

(No Model.)

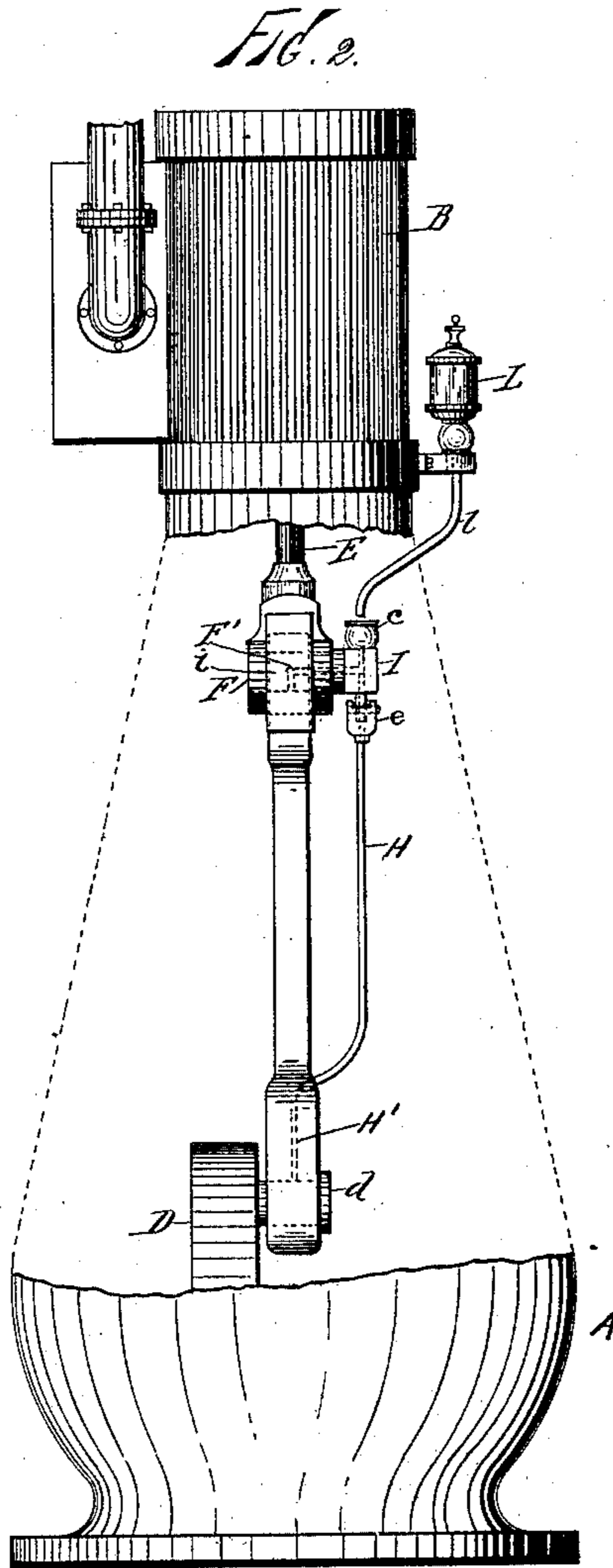
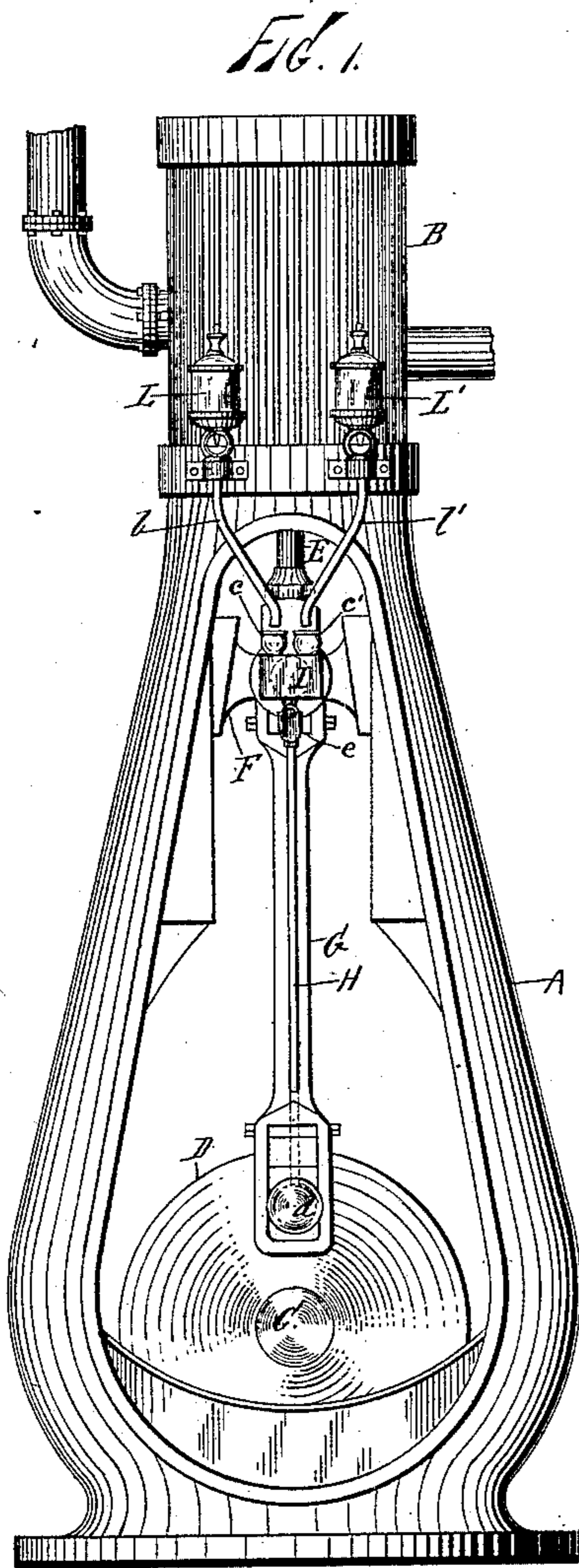
2 Sheets—Sheet 1.

