

(No Model.)

W. AUTEURIETTI.  
Air Pump.

No. 234,516.

Patented Nov. 16, 1880.

FIG. 1.

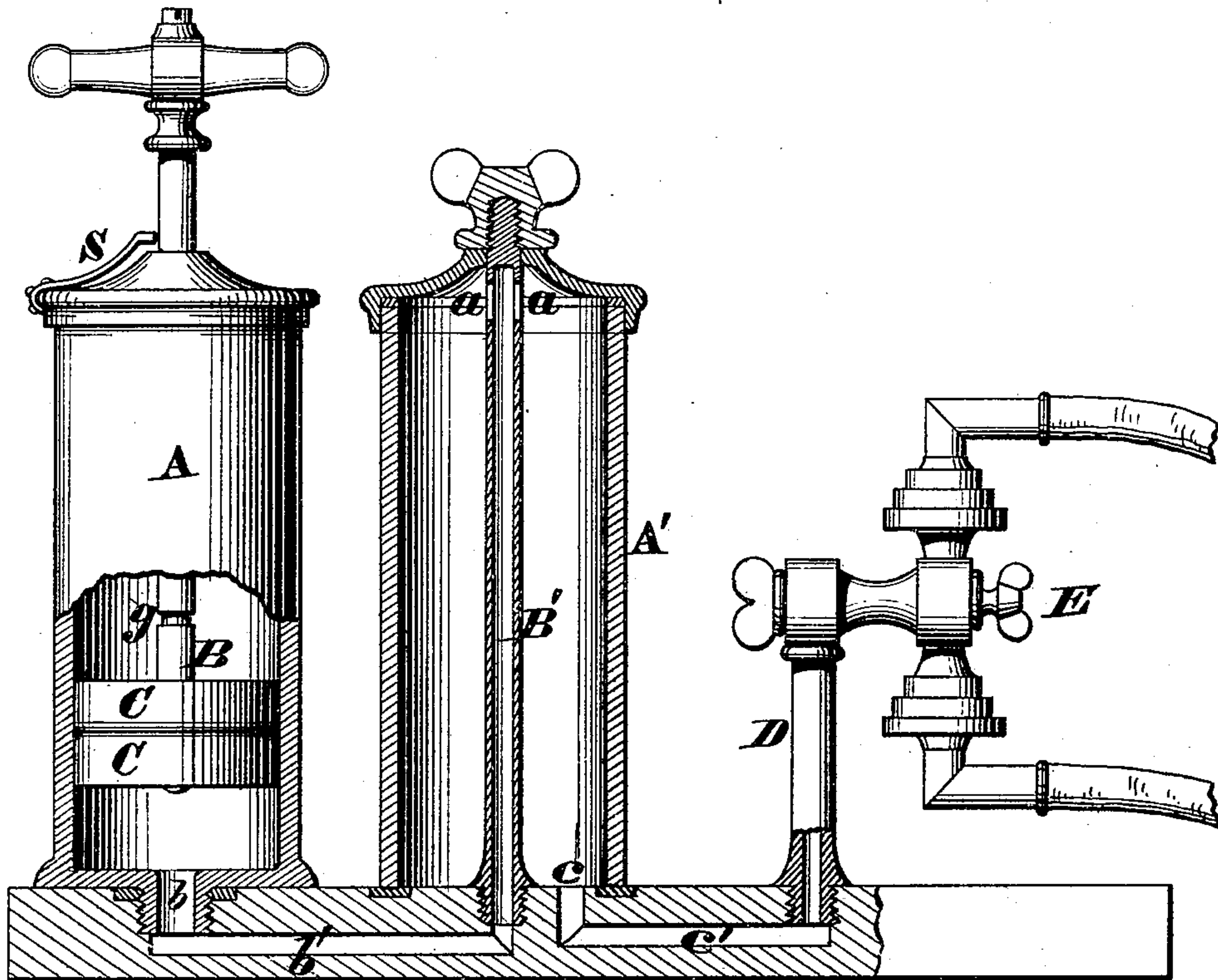


FIG. 2.

