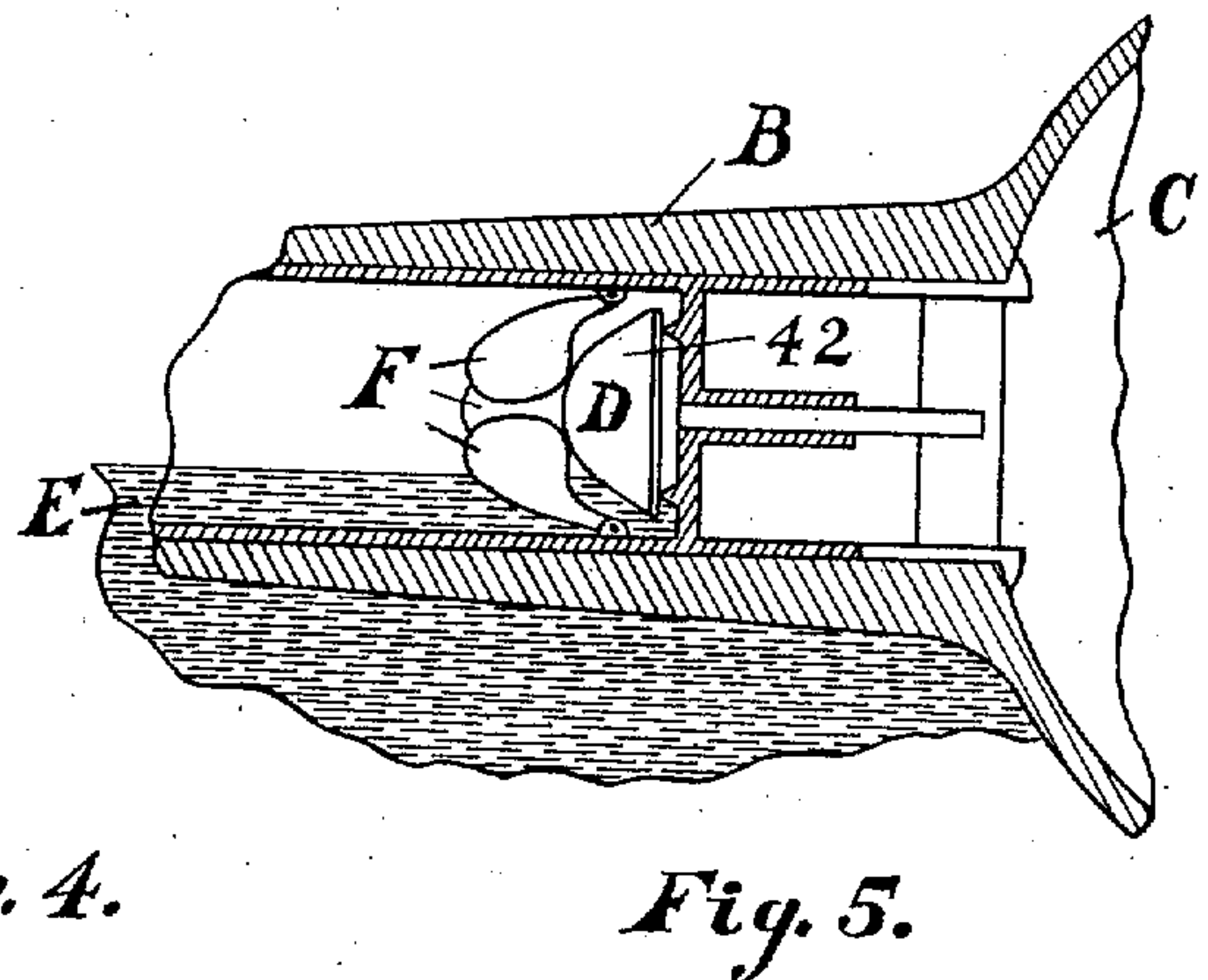
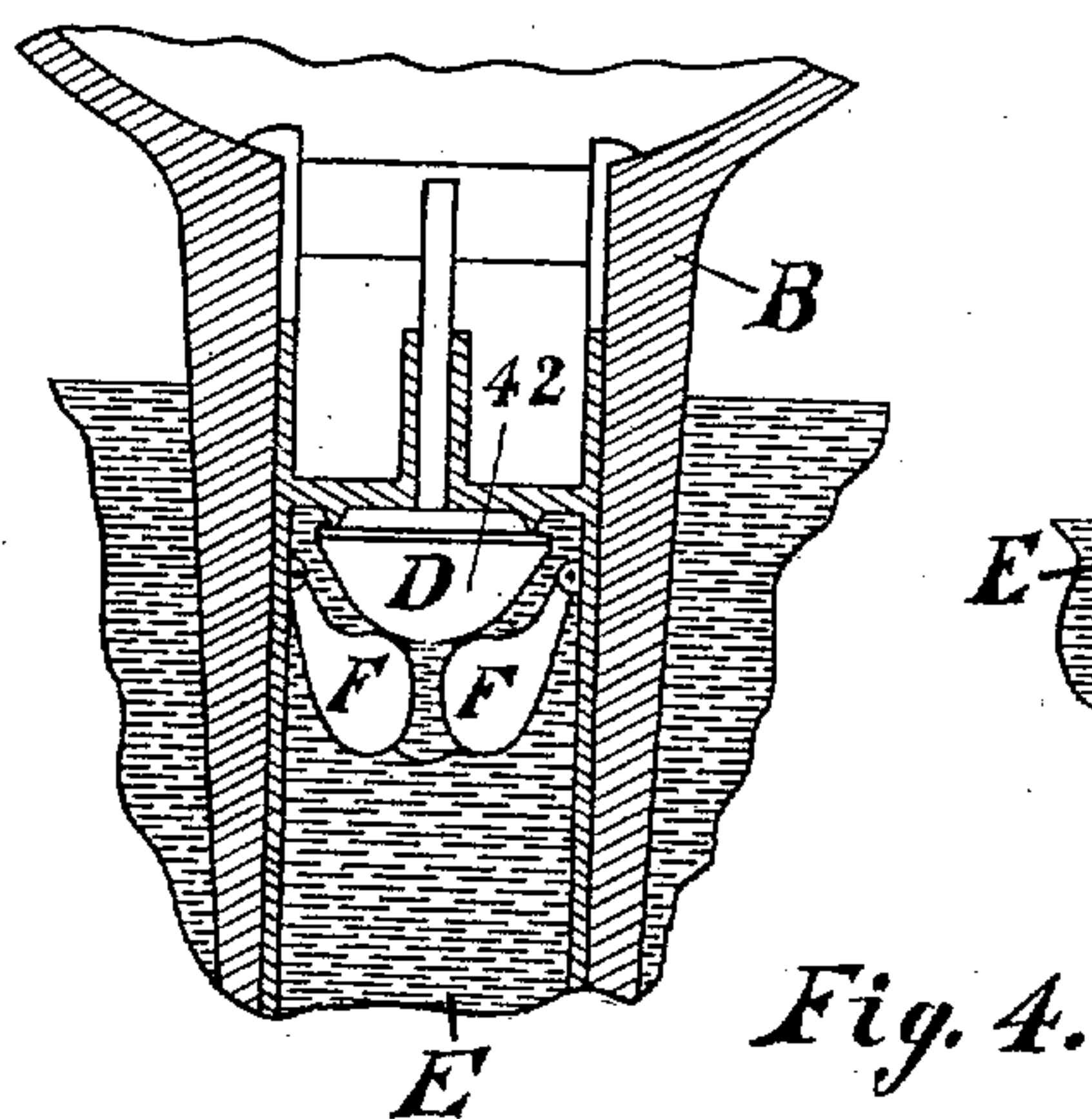
