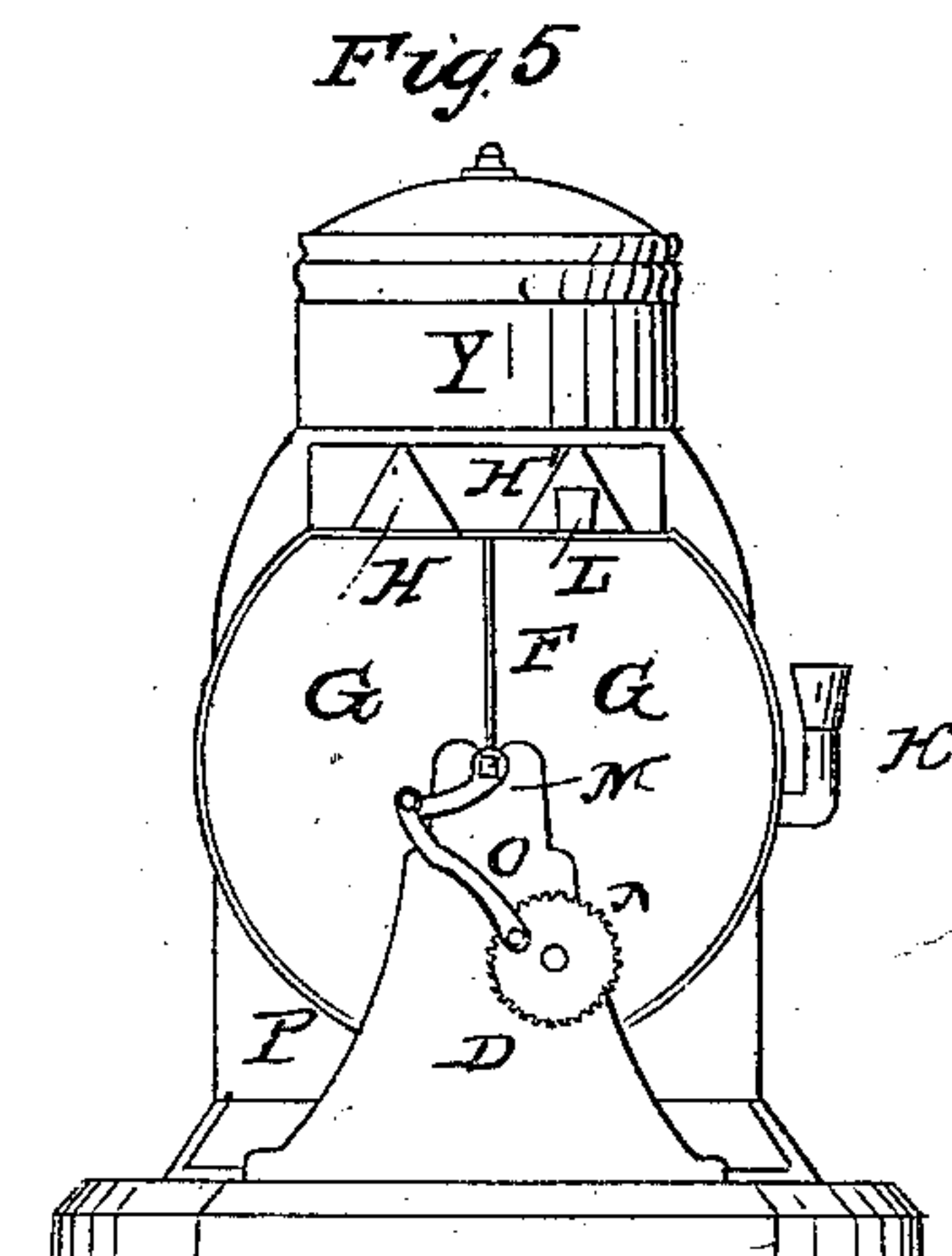
