

No. 785,364.

PATENTED MAR. 21, 1905.

F. G. KAMMERER.
VALVED BOTTLE STOPPER.
APPLICATION FILED MAR. 29, 1904.

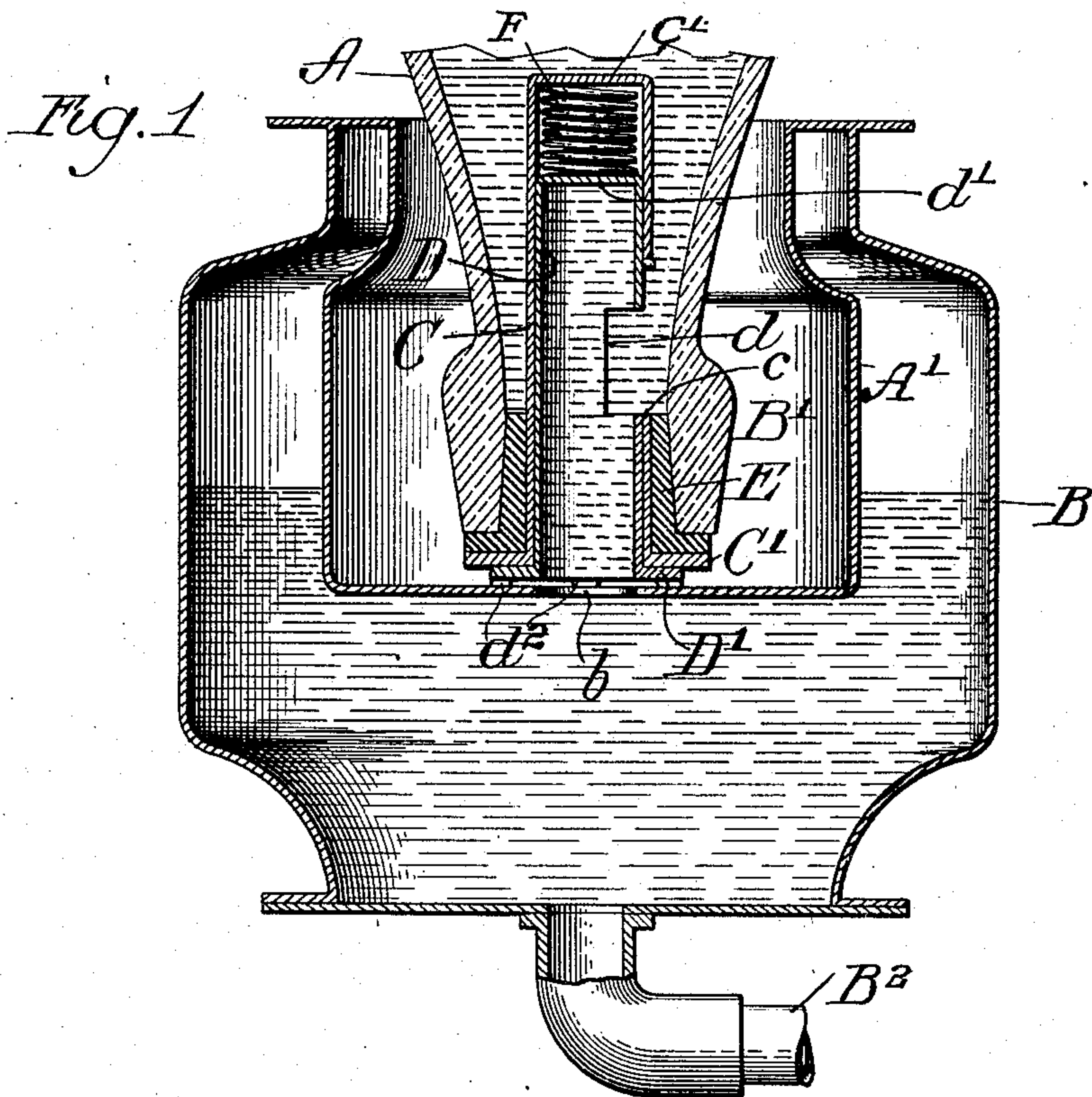


Fig. 2

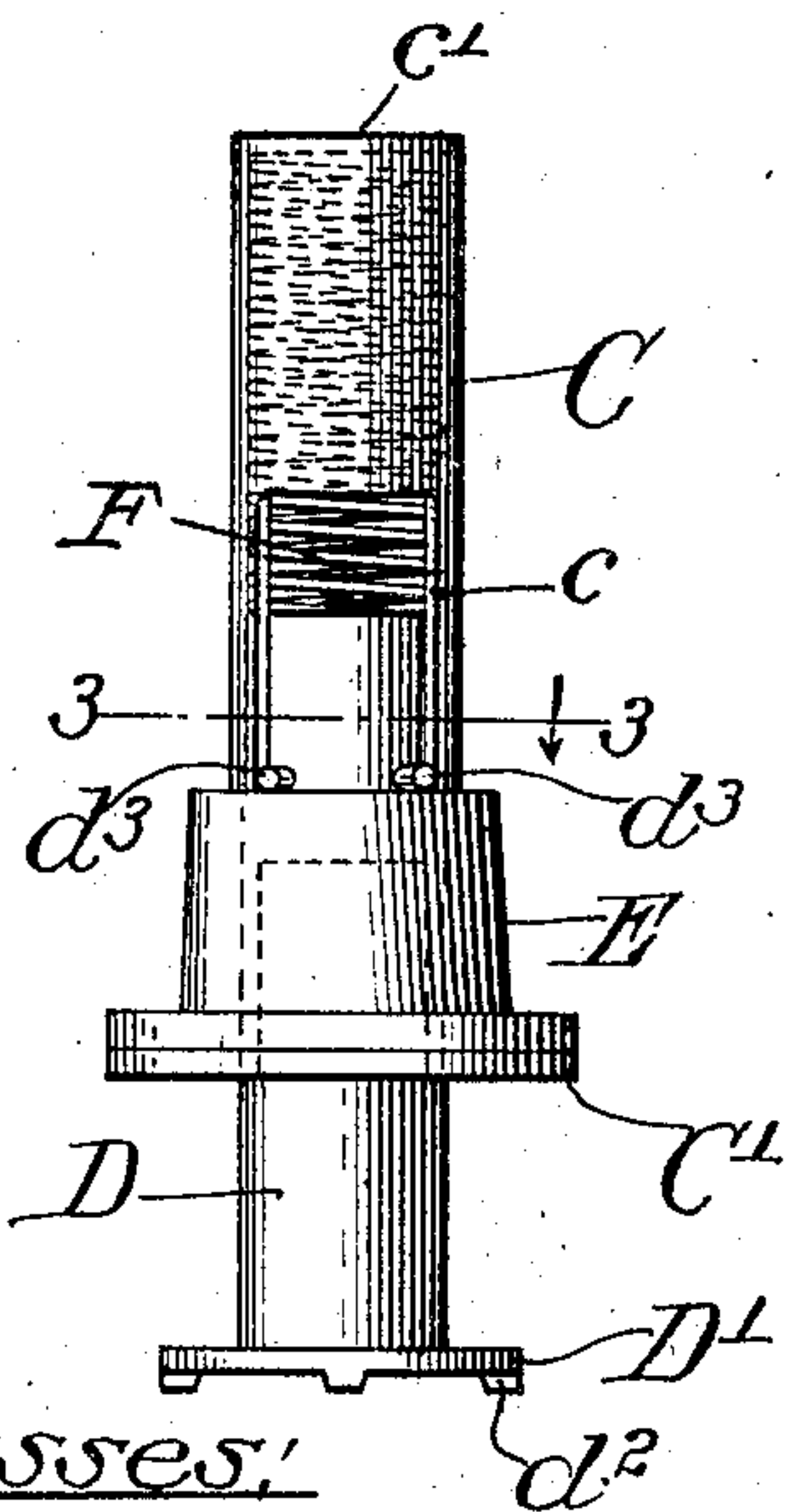