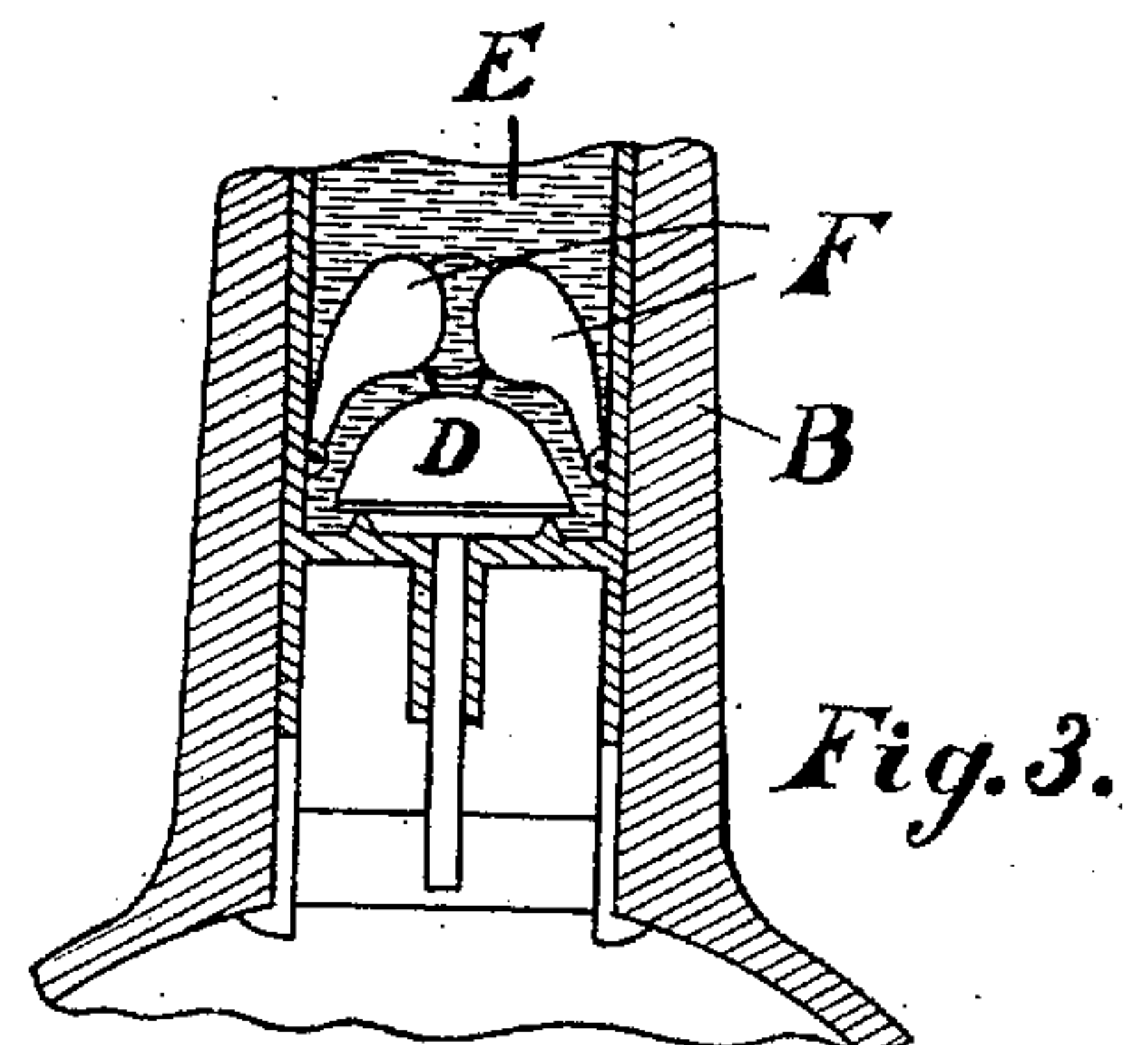