J. H. WILKINSON.

OILING APPARATUS FOR VERTICAL ENGINES.

No. 360,747.

Patented Apr. 5, 1887.



Witnesses:
John Buckle,
George H. Wilkinson.

Inventor:
Joseph H. Wilkinson,
By Messrs. Ansell
Attorney.

(No Model.)

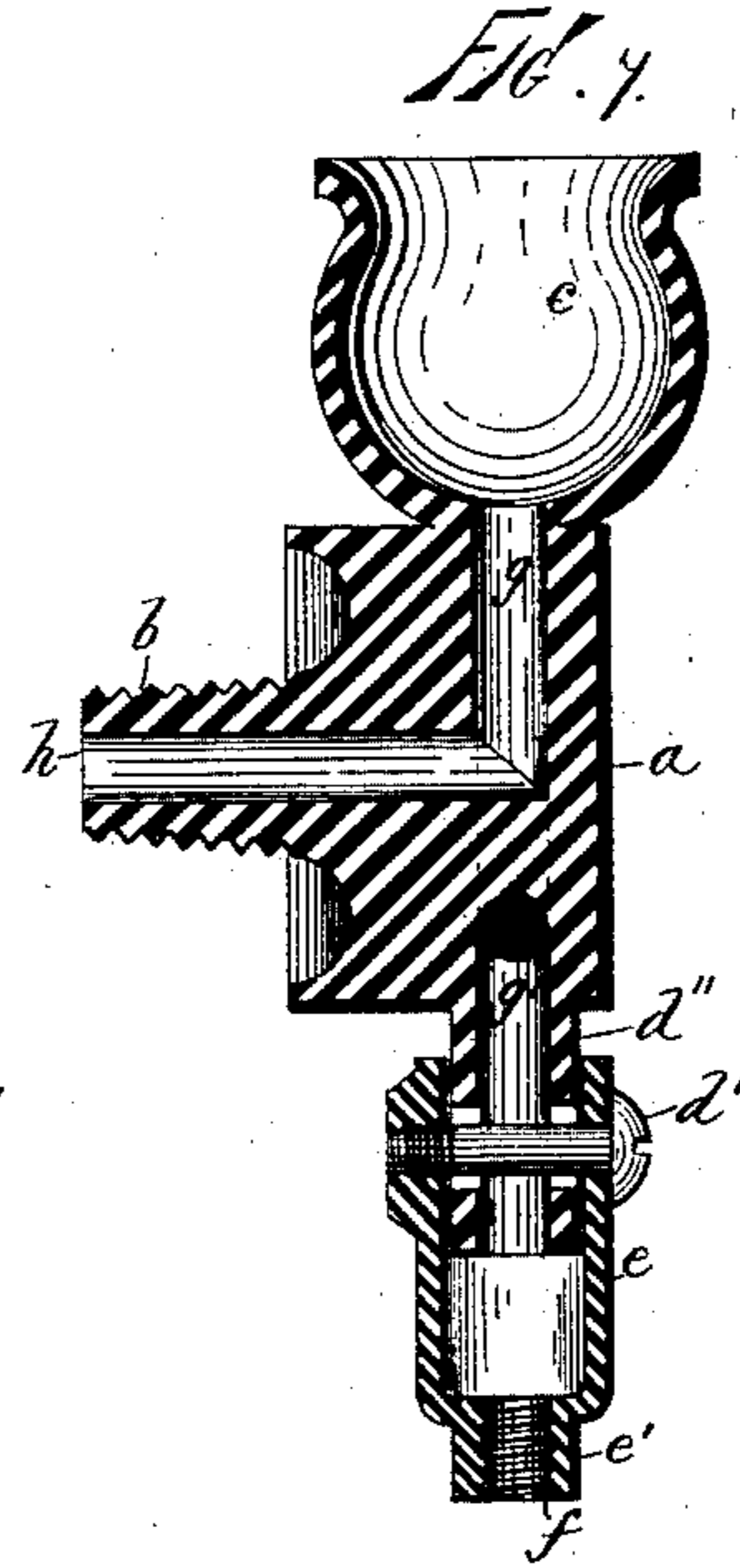
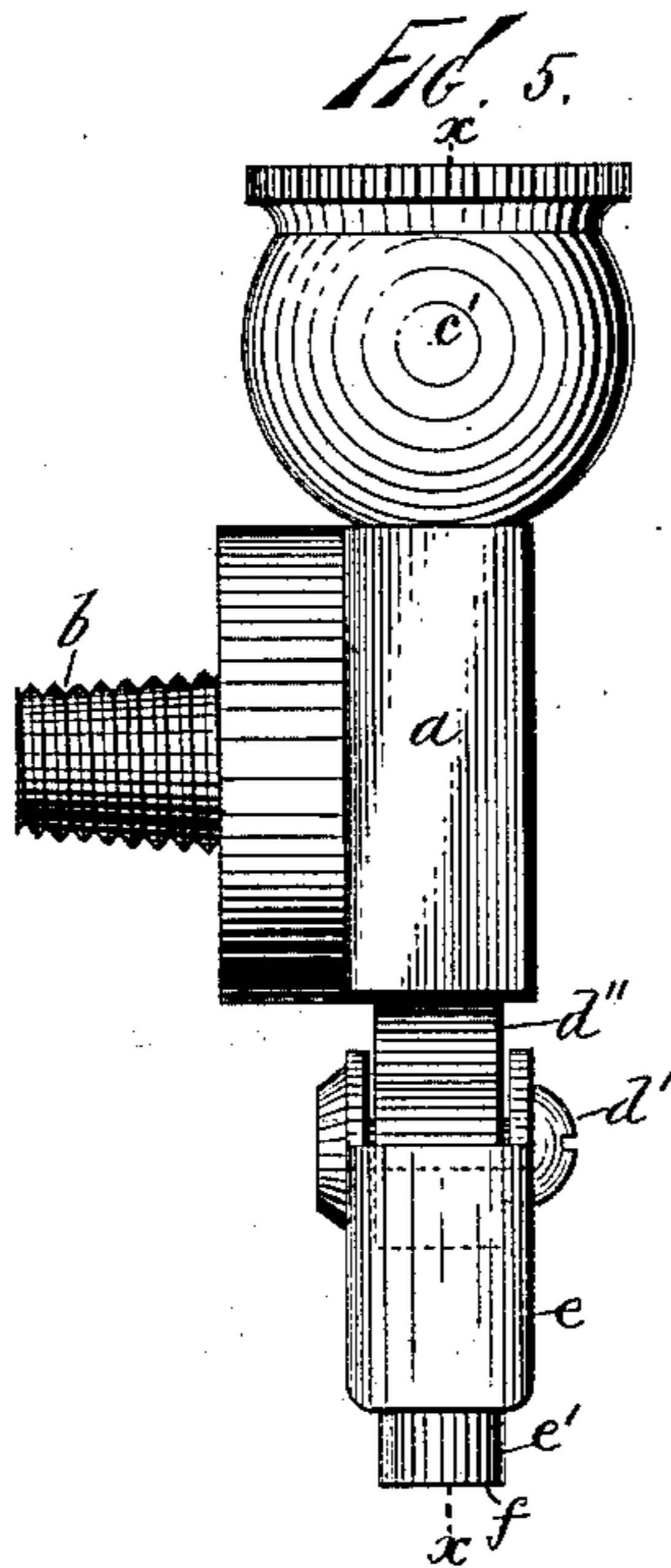
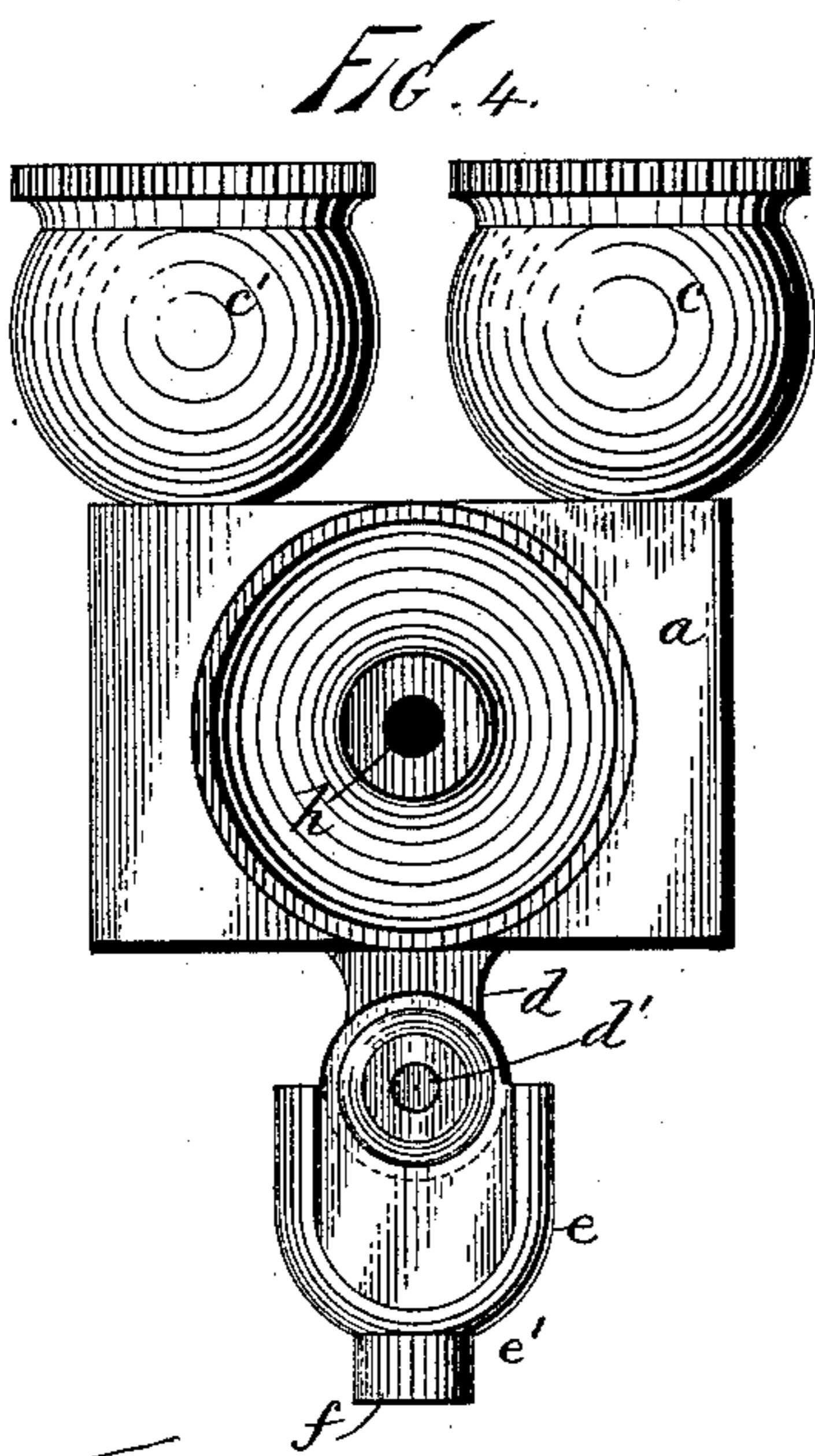