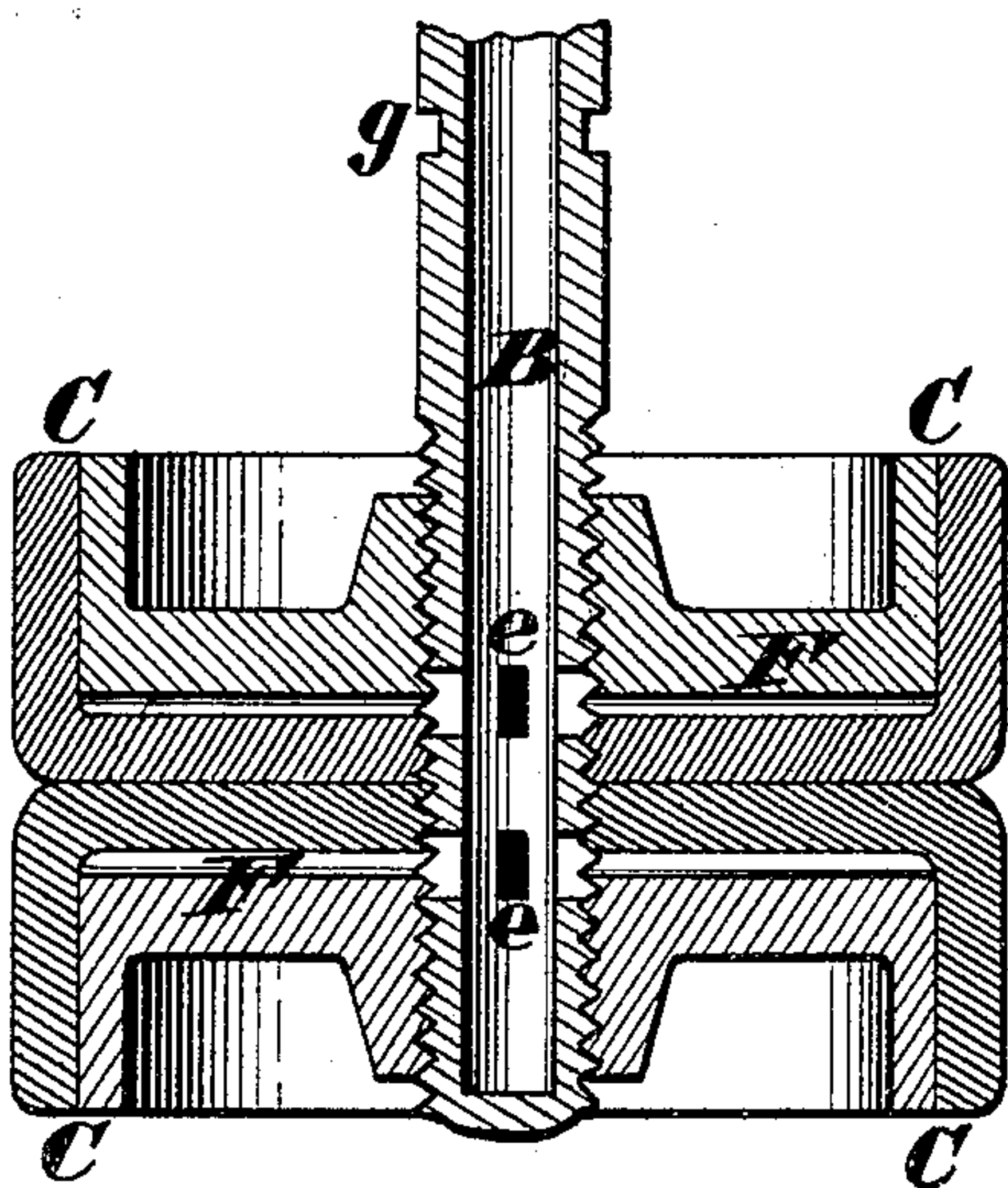