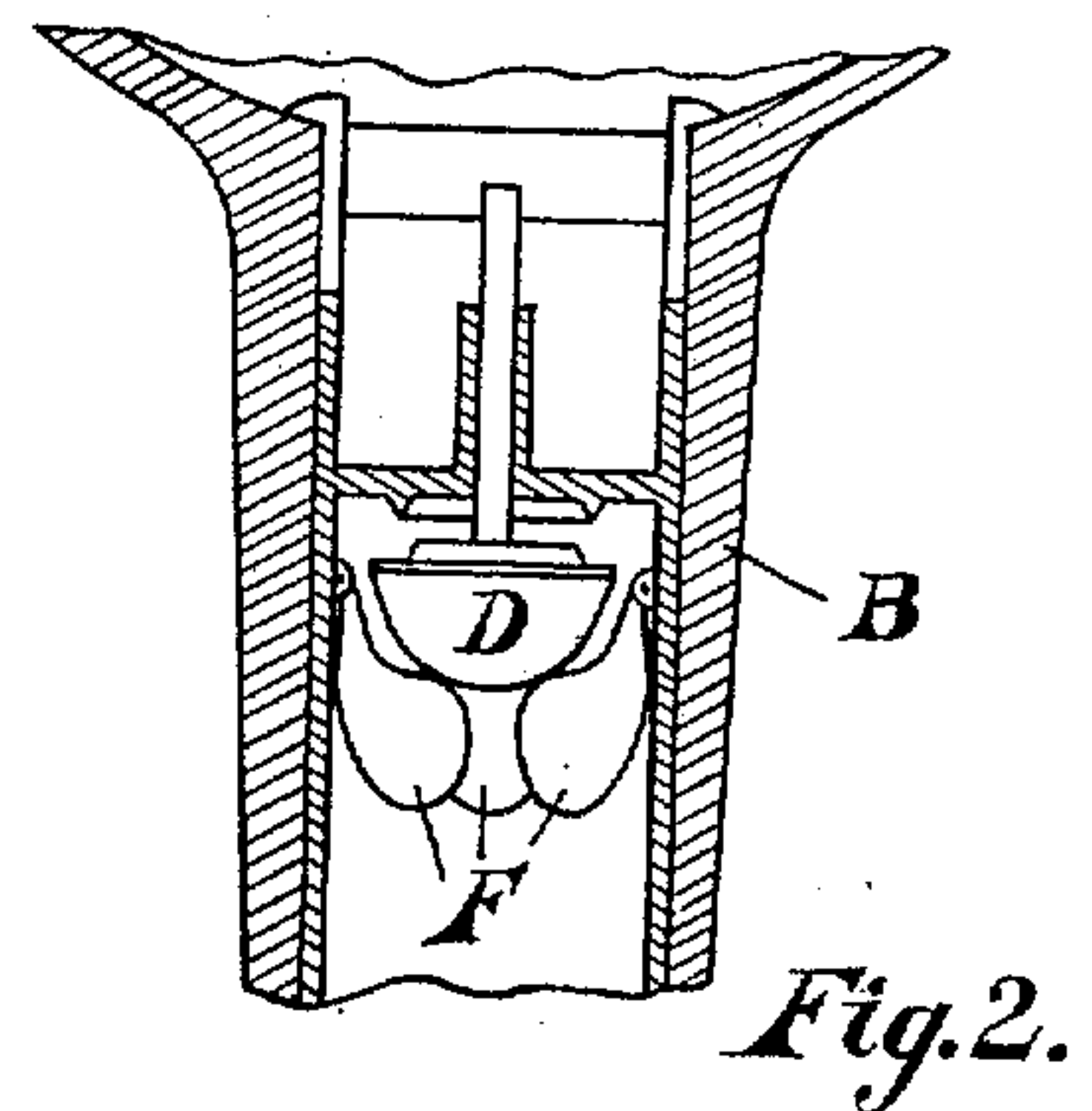
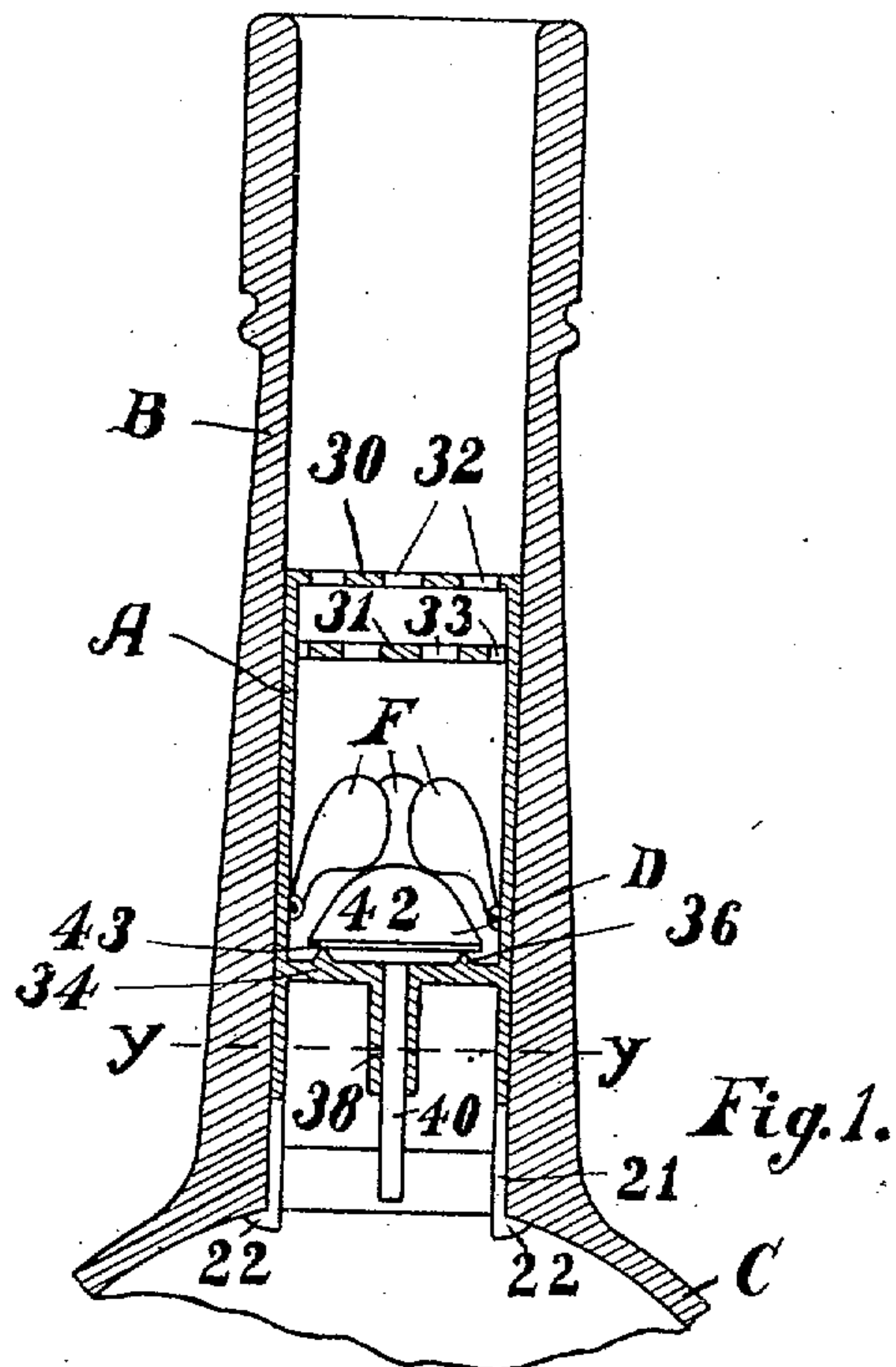


