

(No Model.)

W. J. LONGLEY.

PISTON ROD.

No. 333,140.

Patented Dec. 29, 1885.

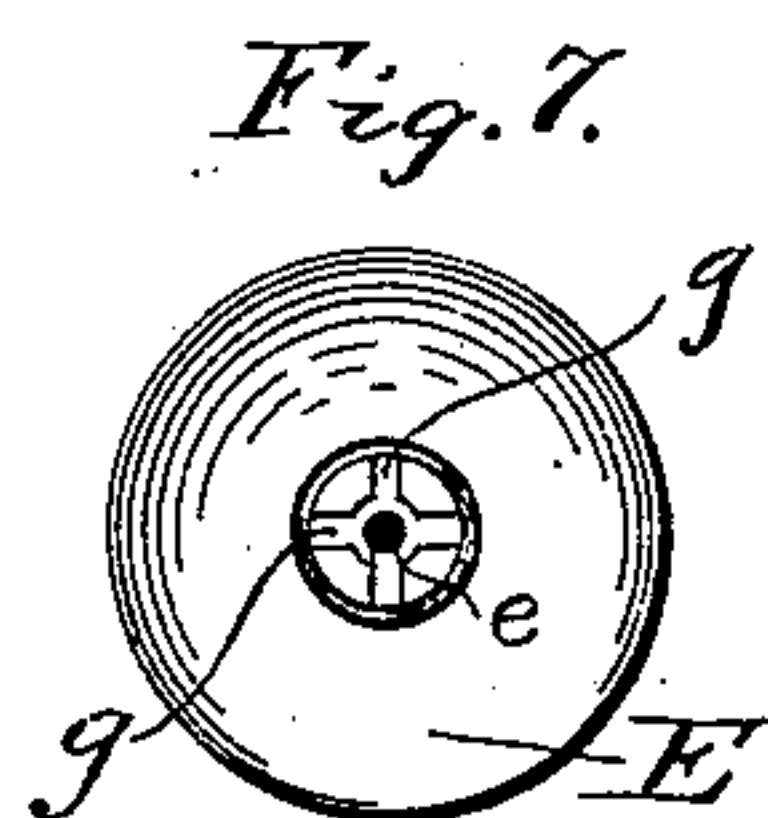