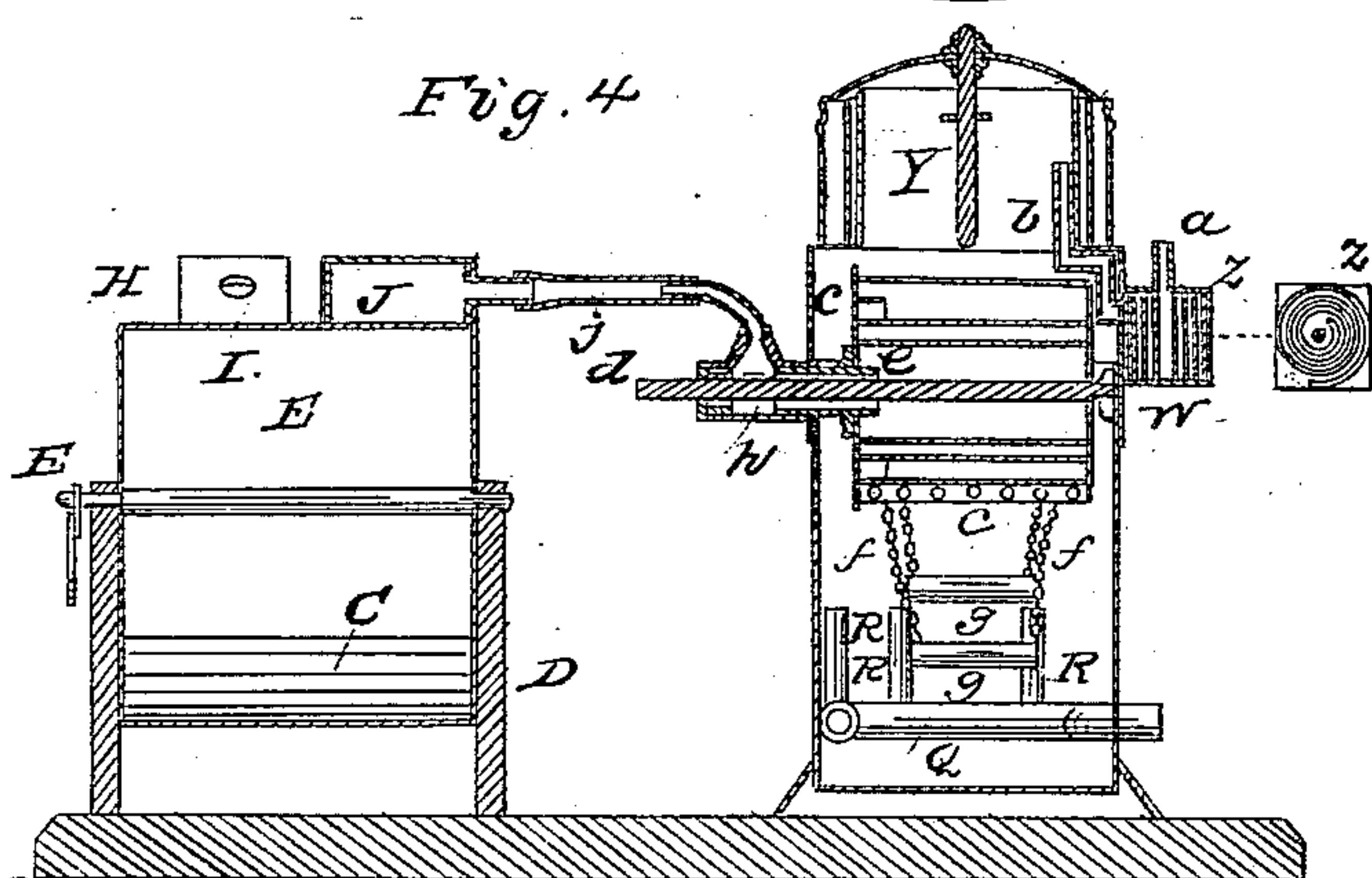