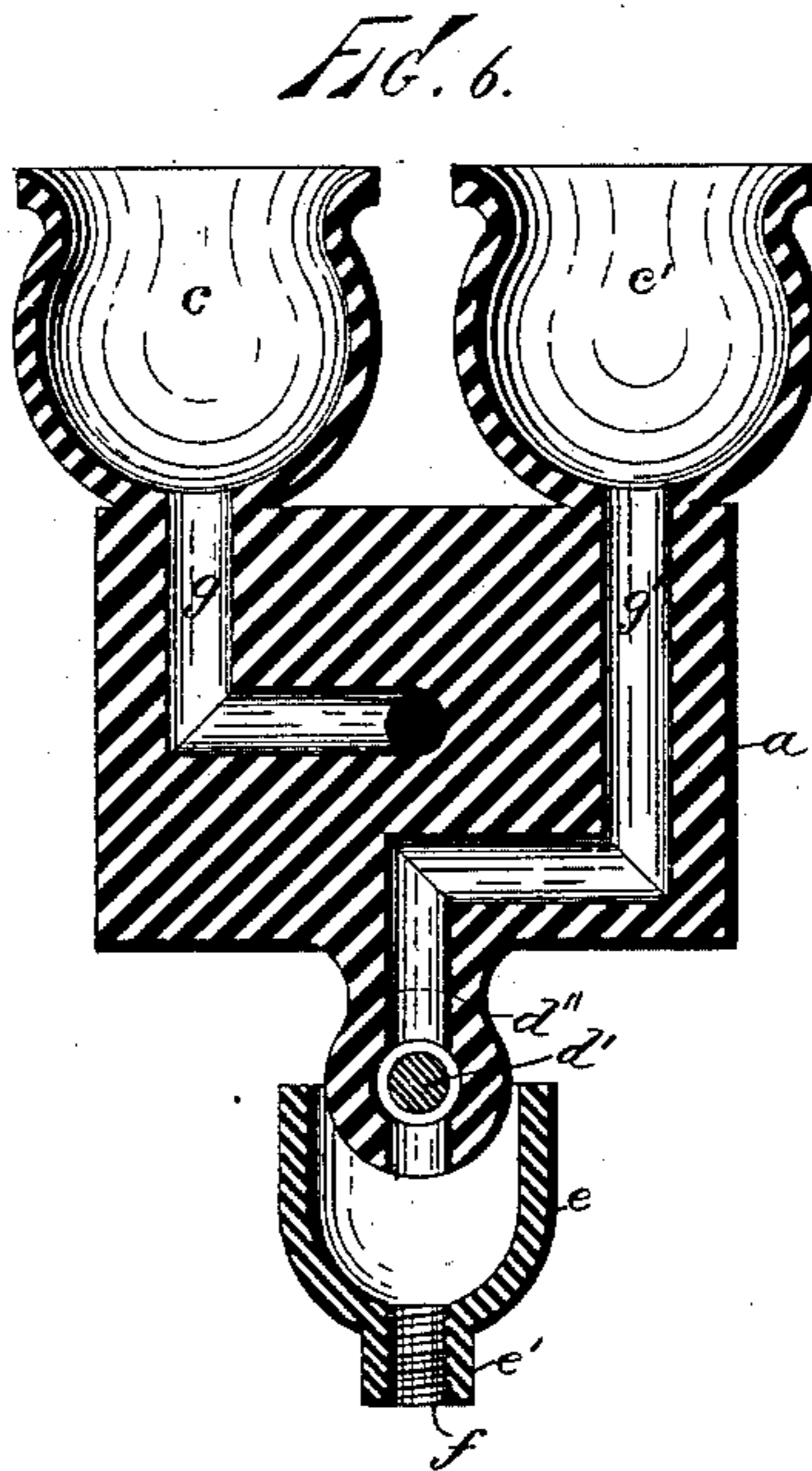
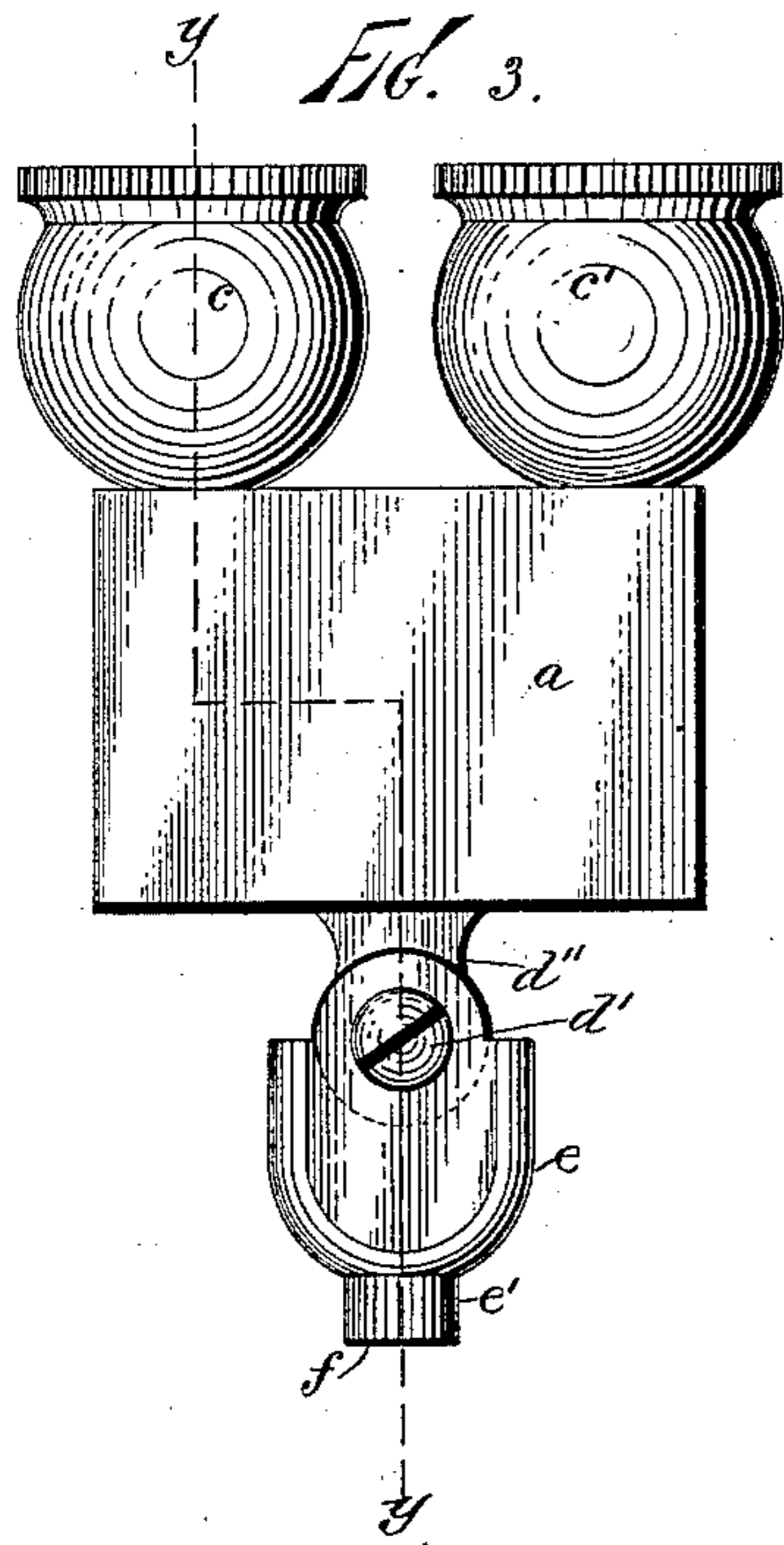
2 Sheets—Sheet 2.