965,899.

F. W. HERBERT.
NON-REFILLABLE BOTTLE.
APPLICATION FILED NOV. 13, 1909.

Patented Aug. 2, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

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2 SHEETS—SHEET 2.

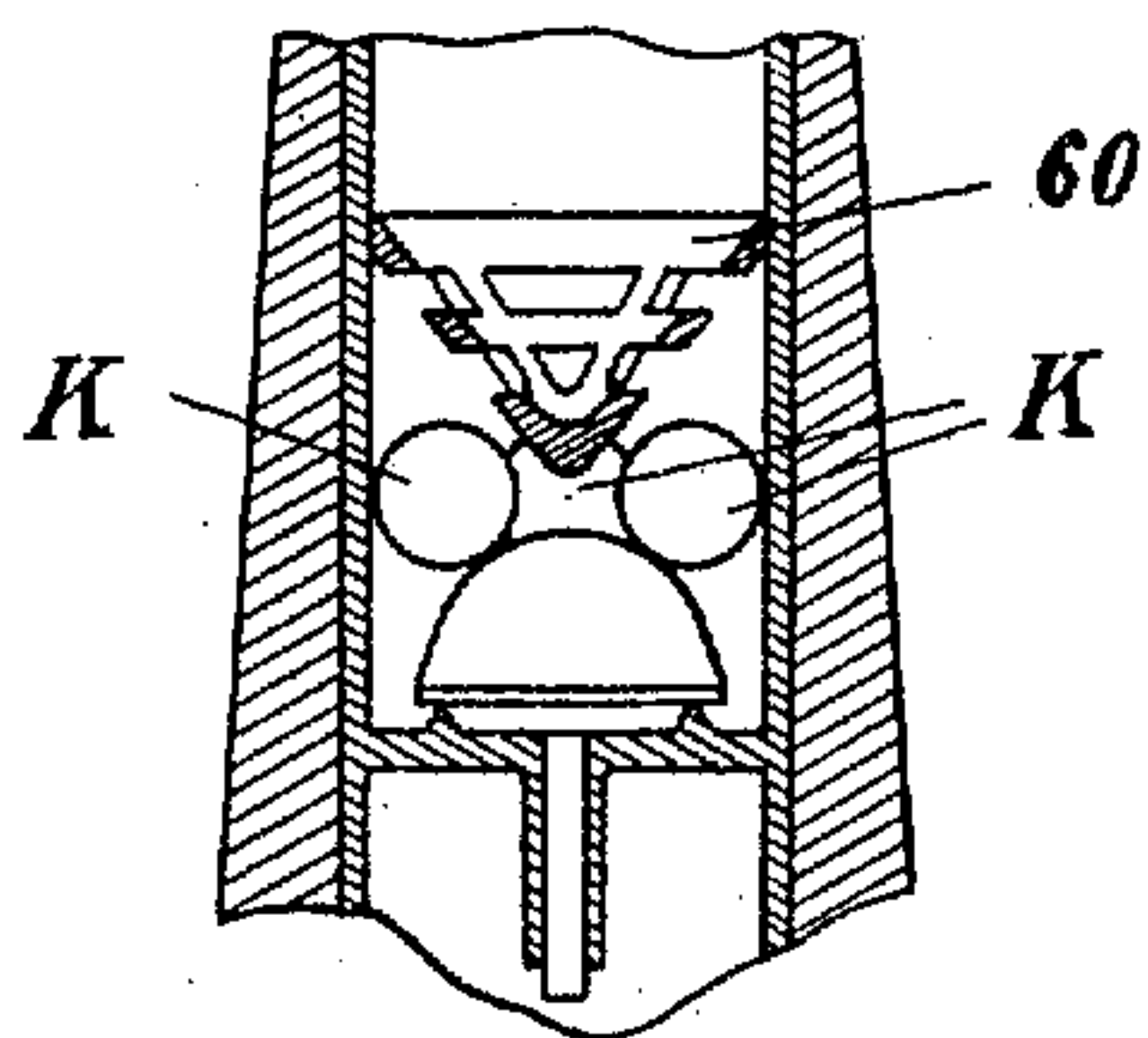


Fig. 6.