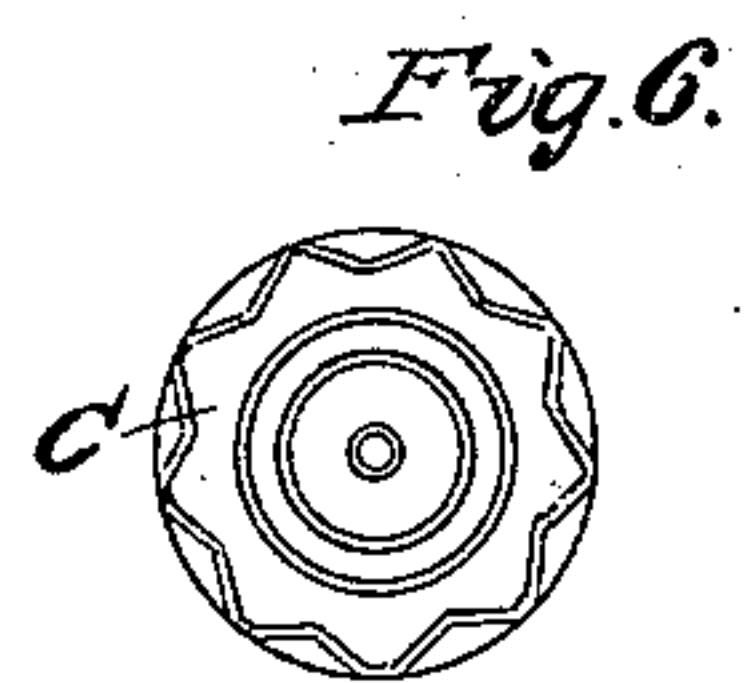
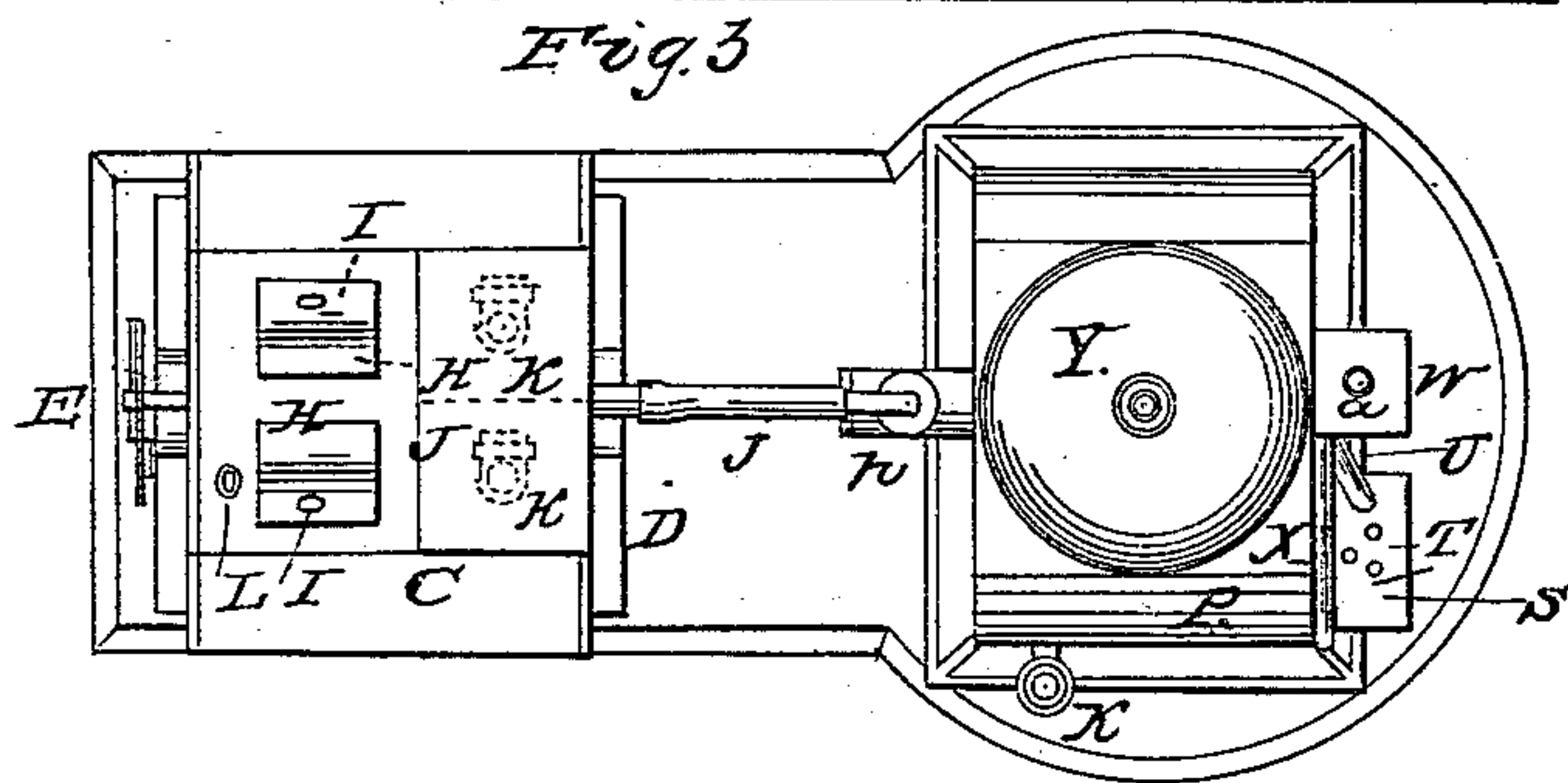