J. H. WILKINSON.

OILING APPARATUS FOR VERTICAL ENGINES.

No. 360,747.

Patented Apr. 5, 1887.



Witnesses:
John Buckler,
George H. Wilkinson.

Inventor:
Joseph H. Wilkinson,
By *Myers & Co.*
Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH H. WILKINSON, OF BOSTON, MASSACHUSETTS.

OILING APPARATUS FOR VERTICAL ENGINES.

SPECIFICATION forming part of Letters Patent No. 360,747, dated April 5, 1887.

Application filed January 27, 1887. Serial No. 225,677. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. WILKINSON, a citizen of the United States, and a resident of the city of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Oiling Apparatus for Vertical Engines, of which the following is a specification.

My improvements are designed more especially for application to what are known as "vertical engines," or those in which the cylinder is mounted above the crank-shaft, although it is obvious that they may be applied to other forms, their object being to provide means whereby the upper and lower bearings of the connecting-rod may be automatically lubricated and the flow of the lubricant thereto be constantly under the eye of the attendant and capable of regulation.

To this end my invention consists in a peculiarly-constructed oil or lubricant distributing device, whereby the results specified are possible, and in the combination of such device with certain parts of a steam-engine, all as hereinafter more particularly pointed out.

Referring to the drawings, Figure 1 is a front elevation of parts of a vertical steam-engine with my invention applied thereto. Fig. 2 is a side elevation of the same, some of the framework being broken away to more clearly illustrate parts beyond. Fig. 3 is a front elevation of my improved oil-distributing device detached. Fig. 4 is a rear elevation of the same. Fig. 5 is the edge elevation thereof. Fig. 6 is a section taken on the line X X of Fig. 5, and Fig. 7 is a section on the line y y of Fig. 3.

