

(No Model.)

R. P. GARSED.

PUMP.

No. 285,477.

Patented Sept. 25, 1883.

Fig. 1.

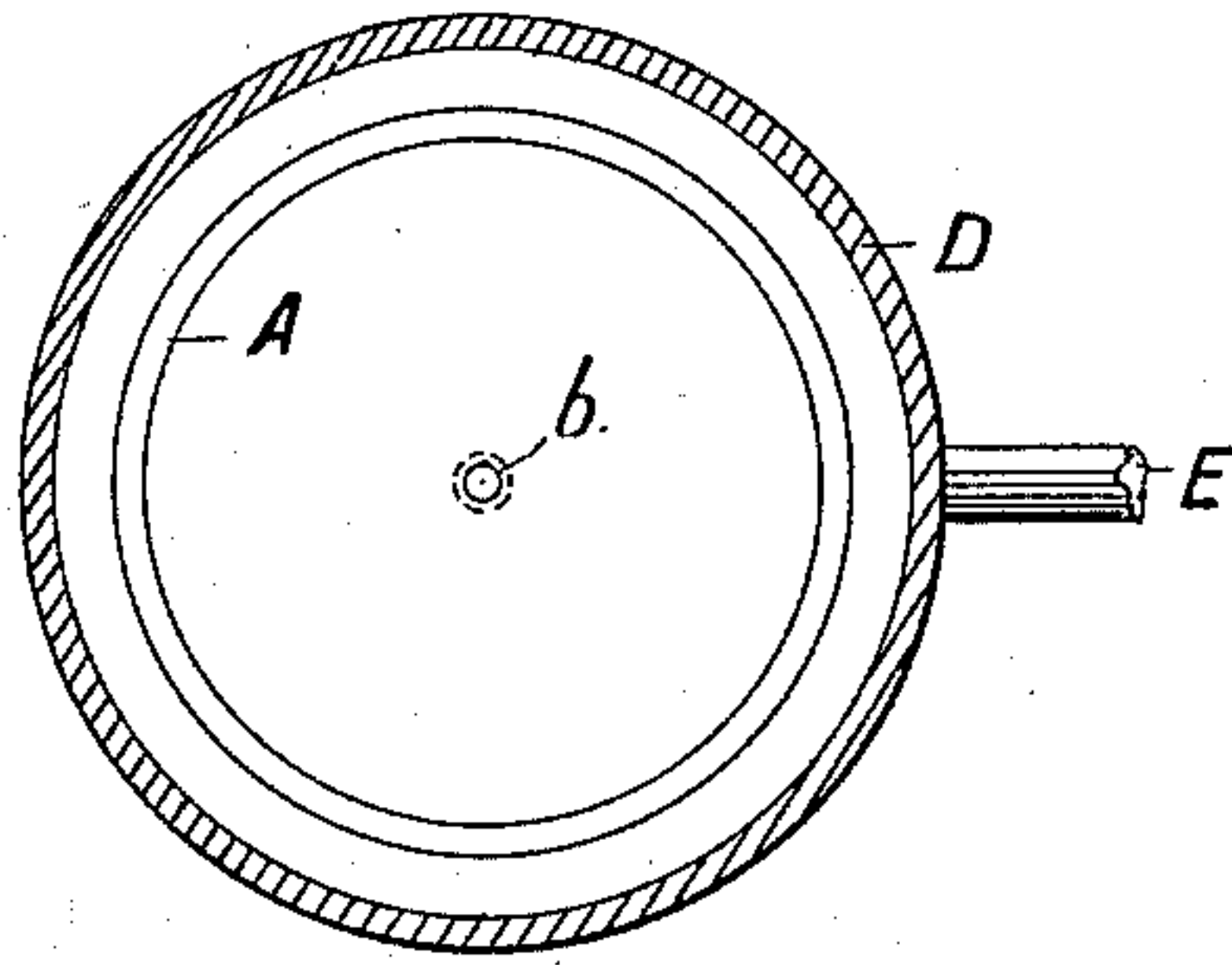


Fig. 2.