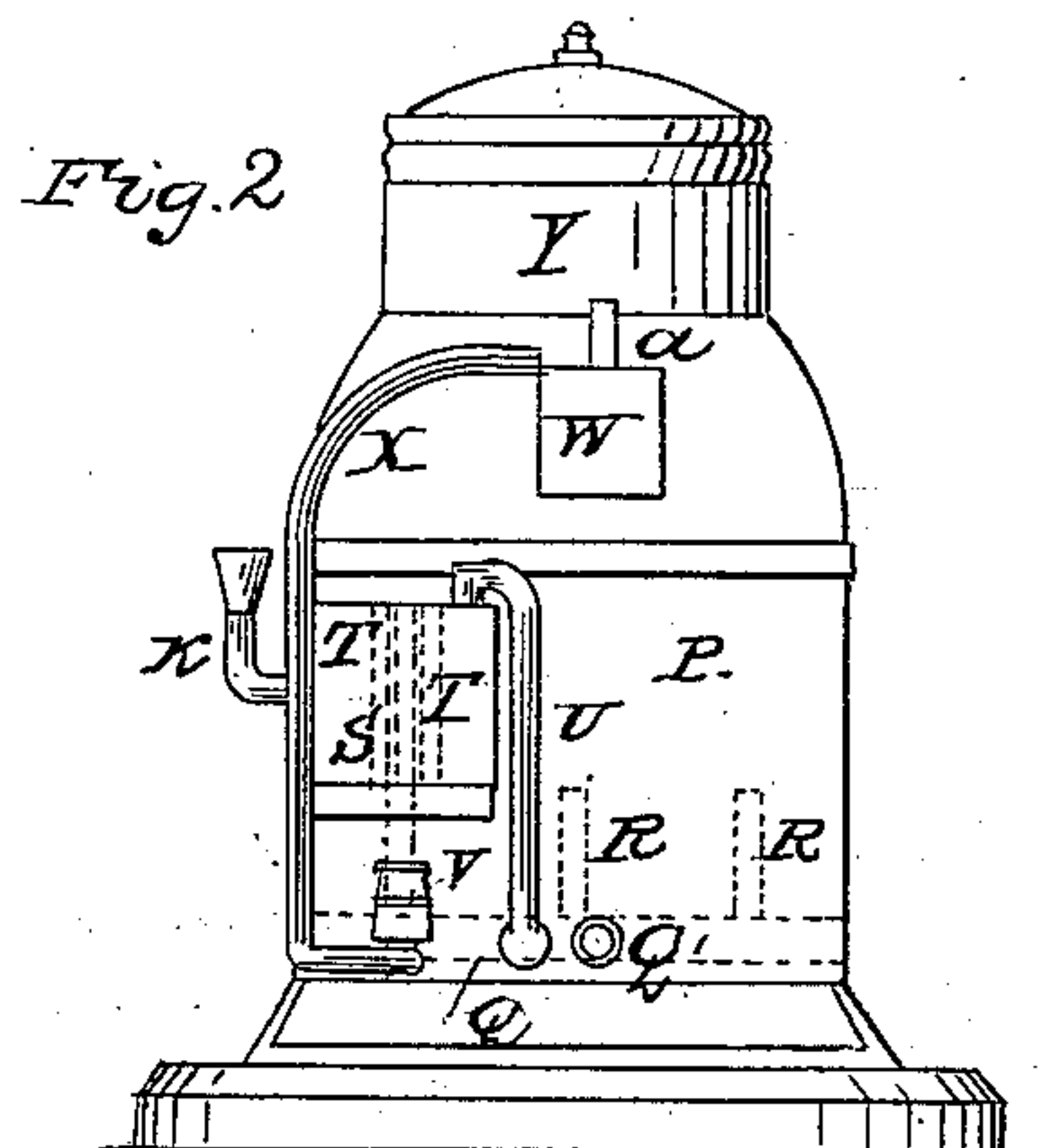