In all the figures like letters represent corresponding parts.

A indicates the bed or support of the engine; B, the cylinder; C, the crank-shaft; D, the crank-disk; *d*, the wrist-pin; E, the piston-rod; F, the cross-head, and G the connecting-rod. These parts being all constructed and arranged as is common in this class of engine, require no further description herein.

My improved oil-distributing device is shown at I, it being constructed with a body, *a*, of any desired form, having the screw-threaded stem *b*, projecting from its back, and being provided at suitable points upon or in its top with the cup-shaped receptacles *c c'*. Depending from the bottom of the body *a* is

a lug, *d''*, forming one member of a knuckle-joint, to which is loosely pivoted, by a screw, *d'*, or otherwise, a cup, *e*, forming the other member thereof, said cup being provided with a stem-like portion, *e'*, on its under side, through which and the bottom of the cup extends a screw-threaded orifice, *f*.

g g' are ducts leading from the bottom of the cup-shaped receptacles *c c'* and extending down into the body *a*, the former of said ducts being connected with an orifice, *h*, bored axially into the end of the stem *b*, and the latter extending downward and through the lug *d''*, the arrangement of said ducts being such that oil or other lubricant poured into the cup-shaped receptacle *c* will be discharged through the orifice *h* in the stem *b*, and, poured into the receptacle *c'*, will be discharged through the lug *d''* into the cup *e*, pivoted to the latter.

The oil-distributing device I, as thus constructed, when applied to a steam-engine of the class above mentioned, is preferably secured to the pin *i* in the cross-head F, to which the upper end of the connecting-rod G is jointed by drilling axially into its end and screwing the stem *b* of the oil-distributing device therein, the orifice formed by such drilling being connected with the interior of the bearing in the upper end of the connecting-rod by a second orifice drilled into the side of said pin and intersecting with the first-mentioned orifice, as shown in dotted lines at F' in Fig. 2. The duct leading from the other oil-receptacle, *c'*, is similarly connected with the interior of the other bearing of the connecting-rod by means of a pipe, H, screwed into the stem *e'* or lower end of the cup *e*, and extending down beside the connecting-rod and into an orifice drilled from its side into its lower bearing, as shown in dotted lines at H' in the same figure. By this construction and arrangement of parts it will be seen that a continuous duct is formed for the flow of the oil or other lubricant from the oil-receptacle *c* to the upper bearing of the connecting-rod, and also from the oil-receptacle *c'* to the lower bearing thereof, so that oil or other lubricant supplied to these receptacles will pass down through their appropriate ducts and into the respective bearing to which they are connected.

The oil or other lubricant may, if desired,

be supplied to the receptacles *c c'* by hand from an ordinary oil-can, or by other means. I prefer, however, to supply it automatically, and for this purpose I employ the oil-reservoirs *L L'*, which are mounted in any suitable position above the oil-cup *I*. In the present instance these reservoirs are shown applied to the flange on the lower end of the cylinder *B*; but it is to be understood that I do not limit myself to that particular arrangement, as it is obvious that they may be otherwise applied, it being only essential that they should be located at some point above the oil-distributing device *I* when the latter is in its highest position. Extending downward from these reservoirs, and terminating at a point slightly above that reached by the receptacles *c c'* in their upward reciprocation, are tubes *l l'*, which are so bent as to bring the lower end of the former directly over the receptacle *c* and the lower end of the latter directly over the receptacle *c'*, whereby the oil or other lubricant discharged from these tubes will be deposited in its appropriate receptacle.

The oil-reservoirs *L L'* may be ordinary sheet-metal cans provided with valves or other means for controlling the delivery of the oil or lubricant; and, instead of employing a separate reservoir for each of the receptacles *c c'*, it is obvious that a single reservoir for the two may be made use of, it only being essential that a separate tube, *l l'*, for each of the receptacles *c c'* should be provided. I prefer, however, to employ that form of reservoir shown in the drawings as being the best adapted for the purpose, the same being provided with a glass body and a delivery-orifice which discharges the oil or lubricant across an open recess, permitting of a more thorough knowledge at all times of the amount and condition of the oil or other lubricant therein, as well as of the rapidity with which it is being discharged.

I make no claim herein to this form of reservoir, as the same is not of my present invention, it being shown in Letters Patent of the United States No. 127,205, to which reference may be had for a better understanding thereof.