Fig. 3

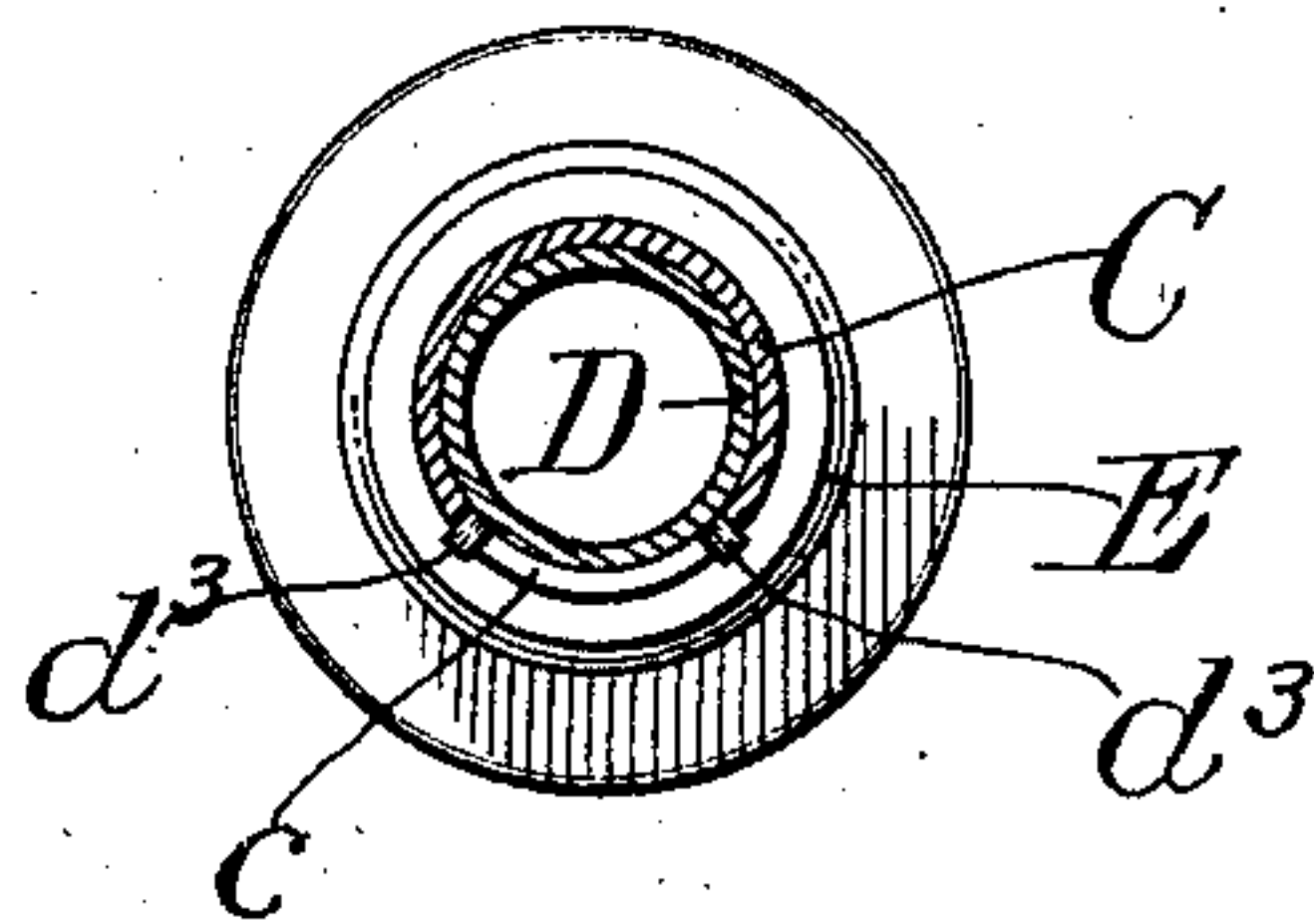
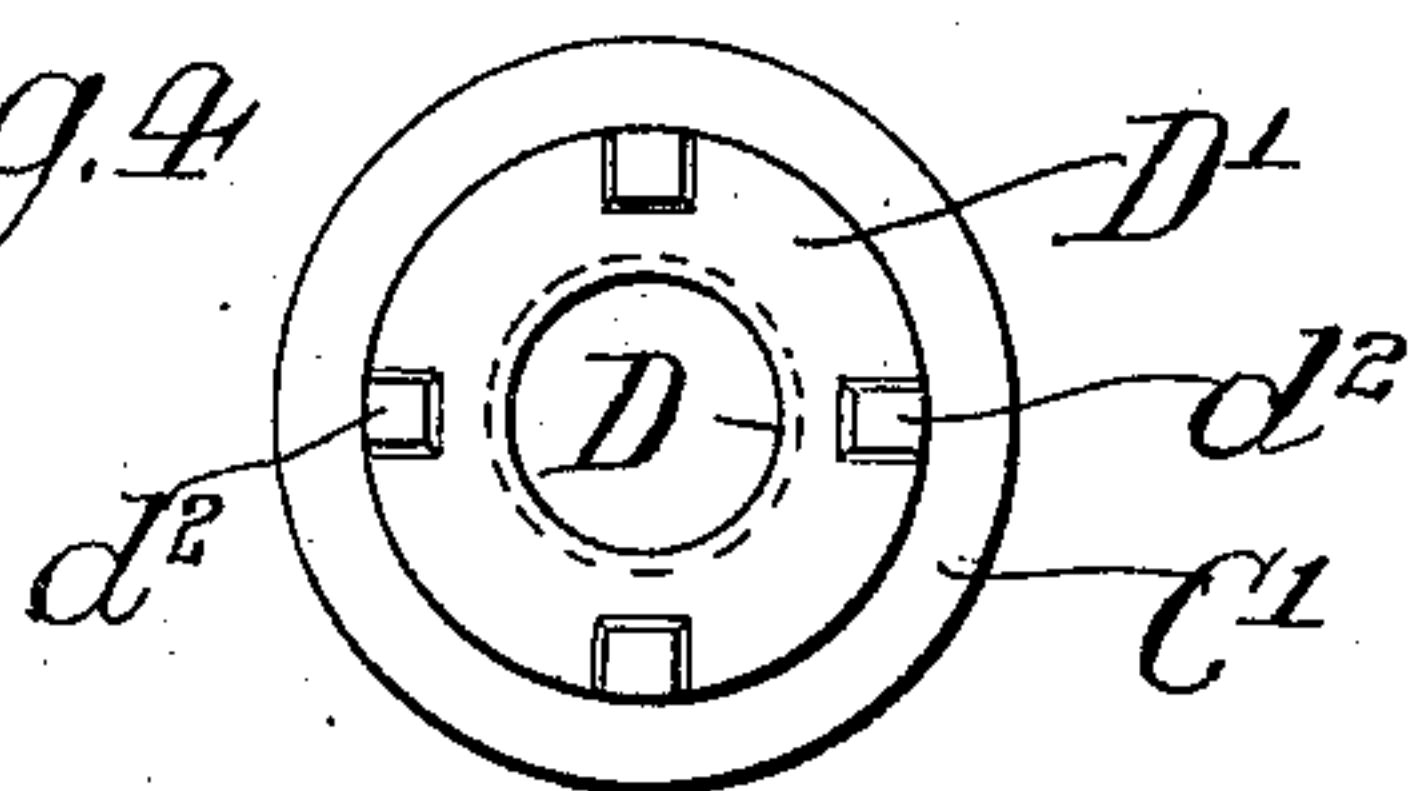