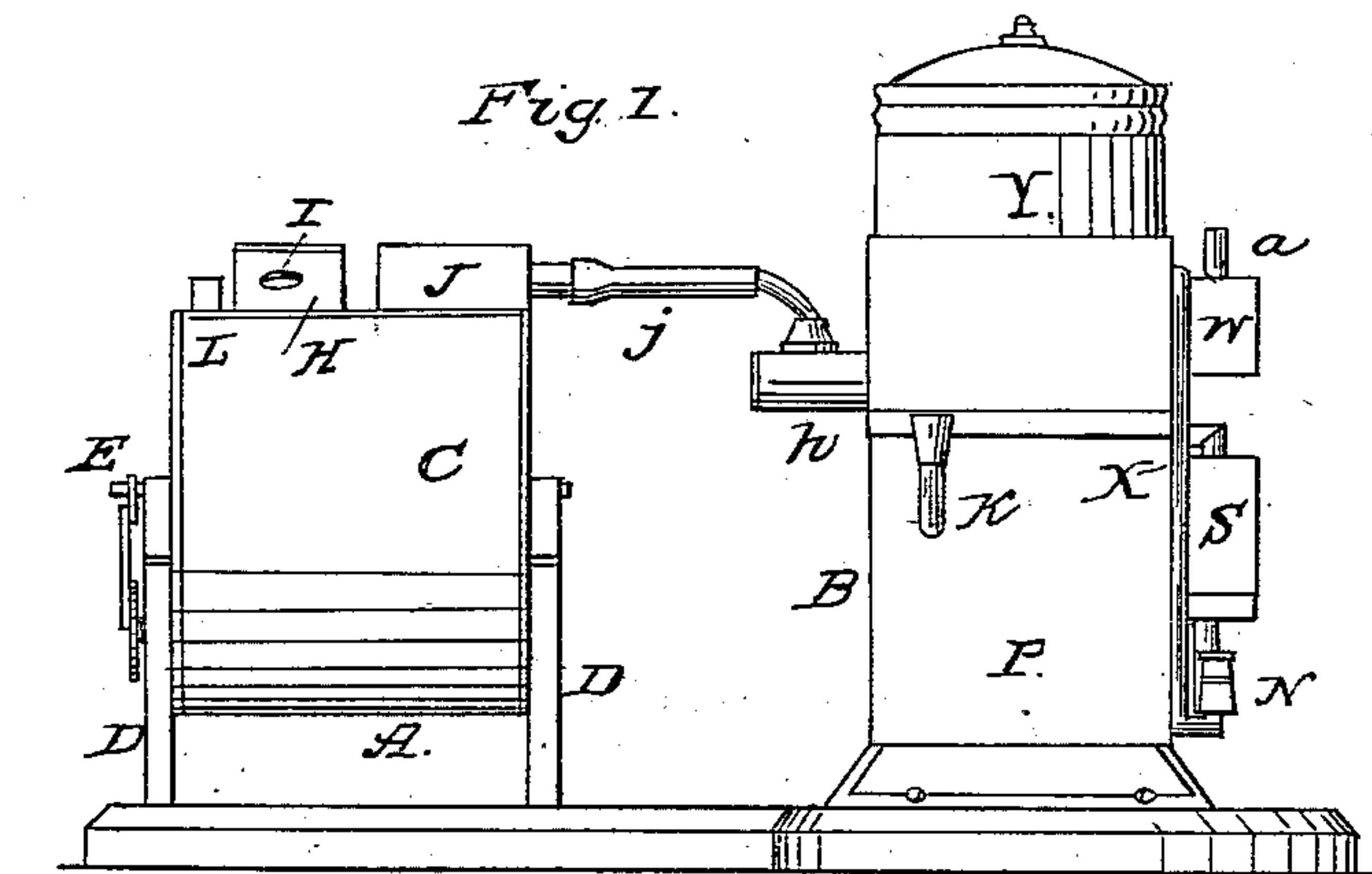