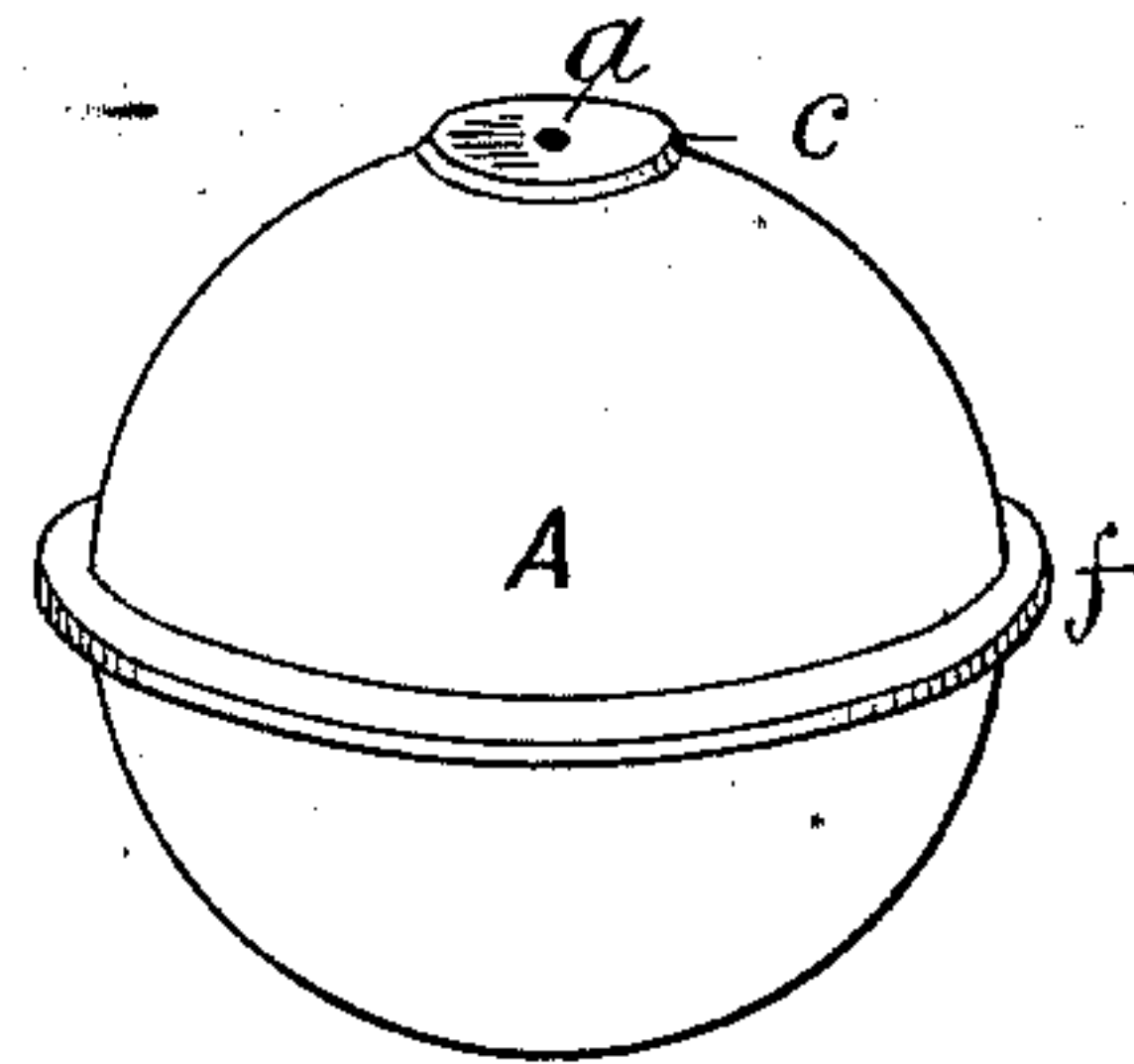


Fig. 3.