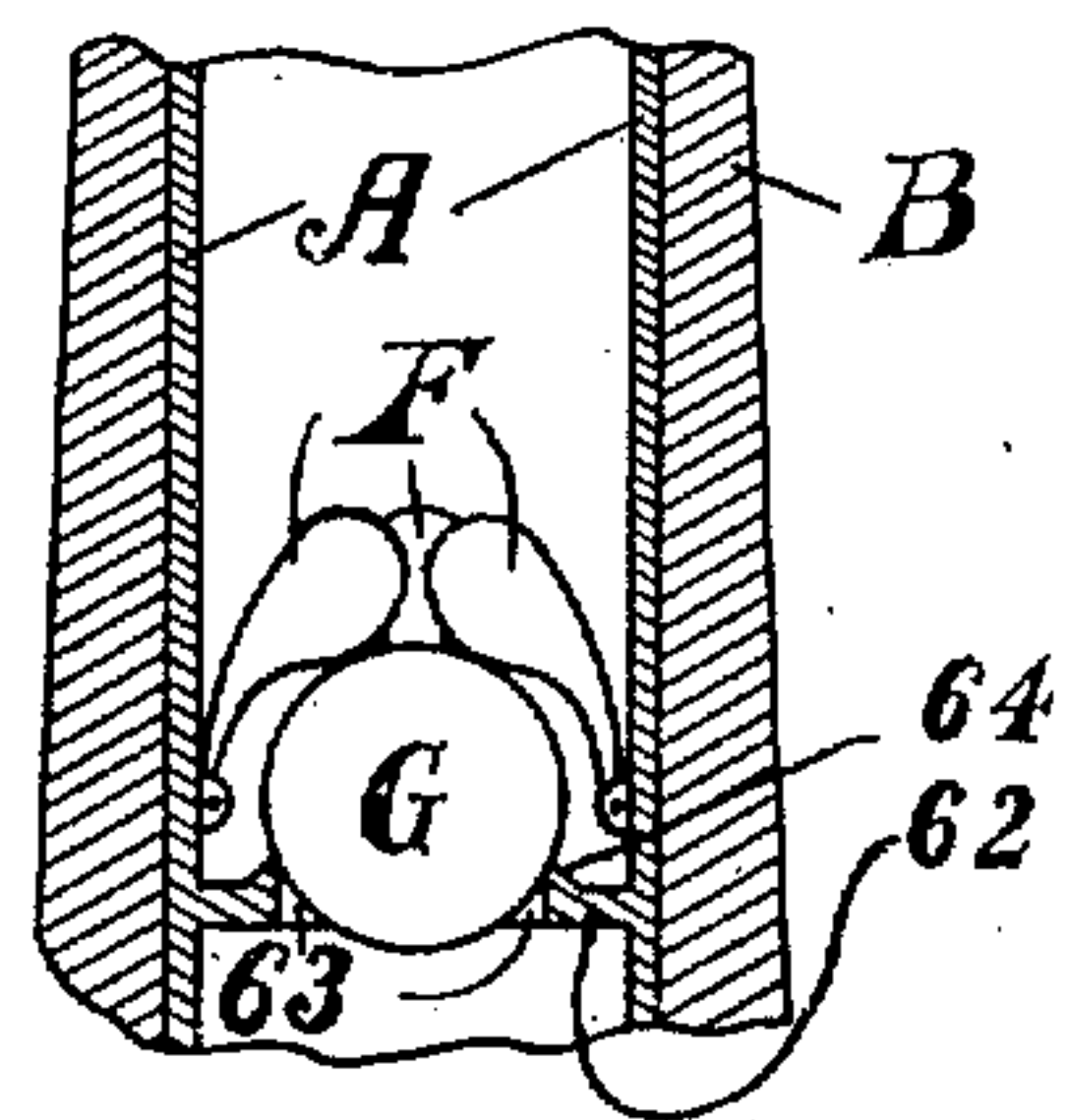


Fig. 7.