W. THOMPSON.

Carbureter.

No. 64,382.

Patented April 30, 1867.



witnesses.
W. Burridge

Inventor
William Thompson.

United States Patent Office.

WILLIAM THOMPSON, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND
GAS MACHINE COMPANY, OF THE SAME PLACE.

Letters Patent No. 64,382, dated April 30, 1867.

IMPROVED GAS GENERATOR AND CARBURETTOR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. THOMPSON, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful improvements in Gas Generators; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the apparatus.

Figure 2 is a front end view.

Figure 3 is a top view.

Figure 4 is a longitudinal section.

Figure 5 is a rear end view.

Figure 6 is a detached view, that will be referred to in the description.

Like letters of reference refer to like parts in the several views.

This apparatus consists of two sections, A and B, of which A, fig. 1, is the air-pump, and B the gas generator. This pump consists of a cylinder of sheet iron, C, mounted upon the standards D by the shaft E, fig. 4, which passes through the centre of the cylinder, and upon which it rocks or oscillates, as will hereafter be shown. F, fig. 5, is a diaphragm connected to the inside of the cylinder, dividing the same in two longitudinal compartments, G G'. It will be observed that this diaphragm does not reach quite to the lower side of the cylinder, but that there is a space between the edge of the division plate and the cylinder, whereby the two compartments are in communication with each other. H H' are two angular chambers, each of which have communication with the section of the cylinder over which it is placed. In the side of these chambers is a valve, I, fig. 3, which opens inward. J is also a chamber, which is provided with two valves, indicated by the dotted lines K, which opens outward, one in each section of the cylinder, as in the former case. L is a tube communicating with the cylinder, the purpose of which will hereafter be shown. M, fig. 5, is an arm keyed to the end of the shaft E, and connected to the geared wheels N by the link O, and by the means of which the cylinder or pump is made to oscillate by appropriate machinery attached to the frame. The generator consists of the case P, near the bottom of which is arranged the pipe Q, fig. 4, also indicated by the dotted lines in fig. 2. This pipe runs entirely around the case, and the ends of which pass out of the side, as seen in fig. 2. Projecting upward from this pipe are the short pipes R, fig. 4, also indicated by the dotted lines in fig. 2, the purpose of which will hereafter be shown. S, fig. 1, is a heater, and is provided with the vertical tubes T, the upper ends of which are shown in fig. 3. This heater connects with the pipe Q, by means of the pipe U, to which reference will be hereafter made. V is a gas-burner, placed immediately under the heater, and is connected to the carburettor W by the pipe X, and by the means of which it is put in communication with the gasometer Y. This gasometer is constructed in the ordinary way with water-joint, adjustable top *c*. The carburettor consists of a square box, in which is placed the volute Z in the position shown in fig. 4, which figure is a vertical section of the apparatus. The channels of the volute are filled in with cotton or other flocculent material of a suitable character. A chemical carburetting fluid is poured into the box, and in which the convolute is placed. *a* is a tube communicating with the centre of the volute. This carburettor is put in communication with the gasometer by means of the pipe *b*, fig. 4, a vertical section of which only is shown. C, fig. 6, is a corrugated or fluted cylinder, and is hung in the case upon the shaft *d*, in the position shown in fig. 4. Within this cylinder is arranged an annular chamber, *e*, the sides of which are perforated with holes, and so also is the surface of the cylinder C. The space between the cylinder and annular chamber is filled in with sponge or other suitable material, and the chamber is filled with cotton, while the space immediately surrounding the shaft is filled up with charcoal. Connected to the outside of the cylinder by means of the chain *f* are buckets *g*, the purpose of which will hereafter be shown. One end of the shaft upon which the cylinder is placed passes through the side of the case, and also through the sleeve *h*, beyond which it projects. Upon this projecting end is keyed a gear-wheel, *i*, fig. 1, by means of which the cylinder is made to revolve by the aid of machinery provided for that purpose. The generator and blower are connected to each other by the rubber tube *j* and sleeve referred to, and by the means of which sleeve the journal of the shaft is made tight. A view of this connection and sleeve-joint is shown in fig. 4.