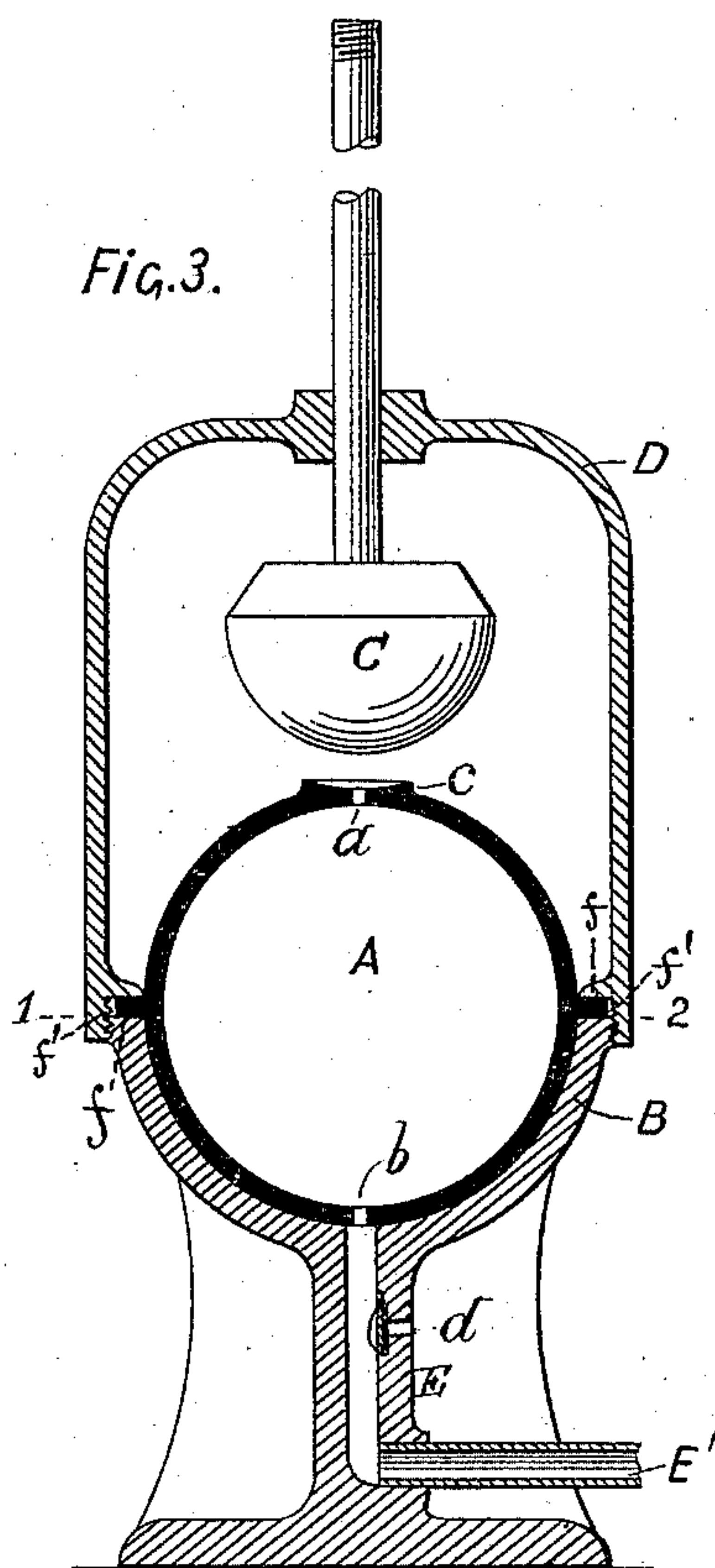