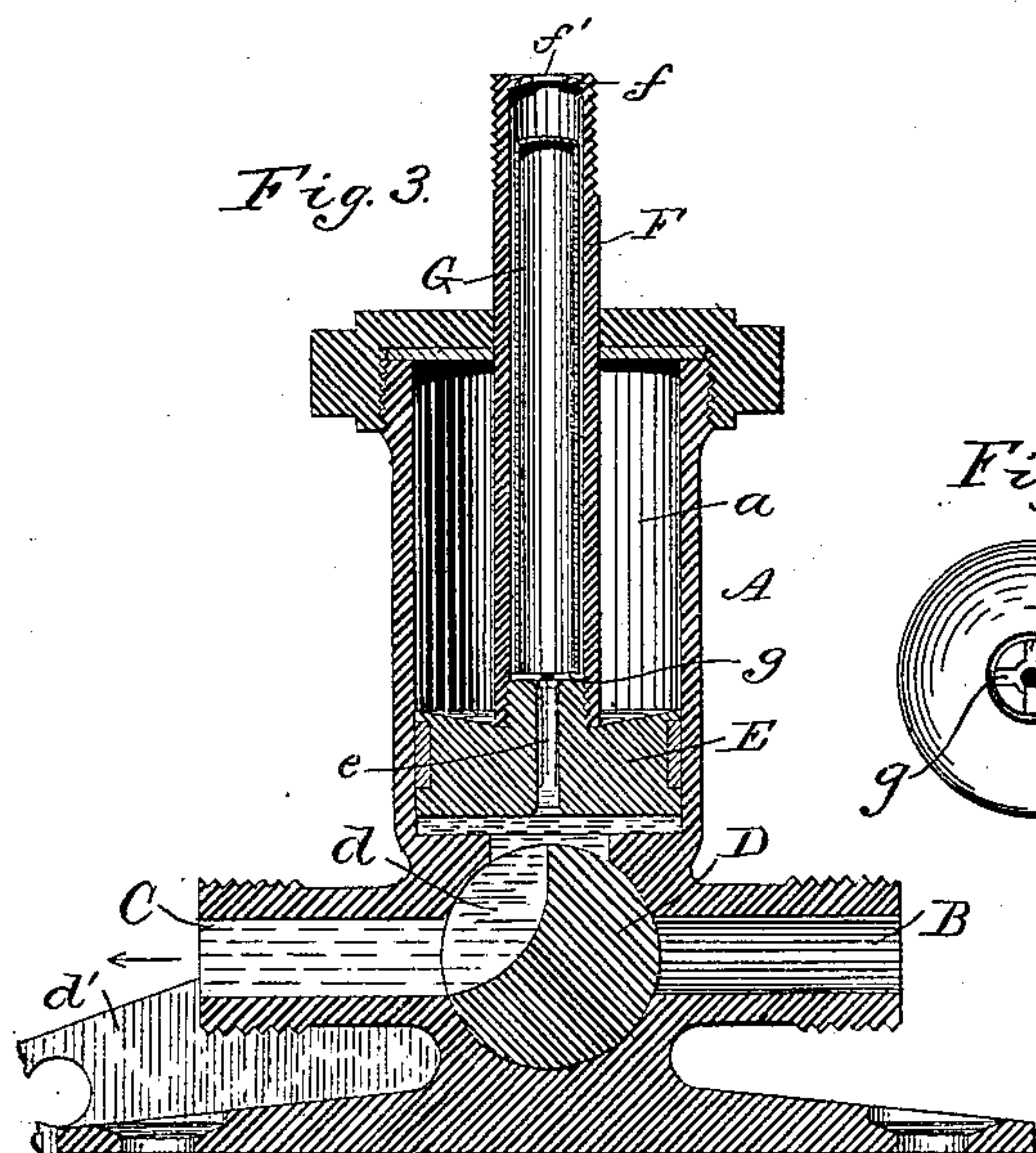
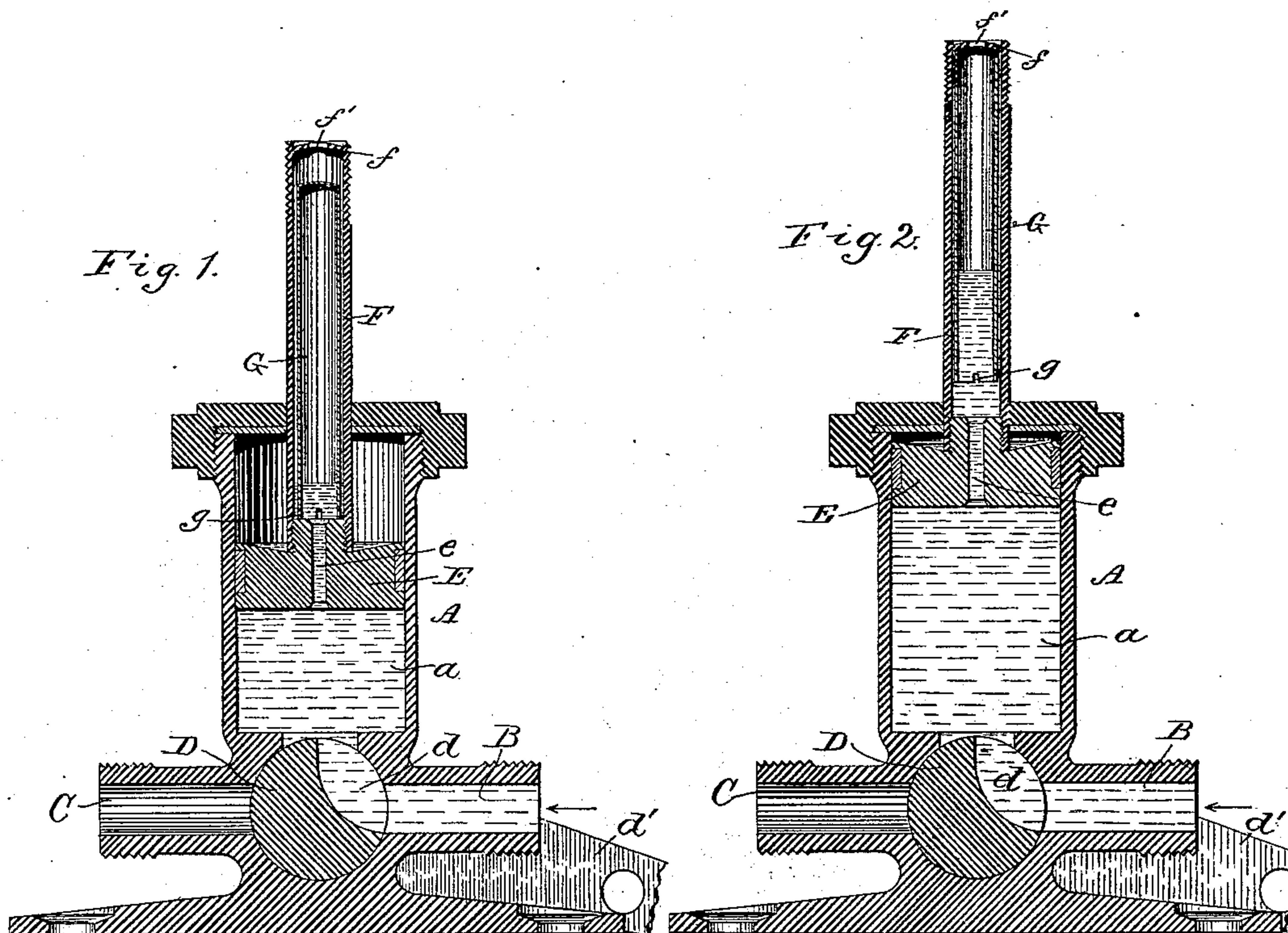