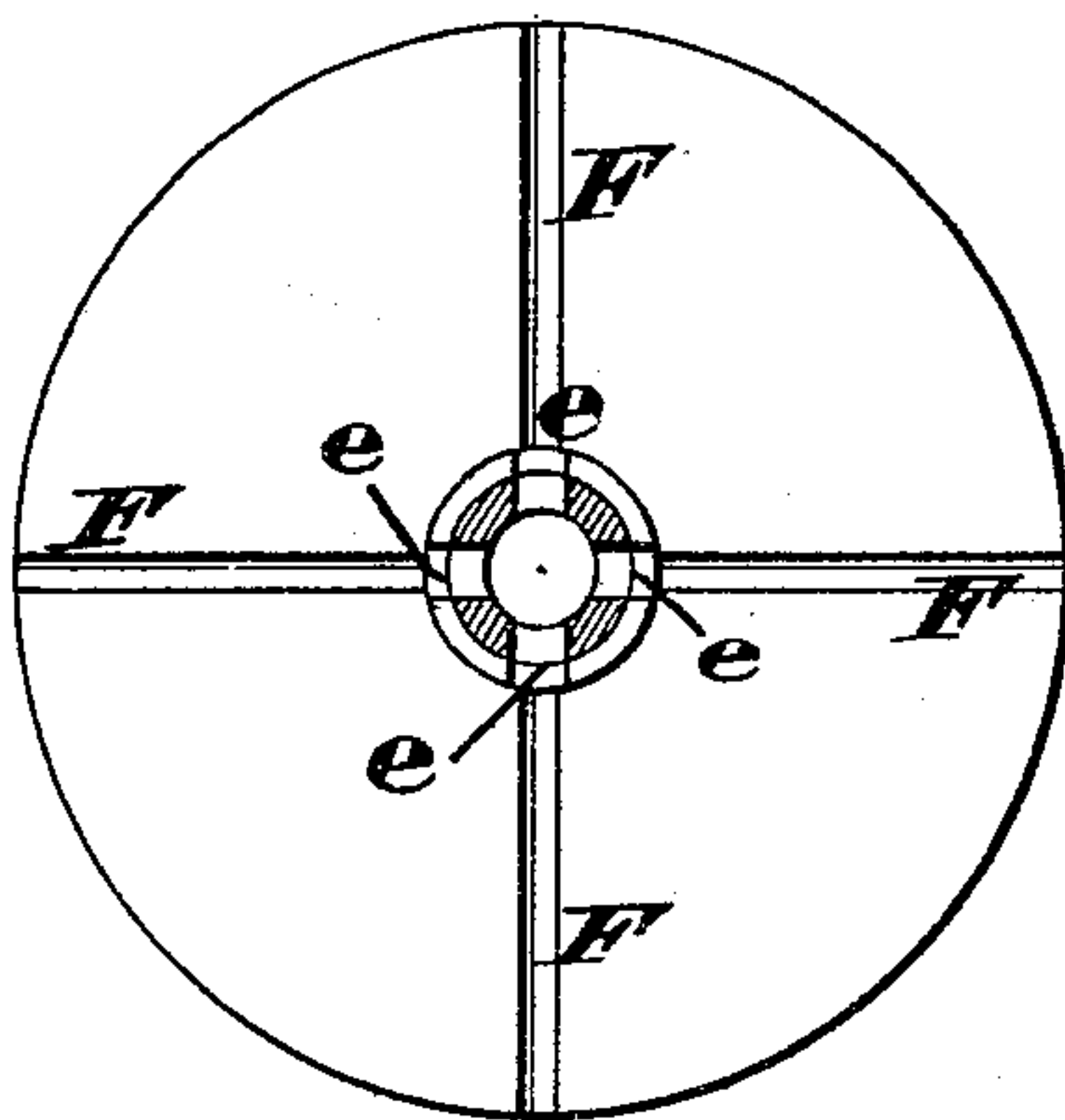