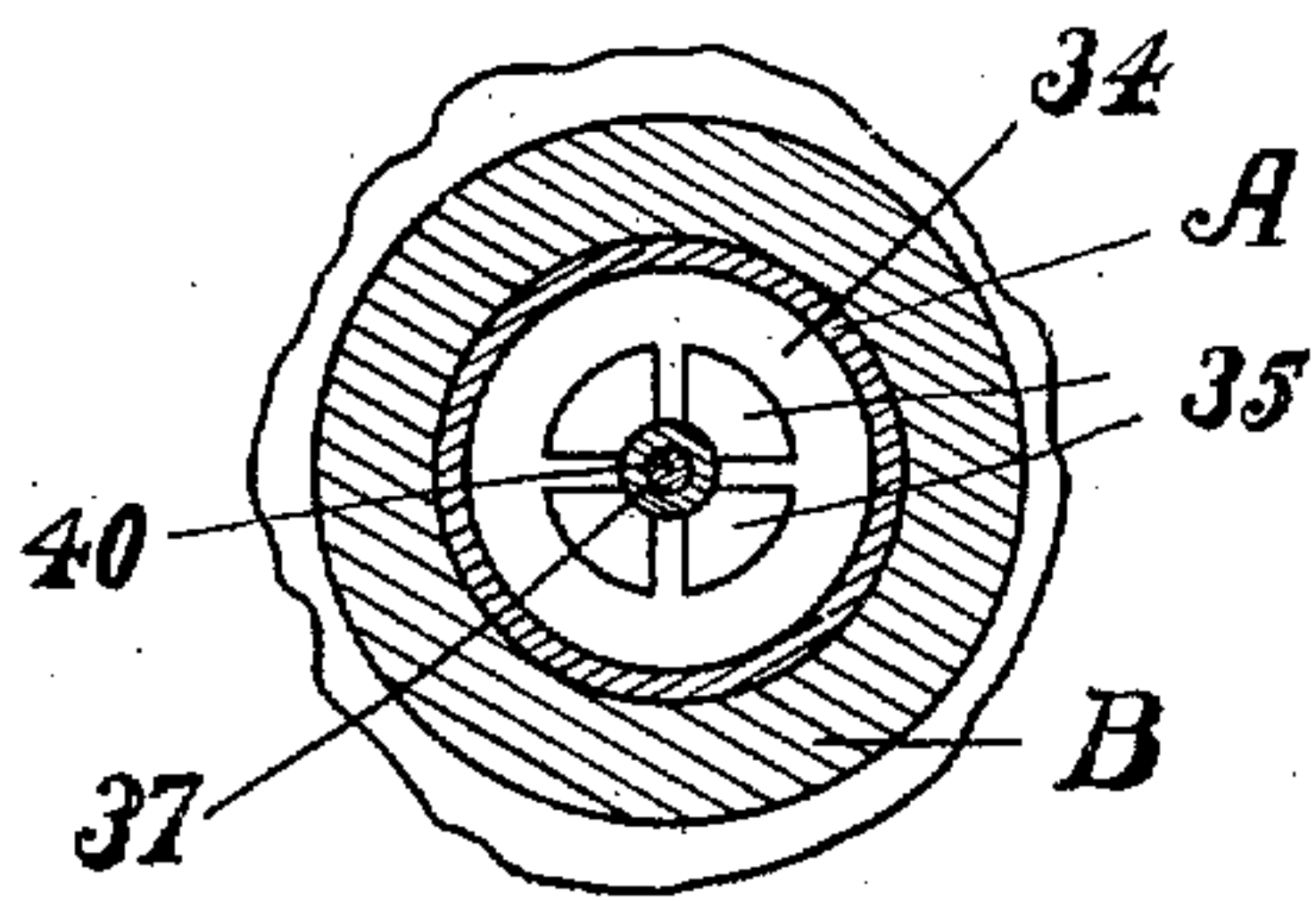


Fig. 8

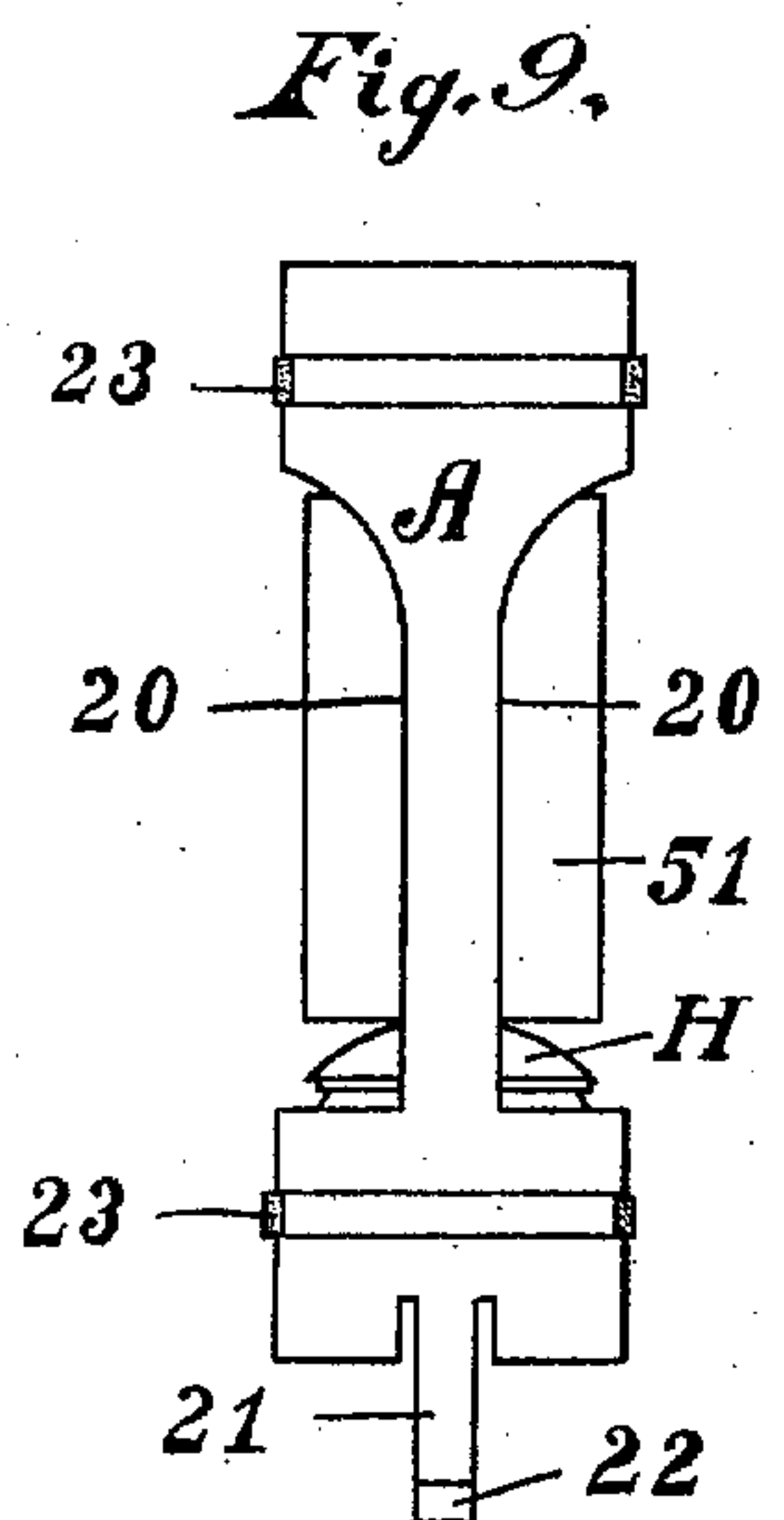


Fig. 9.

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UNITED STATES PATENT OFFICE.

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NON-REFILLABLE BOTTLE.

965,899.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed November 13, 1909. Serial No. 527,878.

To all whom it may concern:

Be it known that I, FRED W. HERBERT, a citizen of the United States, residing at Pelham, in the county of Hillsboro and State of New Hampshire, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to a device to be placed in the neck of a fluid receptacle for the purpose of permitting the fluid to be poured therefrom but of such a construction as to prevent the receptacle from being re-filled.

My device relates principally to what are called non-refillable bottles.

It is necessary in such a device, first to fill the bottle or receptacle and then to arrange it so that it can be emptied and cannot again be refilled.

In using my device, I first fill the bottle and then introduce my device into the neck thereof. It is automatically locked in place and cannot thereafter be removed without breaking the bottle. The liquid can pass through in one direction, that is, from the bottle, but no liquid can be introduced from the outside.

In the drawings, Figure 1 is a section of a bottle in an upright position with my preferred form of device. Fig. 2 shows in section the bottle upside down. Fig. 3 shows in section the bottle with the neck filled with liquid and the body empty, the bottle being in an upright position. Fig. 4 shows in section an empty bottle upside down immersed in liquid. Fig. 5 shows in section an empty bottle on its side partly immersed in liquid. In Figs. 1 to 5 some parts, as the bottle and case are shown in section and some parts, as the movable valve parts, not in section. Figs. 6 and 7 show modifications of my device. Fig. 8 is a section, looking upward on line Y—Y of Fig. 1. Fig. 9 is an elevation of my case.