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK G. KAMMERER, OF CHICAGO, ILLINOIS.

VALVED BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 785,364, dated March 21, 1905.

Original application filed November 9, 1903, Serial No. 180,312. Divided and this application filed March 29, 1904. Serial No. 200,620.

To all whom it may concern:

Be it known that I, FRANK G. KAMMERER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valved Bottle-Stoppers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to valve closures or stoppers for bottles, the devices constituting my invention being more particularly intended for application to bottles used in connection with apparatus for dispensing beverages of that kind in which a vessel or bottle containing the water or other liquid to be dispensed is placed in an inverted position over the dispensing apparatus and the latter is provided with a receptacle to receive the liquid from the bottle. A liquid-dispensing apparatus of this kind is shown in my prior application filed November 9, 1903, Serial No. 180,312, of which this application is a division.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a section taken vertically through the mouth of an inverted bottle and through the receptacle into which the bottle discharges, the same illustrating in central vertical section the valved stopper embodying my invention. Fig. 2 is a view in side elevation of the valve-stopper separate from the bottle and other parts. Fig. 3 is a cross-sectional view of the said stopper, taken upon line 3 3 of Fig. 2. Fig. 4 is a face view of the flange on the outer end of the sliding sleeve of the stopper.

As shown in said drawings, A indicates the bottle, and B the receptacle in connection with which the bottle is used, said receptacle being provided with a cup A', containing a central aperture *b*, through which liquid passes from the mouth of the bottle into the said receptacle B. The said receptacle is shown as provided with a discharge-pipe B².

Now referring to the valved stopper, C in-

dicates a tube adapted for insertion within the neck of the bottle and which extends into the interior of the same. Said tube is provided at its outer end with a radially-extending flange C' and has at its outer end a flanged gasket E, which surrounds the tube and by which a tight joint is provided between the outer part of the tube and the mouth of the vessel. Within the tube C is an endwise-sliding sleeve D. The inner end of said tube C is closed by an end wall *c'*. Between the inner end of the sleeve D, which is closed by an end wall *d'*, and the end wall *c'* of said tube is located a coiled spring F, which tends to hold the tube D in an extended position with its outer end projected beyond the bottle-neck. In one side of the tube C is an exit-port *c*, and in the tube D is a corresponding port *d*. Said ports are adapted to coincide with each other when the sleeve D is thrust inwardly against the action of the spring F and the latter is compressed. The port *d* in the tube D is in position to be covered by a part of the tube C, surrounding the same when the said sleeve D is in its outward or extended position. Said sleeve D is provided at its outer end with a flange D', which is adapted for contact with and to rest upon the bottom of the cup B' around the opening *b* therein when the bottle containing the valve-closure is in place upon the dispensing apparatus, as shown in Fig. 1.