FIG. 3.



Attest.  
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his Attys.



# UNITED STATES PATENT OFFICE.

WILLIAM AUTEURIETTI, OF CINCINNATI, OHIO.

## AIR-PUMP.

SPECIFICATION forming part of Letters Patent No. 234,516, dated November 16, 1880.

Application filed September 15, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM AUTEURIETTI, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Aspirator-Pumps, of which the following is a specification.

My invention consists in certain new and useful improvements in air-pumps, which are designed to be attached to aspirators for the purpose of removing the pus from wounds and other analogous purposes.

The pump for this purpose heretofore in use consisted of the ordinary miniature air-pump, which, by proper connections, was attached to the aspirator.

The difficulty met with in the use of this device was its liability to get out of order. This is especially true when, in being operated, the pus is obliged to pass from the wound into the aspirator and thence into the cylinder of the pump, and in being ejected very often clogs up the cylinder, thus suspending further operation till the obstruction is removed by extraneous means. Frequent cleaning is also necessary, and much difficulty and annoyance met in keeping it in proper order.

To overcome these defects I have constructed a pump, which I will now describe.

The stand upon which the apparatus rests is cast with a hollow tube on its under side running longitudinally through the center of the stand. This tube is not continuous throughout its entire length, but is blocked up about half way, making, in reality, two tubes, which are closed up at each end of the stand. Upon the upper face of the stand are small openings—four in number—two communicating with each of the above tubes. Over one of these openings, nearest one end of the stand, I attach an ordinary pump-cylinder with appropriate rod and piston. This may be rigidly attached or adjustable. Over the next succeeding two openings is placed a second cylinder, which fits into a groove in the face of the stand made for the purpose. Within this cylinder an upright hollow tube is fastened, by screwing or otherwise, into the opening on the face of the stand immediately preceding the pumping-cylinder. This tube is closed at the top end, but has a small aperture cut into it a short distance from the top, the purpose of

which will hereinafter be explained. Over this second cylinder is placed a cap, in the center of which is a hole, through which the upper part of the upright tube projects, and is fastened thereon by a nut being screwed onto the tube. The opening next this upright tube, and which is encircled by this second cylinder, communicates with the other tube on the under side of the stand. To the remaining aperture on the face of the stand is attached a small upright hollow standard, which is in communication with the aspirator secured to it. When it is desired to operate this pump the piston is raised, which exhausts the air from the adjoining cylinder by means of the upright tube within it. The air, passing into this tube by means of the aperture in its top, descends into the tube underneath in the stand and from thence to the pump-cylinder. A partial vacuum being thus created, the pus is withdrawn from the wound into the aspirator, descends through the hollow standard, and from there passes up to the cylinder, from which the air has been exhausted by means of the other tube underneath in the stand. The return-stroke of the piston forces the air back again to the cylinder, the pus conveyed back again to the aspirator by means of the tubes and ejected therefrom by appropriate means. Thus it will be seen the pus does not come in contact with the pump cylinder or piston, which prevents all danger of clogging and requires no cleansing of same.

In order to lessen friction and render the working of the piston more easy, I have made the piston-rod hollow, closed at its bottom and open at the top end, from which point oil or other lubricating substance is admitted. A female screw is cut into its upper end, to which the handle is attached, and which closes the same, and a male screw is cut into its lower end.

Instead of having the piston of one solid piece, I prefer to use two disks, made of brass or other suitable material, each having grooves cut into one side of their faces. These disks have holes in their center containing female screws. These are screwed onto the lower end of the piston-rod, their faces containing the grooves being in opposite directions, one facing upward and the other downward. Be-



tween these, however, are two disks, of leather or other appropriate material, of larger diameter than the piston-disks proper, which are lapped over them in contrary directions, thus fitting the pump-cylinder snugly. The before-mentioned grooves in the disks meet holes in the lower part of the piston-rod, through which the oil escapes to the grooves and thoroughly saturates the leather, thus lubricating and rendering the working of the piston easy.