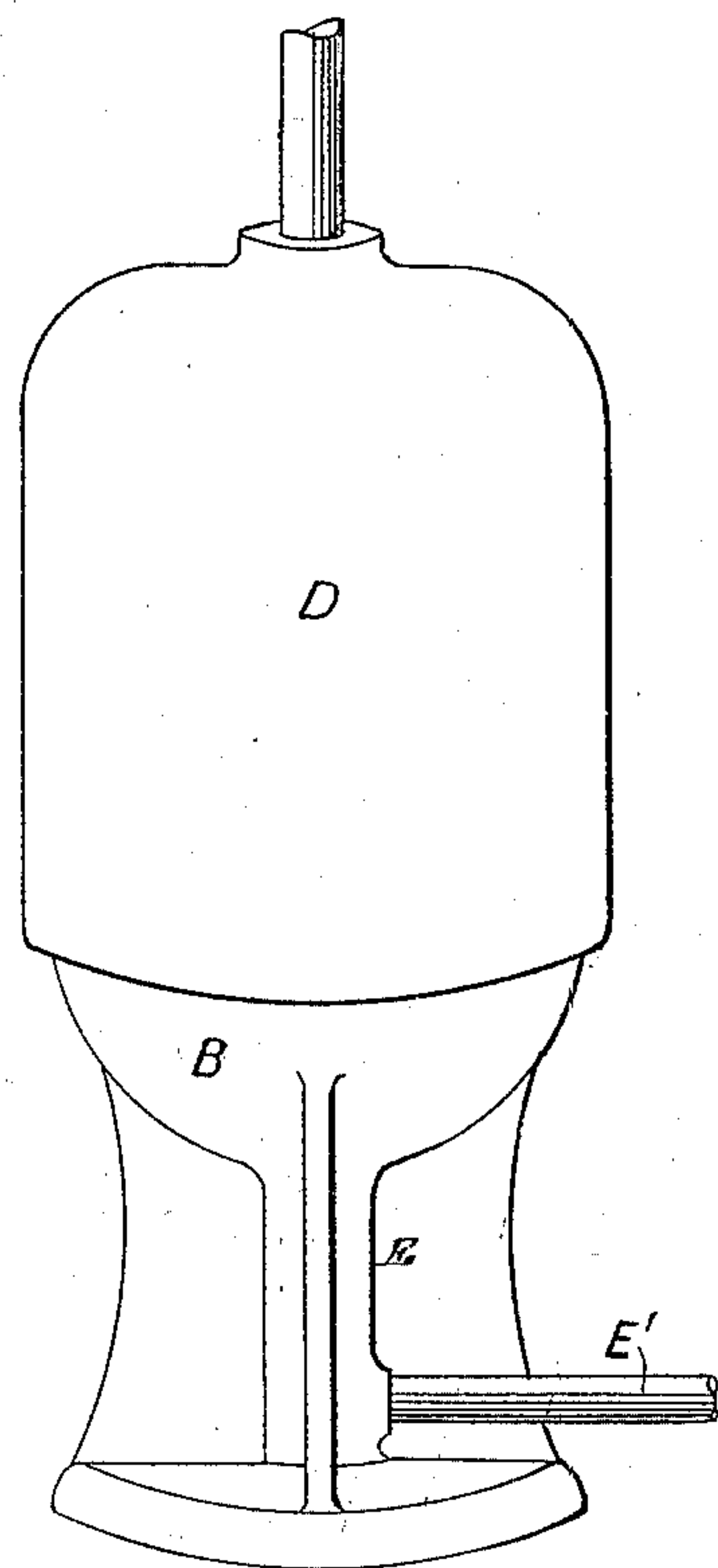


