said plunger *b* will have formed through it a passage, *b'*, which, when the plunger is down, as seen in Figs. 2 and 3, will communicate with the exhaust-pipe *h*, and with the steam-chest *i*, and it will also have formed in it the steam-passages *k k*, which, in the aforesaid position of the plunger, will communicate with the steam-chest and with the space B of the cylinder. The said steam-chest *i* may be attached to the neck A' of the cylinder, and will have arranged within it a suitable slide-valve, *i'*, so constructed and adjusted as to afford means of communication between one of the passages *k* and the exhaust-passage *b'*, while steam may be admitted to the space B through the other passage *k*, as seen in Fig. 4; and the said valve may be operated in such manner as to shut off steam entirely from the cylinder, or to admit the same upon either side of the plunger for reversing the motion of the engine by means of a stem, *m*. It will be readily seen that the plunger is made to act as a cut-off when elevated by the inclined planes *e e*. If found necessary a spring may be employed to force the plunger down after its elevation by the said inclined planes; but I do not wish to confine myself to any particular mode of actuating the plunger, as I am fully aware that the same may be effected in various ways, and that the inclined planes for elevating the plunger may be dispensed with; and also that two or more piston-heads and plungers may be employed without departing from the spirit of my invention.

p represents a balance-wheel that may be employed upon the main shaft.

The operation of this improvement may be briefly described as follows: The working parts of the engine being in the positions shown in Figs. 2, 3, and 4, steam will be admitted to the space B of the cylinder from the steam-chest *i* through one of the passages *k*, as indicated by the arrow *n*, and brought into active operation against the piston-head, by means of which the piston will be rotated. As the piston revolves one of the inclined planes *e e* will be forced into contact with the base of the plunger, thereby elevating the same and permitting the piston-head to pass by the said plunger to be acted upon as before, and the

waste steam will escape through the opposite passage *k* and exhaust-opening *b'*.

The motion of the engine may be reversed by means of the valve *i'*, as before described.

Having thus described my invention sufficiently to enable others skilled in the art to which it appertains to make and use the same, what I claim, and desire to secure by Letters Patent, is—

The employment of the plunger *b*, in combination with the rotary piston *c f*, all being con-

structed and arranged to operate substantially as herein described and represented, for the purposes set forth.

In testimony of which invention I have hereunto set my hand and seal this 28th day of March, 1864.

ROBERT D. WRIGHT. [L. S.]

Witnesses:

H. E. CLIFTON,
M. RANDOLPH.