With the parts constructed and arranged as thus described, it is obvious that oil or other lubricant supplied to the oil-reservoirs *L L'* will pass down through the tubes *l l'* and be discharged into the oil-receptacles *c c'*, whence it will be conveyed to the upper and lower bearings of the connecting-rod by the respective ducts, *g g'*, the termination of the tubes *l l'* slightly above the highest points reached by the oil-receptacles *c c'* in their upward reciprocation allowing of the attendant observing the exact amount of oil or lubricant that is being delivered, which may be regulated to suit the exigencies of the case by means of the valves or other governing devices in the oil-reservoirs *L L'*.

From the above it will be seen that I produce an oil-distributing device which is capa-

ble of application to various forms of machines wherein it is required to lubricate bearings arranged at different heights with respect to one another, and at the same time combine it with the parts of a vertical steam-engine and with oil-holding reservoirs in such a manner as not only to cause the lubrication of the upper and lower bearings of the connecting-rod thereof automatically, but also so as to permit of the lubricant, as it passes to the bearings, being continually under the eye of the attendant and the flow thereof to be regulated.

In order to prevent the slopping or spilling of the oil in the operation of the engine, and to strain and exclude grit or other foreign substances from the bearings, I sometimes find it convenient to fill the oil-receptacles *c c'* with waste or other fibrous material; but the employment thereof is not essential to my invention, and may be omitted, if desired.

While I have shown the best means devised by me for carrying out my invention, I wish it distinctly understood that I do not limit myself strictly thereto, since it is obvious that the details thereof may be modified in various ways without departing from the spirit of my invention—as, for instance, I may employ three or more oil-receptacles *c c'*, &c., with appropriate oil-ducts, instead of two, as shown in the drawings, and still be within scope of the same.

Having described my invention and one way in which it is or may be carried into effect, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An oil-distributing device consisting of a body, *a*, provided with a stem, *b*, projecting from its back, oil-receptacles *c c'*, and ducts *g g'*, leading from said receptacles, the former of which ducts passes axially through the stem *b* and the latter through the bottom of the body *a*, substantially as described.

2. An oil-distributing device consisting of a body, *a*, provided on its back with the stem *b* and on its bottom with the lug *d''*, the oil-receptacles *c c'*, and ducts *g g'*, combined with the cup *e*, pivoted to the lug *d''*, the former of said ducts passing axially through the stem *b* and the latter of such ducts passing through the lug *d''*, substantially as described.

3. The combination, with the cross-head of a vertical steam-engine and the pin *F*, provided with the aperture *F'*, formed therein, the connecting-rod, and the wrist-pin, of the oil-distributing device *I*, secured to said pin, and the tube *H*, the said oil-distributing device being provided with suitable oil-ducts, whereby both the upper and lower bearings of the connecting-rod may be lubricated therefrom, substantially as described.

4. The combination, with the cross-head of a vertical steam-engine provided with a pin passing therethrough and having the aperture *F'* formed therein, the connecting-rod jointed to said pin, and a wrist-pin, of an oil-distributing device consisting of the body *a*, hav-

ing the stem *b* and lug *d''*, the oil-receptacles *c c'*, the ducts *g g'*, and the cup *e*, secured to said pin, and the tube *H*, connecting the cup *e* with the lower bearing of the connecting-rod, substantially as described.

5. The combination, with the cross-head of a vertical steam-engine provided with a pin passing therethrough and having the aperture *F'* formed therein, the connecting-rod jointed to said pin, the wrist-pin, the oil-distributing device *I*, having the oil-receptacles *c c'*, ducts *g g'*, cup *e*, and stem *b*, and the tube *H*, connecting the cup *e* with the lower bearing of the connecting-rod, of the oil-supplying devices located above the distributing device *I*, for feeding oil to the receptacles *c c'*, substantially as described.

6. The combination, with the cross-head of a vertical steam-engine provided with a pin passing therethrough and having the aperture *F'* formed therein, and the oil-distributing device *I*, having the oil-receptacles *c c'*, ducts *g g'*, and stem *b*, of the oil-reservoirs located above said oil-distributing device *I*, and tubes *l l'*, for conducting the oil from the reservoirs to the receptacles *c c'*, and devices for regulating the flow of the oil from said reservoirs, substantially as described.

In testimony whereof I have hereunto set my hand.

JOSEPH H. WILKINSON.

Witnesses:

J. DANIEL COMPTON,
GEO. F. HODKINSON.