To render this description clearer I will refer to the accompanying drawings, in which Figure 1 is a longitudinal section of my pump, and also shows the aspirator in place. Fig. 2 is a vertical section of the piston-rod, showing the manner in which the disks are attached to form the piston and the apertures and grooves for the escape of the lubricating substance. Fig. 3 is a plan view of one of the disks, showing the grooves cut into its face and the apertures in the piston-rod, from which the oil enters the grooves and saturates the leather covering.

A is the pump-cylinder; B, the hollow piston-rod; C C, the disks forming the piston.

A' is the cylinder, from which the air is exhausted and into which the pus or other liquid is drawn; B', the upright tube, having apertures *a a* near its top, into which the air enters when being withdrawn from cylinder A', and passes from thence through the tube *b'* underneath the stand and tube *b* into the pump-cylinder. *c c'* are also tubes, *c'* being underneath the stand, running from cylinder A' and communicating with the hollow standard D, to which is fastened the aspirator E.

When the piston is raised it draws the air from cylinder A' through the upright tube B', creating a partial vacuum in same, and by means of tubes *c* and *c'* the aspirator is communicated with, its lower valve opened, and the pus drawn into cylinder A'. On the return-stroke of the piston the lower valve of the aspirator is closed and its top valve opened. The pus returns to the aspirator by the same channels through which it entered, and is ejected through the upper valve.

The cylinder A' I make of glass or other transparent material, in order that the pus drawn into it may be visible and its character ascertained; but, if transparency is not desired, it can be made of any suitable opaque material. It is also adjustable, in order to be readily cleansed.

I also attach a spring, S, to the cap of the pump-cylinder, which is designed to fit into notch *g* on the piston-rod when same is raised

and hold it firmly if for any cause its descent should not be desired.

*e e*, Figs. 2 and 3, are the holes on the end of the piston-rod, through which the oil escapes into the grooves F and saturates the leather on the piston-disks, always keeping it moist for lubricating.

While I have described this pump for use on aspirators, it can, of course, be used on stomach-pumps and other analogous uses.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the pump-cylinder A, of the cylinder A' for receiving pus from an aspirator, the tube B', arranged within the cylinder A' and opening therein at its upper end, and the pipe-connections *b b'* between said tube and the pump-cylinder, substantially as described.

2. The combination, with a stand having the pipes *b' c'* arranged below its upper surface, of the pump-cylinder A, the pus-receiving cylinder A', the tube B', arranged within the pus-receiving cylinder and formed with an opening at its upper end, the hollow standard D, and an aspirator, E, connected with said hollow standard, substantially as described.

3. The combination, with the hollow piston-rod B, formed with openings *e e* adjacent to its lower end, of the piston-disks C C, formed with channels F to receive the oil which flows out from the hollow piston through the openings *e*, substantially as described.

4. The combination, with the hollow piston-rod B, formed with openings *e e* and screw-threaded upon its exterior surface, of the adjustable piston-disks C C, having channels F and fitted upon the piston-rod, substantially as described.

5. In an aspirator-pump, the combination, with the aspirator, of an air-pump for drawing the pus through the aspirator, a receiving-chamber intermediate of the pump, and the aspirator for receiving the pus from the aspirator and holding it until the same is forced out through the aspirator by the action of the pump, and pipe-connection between the pump and the pus-receiving chamber, arranged to admit of the air being partially exhausted from said chamber without carrying any of the pus or other substance to the pump, substantially as described.

W. AUTEURIETTI.

Witnesses:

CHAS. BAIER,

JEREMIAH F. TWOHIG.

Correction for Letters Patent No. 234,516.

It is hereby certified that in Letters Patent No. 234,516, dated November 16, 1880, for "*Air Pumps*," the surname of the patentee was erroneously written and printed Auteurietti, instead of Autenrieth; that the proper corrections have been made in the records of this Office, and that said correction is hereby made in said Letters Patent.

Signed, countersigned and sealed this 30th day of November, A. D. 1880.

[SEAL.]

A. BELL,  
*Acting Secretary of the Interior.*

Countersigned:

E. M. MARBLE,  
*Commissioner of Patents.*