Having thus fully described the construction of the apparatus, the operation of the same is as follows: The oil, which may be any of the hydrocarbons, is poured into the generator through the funnel pipe *k*. The heater is then partially filled with water, and the burner under which is lighted. As the water becomes hot the steam thereby generated passes down through the pipe *U* into the pipe *Q*, at the bottom of the generator, and from which it escapes at *Q'*. By thus passing the steam through the oil and radiating the heat of the same by the vertical pipes *R*, the oil becomes heated, and gas thereby liberated, which ascends into the gasometer above. During this generating of the gas air is blown into it by means of the air-pump above described, passing first, however, through the cylinder from the centre, and which is now fully charged with oil by means of the buckets, which, as the cylinder revolves, draws up the oil and empties it upon the surface, and which, as above said, is perforated. The benzine or other oil passes through into the sponge, cotton, and charcoal, and by this means is spread or disseminated over a large surface, and thereby more fully exposed to the action of the air, and at the same time is charged with carbon by its passage through or contact with the coal. As the aired gas is eliminated it fills the gasometer, the top of which rises up, and as the gas cannot escape from under the top in consequence of the water-tight joint, it flows through the pipe *b* into the carburettor *W*, from which it escapes through the gas pipe *a*, after first passing through the convolutions of the carburettor, and thereby further fitted for burning.

The operation of the pump for blowing air into the gasometer is as follows: Water is forced into the cylinder through the fume pipe *L* until it rises above the edge of the diaphragm, as the cylinder is made to oscillate, say to the left, the air contained in the chamber *G*, above the water line, is forced out through the valve *K* into the chamber *J*, from thence through the pipes *j* into the generator. As the water leaves section *G'*, and flows into section *G*, the vacuum caused is filled by air passing into it through the valve *I'*. On the retroaction movement of the cylinder, the water flows back into section *G'*, and drives the air out through the valve *K* into the chamber *J*, as before, and from there into the generator, as in the former case, and so on alternately as long as the oscillation of the cylinder is continued.

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

1. The corrugated cylinder *C*, annular chamber *e*, as arranged, in combination with the chains *f* and buckets *g*, for the purpose and in the manner as described.
2. The heater *S*, burner *V*, pipe *Q*, in combination with the carburettor *W*, case *P*, and gasometer *Y*, for the purpose and in the manner as set forth.
3. The cylinder *C*, diaphragm *F*, valves *I* and *K*, in combination with the generator *B*, for the purpose and in the manner as substantially described.
4. The pipe *j*, sleeve *h*, in combination with the corrugated cylinder *C*, for the purpose and in the manner as specified.
5. The generating of hydrocarbon gas for the purpose of illuminating, in the manner substantially as described.

WILLIAM THOMPSON.

Witnesses:

W. H. BURRIDGE,
FRANK ALDEN.