Fig. 4.

Fig. 5.

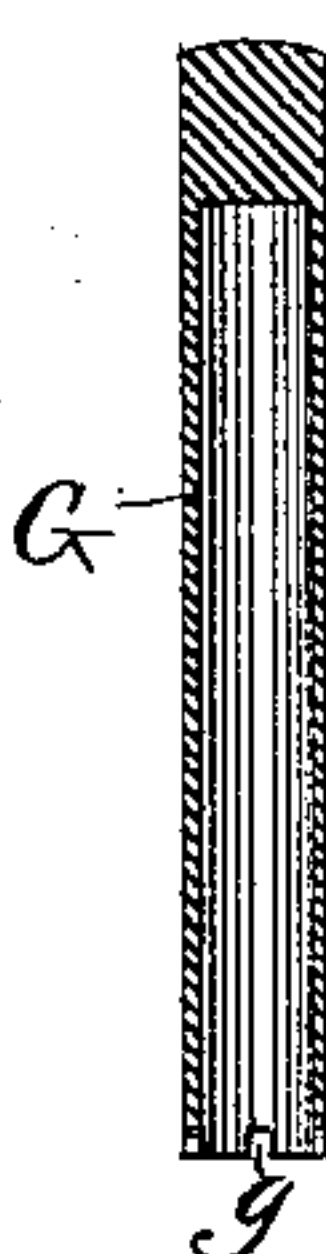
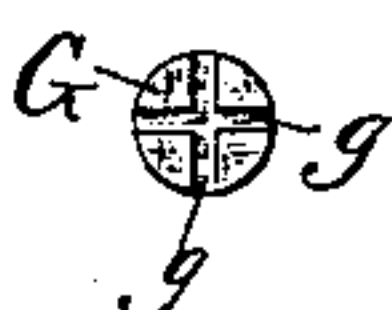


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM J. LONGLEY, OF MOUNT VERNON, NEW YORK.

PISTON-ROD.

SPECIFICATION forming part of Letters Patent No. 333,140, dated December 29, 1885.