The case A comprises a cylindrical tube preferably of metal which may be cut away on the sides as 20, 20 as shown in Fig. 9 to reduce the weight. The spring teeth which extend downward below the bottom of the case comprise each a spring shank 21 and are preferably cut at a slant on the outer edges at 22 to pass easily through the neck B of bottle C. These teeth spring out when they have passed in behind the line at the bottom of the bottle neck, and lock

the device in place. I may use rubber rings 23 set into grooves in the outside of the case to make a tight joint between it and neck B and to prevent any liquid from passing in or out of the bottle between the neck and case.

At the top or outer end of case A, I use parallel guard shields 30 and 31 perforated with holes 32, 33 so arranged that the holes in one shield do not register with those in the other shield. This is to prevent a slender device from being passed through into the inside for the purpose of tampering with the mechanism.

Near the inner end of case A, is a valve plate 34 from which rises an annular valve seat 36. Inside this seat 36, are liquid passages 35, 35 and a central passage 37 through valve plate 34. I pass valve stem 40, as shown in Fig. 8 through passage 37. Preferably I use a central boss 38 depending from shield 34 through which passage 37 also extends thus forming a guide way for valve stem 40.

At the outer end of stem 40, is a dome shaped head 42 at the bottom of which is attached an elastic packing ring 43 which is normally in engagement with seat 36. Thereby a liquid tight joint is formed.

The entire valve D should be somewhat heavier than the liquid which is placed or is to be placed in bottle C. It is plain that this valve D will allow the liquid to flow out from the bottle but if closed will prevent liquid from being poured into the bottle. This valve is normally closed when the bottle is held upright as shown in Fig. 1.

If the bottle is turned upside down as shown in Fig. 2, the weight of valve D opens it and the liquid in the bottle readily runs out. Thus the bottle may be emptied. If the bottle is held upside down however, and if for instance the air inside is exhausted and it is submerged in a tank of liquid the liquid could enter were it not for a plurality of pivoted floats F.

Each float F is either hollow or is made of material lighter than water and is shaped like a ham. Each is pivoted at its small end inside case A proximate the dome shaped head 42 of valve D. Each float F should have sufficient buoyancy when immersed in liquid to overcome the entire weight of valve D. In the case supposed as the liquid rises in the neck of the bottle, it will lift these floats F as shown in Fig. 4 and the floats

bearing against head 42 will lift the valve to its seat and thus prevent liquid from entering the bottle. If the bottle is held upright and the liquid E is poured into the top, the valve retains its seat by gravity and the floats rise as shown in Fig. 3. If the bottle is laid on its side and is partly immersed in liquid E as shown in Fig. 5, the liquid will run into the neck B but before it has reached the height of valve seat 36 it will begin to float whichever float F happens to be lowest. As these floats are made with protruding inner surfaces where they adjoin the head 42 of valve D, as they rise they close the valve D as shown.

Instead of the valve shown in Figs. 1, 2, 3, 4, and 5, I may use a valve plate 62 with a valve seat 64 through which is a circular passage 63 and an ordinary ball G as shown in Fig. 7. This ball may be of rubber, metal or any other material which is heavier than water. The action is substantially the same.

In place of the floats F, I may use three or more buoyant balls K as shown in Fig. 6. In such case, I locate above the balls, a conical perforated shield 60, which serves to direct the balls against the head of valve D, when the bottle is laid on its side in liquid thus closing the valve. This conical perforated shield may be used instead of one of the guard shields. These balls K act in the same manner as floats F.

What I claim as my invention and desire to cover by Letters Patent is:—

1. A liquid container having a neck, a substantially tubular case which fits tightly and is locked in said neck, a plurality of perforated guard shields proximate the outer end of said case, a valve plate proximate the inner end of said case formed with a central guide passage and passages adjoining the guide passage together with an annular valve seat which encircles said passages, and a valve having a central stem in slidable relation with the central guide passage and having a dome shaped head and being in operative relation with the valve seat, combined with three or more ham shaped buoyant members so pivoted inside said case as to engage the dome shaped head and to seat said valve as they move away from the case.

2. A liquid container having a neck, a substantially tubular case which fits tightly and is locked in said neck, a plurality of perforated guard shields proximate the outer end of said case, a valve plate proximate the inner end of said case formed with a central guide passage and passages adjoining the guide passage together with an annular valve seat which encircles said passages, and a valve having a central stem in slidable relation with a central guide passage and having a dome shaped head and being in operative relation with the valve seat, combined with three or more buoyant members so pivoted inside said case as to engage the dome shaped head and to seat said valve as they move away from the case.

3. A liquid container having a neck, a substantially tubular case which fits tightly and is locked in said neck, a plurality of perforated guard shields proximate the outer end of said case, a valve plate proximate the inner end of said case formed with a central guide passage and passages adjoining the guide passage together with an annular valve seat which encircles said passages, and a valve having a central stem in slidable relation with the central guide passage and having a dome shaped head and being in operative relation with the valve seat, combined with three or more buoyant members so placed inside said case as to engage the dome shaped head and to seat said valve as they move away from the case.

4. A liquid container having a neck, a substantially tubular case which fits tightly and is locked in said neck, a plurality of perforated guard shields proximate the outer end of said case, a valve plate proximate the inner end of said case formed with guide passages together with an annular valve seat which encircles said passages, and a valve in operative relation with said valve seat, combined with three or more buoyant members so placed inside said case as to seat said valve as they move away from the case.

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

FRED W. HERBERT.

Witnesses:

GARDNER W. PEARSON,
C. A. LITTLEFIELD.