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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SPECIFICATION forming part of Letters Patent No. 285,477, dated September 25, 1883.

Application filed June 20, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROBERT P. GARSED, a citizen of the United States, residing at Norristown, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Improvement in Pumps, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a sectional plan through line 1 2 of Fig. 3. Fig. 2 is a perspective view of the bulb or sphere. Fig. 3 is a sectional view of the pump and plunger, and Fig. 4 is a perspective view of the invention.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a flexible or elastic bulb or sphere with a casing or jacket, holes for the ingress and egress of air, and an exterior flange, a plunger, and other features, as will be hereinafter fully set forth and definitely claimed.

Referring to the drawings, A represents an elastic or flexible hollow bulb or sphere, and B a hollow base, cylinder, or barrel which retains in place and prevents the rupture of the bulb or sphere. In the top of the bulb A and the bottom of the casing B there are holes *a* and *b*, serving for the ingress and egress of air or fluid.

C represents a plunger, and D a guide-box which serves to limit the spread of the upper or outside part of the bulb A, and may serve to clamp the same to the casing B and guide the plunger C in its motions.

E is a communicating air or fluid pipe, which serves to convey air from and to support the pump in place.

The bulb or sphere has a flange, *f*, at or near the center of its exterior, which rests on the top edge of the barrel or in a groove at the side of said barrel or guide D, as at *f'*, by which means the sphere is prevented from shifting. As the lower part of the flexible sphere A is held by the barrel when the top part thereof, which is outside of the same, is compressed by the plunger, it is spread laterally and comes in contact with the inner wall of the guide D as a stop or abutment, thus limiting the spreading of the sphere, as has been stated.

The outer or upper end of the plunger is con-

nected to mechanism from which it is desired to receive motion—such as the crank of a door-bell pull or the depressor of a railway-switch, &c.—and its lower end is supported in a line a little above the orifice *a*, that air may be admitted therethrough. When the plunger is depressed, the orifice *a* in the bulb is stopped, and the bulb or sphere is also depressed, which causes its folding.

When it is desired to operate the pump, air or water being admitted into the bulb A through the hole *a*, the plunger C is caused to descend, with the result that the air is expelled through the hole *b* and the pipe E to suitable mechanism for ringing a bell, shifting a switch, &c. When the bulb or thimble is relieved of the pressure of the plunger, it returns to its normal condition by its own elasticity or the expansibility of the air confined within it, and is again ready for the next operation of the plunger. The thimble or bulb A has a lip or peripheral raise, *c*, without joint or integral therewith, near the hole *a*, in order that the head of the plunger C may rest against it and better confine the air or water within the bulb, but it is apparent that the bulb may be operated without this lip or raise.

The plunger may have a somewhat pointed and shouldered lower end, which may better fit the hole *a* and confine the air in the pump.

The barrel A may have a concave bottom and the head of the plunger be of convex, concave, or other form, to accord with the shape of the contiguous portion of the bulb or thimble which it assumes when extended or contracted. It is also apparent that the ingress of air may be at an orifice with a check-valve, as at the dotted lines *d*, and in that case the hole *a* in the bulb may be dispensed with.

The pipe E is of the form of a tubular stem, which supports the barrel B, and is in communication with the bulb A through the orifice *b*, said pipe having also connected with it a pipe, E', whereby the fluid is directed to the place of service, the valve *d*, which opens inwardly, being also fitted to said stem. It will also be seen that by placing the apparatus in water and using a check-valve lengthwise in the line of the pipe E the water may be pumped to a height in proportion as pressure is put upon the bulb.

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

1. The flexible hollow sphere A, barrel B, and plunger C, in combination with a guide, D, for the stem of said plunger, which, rising from the barrel, serves to limit the lateral spreading of the upper part of said sphere, substantially as and for the purpose set forth.
2. The flexible hollow sphere A and plunger C, in combination with the barrel formed with a tubular stem, E, and the discharge-pipe E', said stem supporting the barrel communicating with the sphere, and having an inwardly-opening check-valve, substantially as and for the purpose set forth.
3. A barrel and plunger, in combination with

a flexible hollow sphere having an inlet and outlet, and formed with a flange on its exterior, substantially as and for the purpose set forth.

4. A barrel, plunger, and guide, and the stem with a valve and discharge-pipe, in combination with a flexible hollow sphere having an inlet and outlet, and formed with a flange on its exterior, substantially as and for the purpose set forth.

5. The flexible hollow sphere A, in combination with the jacket and plunger, said sphere having a lip integral with the same, substantially as and for the purpose set forth.

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Witnesses:

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