Application filed May 29, 1885. Serial No. 167,079. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. LONGLEY, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Piston-Rods, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain improvements in piston-rods intended more particularly for use in connection with the disinfecting device for water-closets, &c., embraced by Patent No. 311,192, granted January 27, 1885, to Charles Elkin and myself, the object of the present invention being to provide a proper vent for the box or receiving-chamber for the disinfecting fluid through the rod of the piston by which the fluid is forced from said chamber. This object is accomplished by forming the piston-rod hollow and providing the upper or outer portion of the same with a valve-seat. A valve, preferably in the form of a thimble, is fitted loosely within said rod, so that it may have an endwise movement therein, and so that there may be an air-passage around the same. An aperture is made through the piston, and the lower or inner end of the valve or thimble is notched to permit air to pass between the valve and the piston when the former is in contact with the latter.

In the drawings, Figure 1 is a sectional view of a water-closet attachment illustrating my invention. Figs. 2 and 3 are views similar to Fig. 1, but with some of the parts in different positions. Figs. 4, 5, and 6 are detail views of modified forms of valves. Fig. 7 is a detail plan view of the modified form of piston shown in Fig. 3.

A indicates a hollow box or cylinder, forming a receiving-chamber, *a*, for the disinfecting fluid, and B and C are the inlet and outlet pipes or passages, respectively, for the same.

D is a turning plug or valve, having an aperture or passage-way, *d*, adapted to be placed in communication with either the inlet or outlet passage and the receiving-chamber, said plug having an arm or handle, *d'*, by which it may be turned.

E is a piston fitting closely within the chamber *a*, and having a vent-aperture or air-passage, *e*, through its center.

F is a hollow piston-rod having a valve-seat, *f*, at or near its upper or outer end, said valve-seat being provided with a vent-aperture, *f'*. 55

G is a valve fitting loosely within the hollow rod F, said valve being of lesser length than the distance between said piston and valve-seat, so as to be adapted to move endwise within said rod. The valve G is provided with notches *g* at its lower or inner end, to permit the air, which is to pass around the same, to flow freely to or from the vent-aperture *e* when the valve rests against the piston. The valve G is preferably of metal in the form of a hollow thimble, as shown in Fig. 1; but it may be partly hollow, as shown in Fig. 4, or may be of wood or other material which will float, and in such case it will preferably be made solid, as shown in Figs. 5 and 6, the latter figure being an end view to show the notches *g*. 60 65 70

The operation of my invention is as follows: The passage-way *d* of the turning plug D being placed in communication with the inlet-passage B, as in Fig. 1, the fluid will flow into the receiving-chamber *a*, and as the latter fills with the fluid the air therein can escape through the aperture *e* of the piston and the hollow piston-rod, the air passing around the valve G. When the chamber *a* is filled, the fluid will flow upward in the piston-rod; but before said rod is filled the valve G will be raised, (owing to the air within it, or by reason of its being lighter than the fluid,) and the vent *f'* in the valve-seat at the upper end of the rod will thus be closed, as in Fig. 2. When the passage-way *d* of the turning-plug is placed in communication with the outlet C, as in Fig. 3, the fluid will escape or be forced from the chamber *a* by the piston, and when the chamber is emptied, or nearly so, or the pressure on the fluid therein is released, the fluid in the hollow piston-rod will escape therefrom, and the valve will descend, and thus open the vent *f'* at the valve-seat *f*, so that an air-passage through the rod and piston will again be established. 75 80 85 90 95

It will be understood that the valve G will be properly weighted according to the density of the fluid, so as to close the vent at the right moment. 100

Instead of providing the valve G with vent-notches *g* at its lower end, these notches may

be formed in the projection of the piston to which the piston-rod is screwed, as shown in Figs. 3 and 7.

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

1. The combination, with a piston having a vent-aperture and a hollow rod therefor having a valve-seat, of a valve fitting loosely in said rod and of proper length to have an end-
10 wise movement between said valve seat and piston, substantially as set forth.

2. The combination, with a piston having a vent-aperture and a hollow piston-rod having a valve-seat, of a valve adapted to move end-
15 wise inside of said rod and provided with

vent-notches at its inner or lower end, substantially as set forth.

3. The combination, with a piston having a vent-aperture, and a hollow piston-rod having a valve-seat, of a hollow valve or thimble 20 adapted to move endwise in said rod and provided with vent-notches at its inner or lower end, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. LONGLEY.

Witnesses:

CLARENCE S. GROESBECK,
CHAS. H. LIEBERT.