It will be apparent from the construction described that when the bottle is disconnected from the dispensing apparatus the spring F will hold the sleeve D in its extended position, and the ports *c* and *d* being then out of register no liquid can flow from the bottle. The bottle may therefore be reversed without the escape of any liquid therefrom. When, however, the neck of the bottle is inserted into the cup B' and the end of the flange D' of the sleeve D comes in contact with the bottom of said cup, as soon as the weight of the bottle comes upon the bottom of the cup the sleeve will be pushed upwardly into the tube C until the flange D' is seated on the flange C' of said tube. At this time the ports *c* and *d* will be brought into register and the liquid will freely flow from the bottle into the receptacle B. In other words, the said sleeve forms a valve-

closure adapted to operate automatically in such manner as to maintain the mouth of the bottle closed when it is in its inverted position, but to be opened when the neck of the bottle rests upon or within the cup B'.

The flange D' at the lower end of the sleeve D is provided with a plurality of lugs or projections d^2 , which come in contact with the bottom of the cup B' and support the said flange D' a short distance above the same, thereby affording small spaces for the admission of air into the interior of the bottle as the liquid flows therefrom.

To prevent the sleeve D from turning in the tube C and to hold the ports c and d always in alinement with each other, the sleeve is shown as provided with two outwardly-extending guide-studs d^3 , adapted for sliding contact with the parallel sides of the port c .

It is found in practice that pressure of external air will prevent the escape of liquid from the bottle under normal conditions or when the discharge-pipe and the receptacle are filled with liquid up to a point within the receptacle to which the water will be forced by pressure due to the height of liquid in the bottle; but as soon as any liquid is drawn from the discharge-pipe and the receptacle then the liquid descends through the mouth of the bottle, while at the same time air enters the same in bubbles through the spaces afforded by the said projections or lugs d^2 .

I claim as my invention—

1. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and which is closed at its inner end, said tube being provided with a packing which surrounds the same and fits within the bottle-neck and also with a port located inside of said packing, a sleeve which fits and slides within the tube and is closed at its inner end, said sleeve having a port which registers with the port in the tube when the sleeve is thrust inwardly, and a spring applied between the inner end walls of the tube and sleeve to yieldingly hold the sleeve in its outwardly-extended position.

2. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and is closed at its inner end, a packing which surrounds the outer end of the tube and fits within the bottle-neck, said tube having a lateral port in its part inside of said packing, a tubular sleeve which fits and slides within the said tube and is closed at its inner end, said sleeve having a port which registers with the port in the tube when the sleeve is thrust inwardly, and a spring applied between the inner ends of said tube and sleeve to yieldingly hold the closure in its outwardly-

extended position, said sleeve having lugs or projections on its outer end adapted for contact with the support on which the bottle rests.

3. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and is closed at its inner end, a gasket which surrounds the outer end of the tube and fits within the orifice of the bottle, said tube having a lateral port in its part inside of the gasket, a sleeve which slides within said tube and is closed at its inner end, and is provided with a lateral port which registers with the port in the tube when the sleeve is thrust inwardly, and a spring interposed between the inner ends of the tube and sleeve, said sleeve having two outwardly-projecting guide lugs or projections adapted for contact with the side margins of the port in the tube.

4. An automatically-opening stopper for a bottle, comprising a tube which extends into the bottle and is provided with a radial flange at its outer end and is closed at its inner end by an end wall, a packing which surrounds the outer end of the tube and fits within the bottle-neck, said tube having a lateral port located inside of said packing, a sleeve which fits and slides within the tube and which is closed at the inner end by an end wall, and is provided at its outer end with a radial flange, said sleeve having a port which registers with the port in the tube when the sleeve is thrust inwardly, and a spirally-coiled spring applied between the end walls of the tube and sleeve to yieldingly hold the sleeve in its outwardly-extended position.

5. An automatically-opening stopper for a bottle comprising a tube which extends into the bottle and has a radial flange at its outer end, a packing which surrounds the tube and fits within the bottle-neck, a sleeve which fits and slides in said tube which is closed at its inner end and provided at its outer end with an outwardly-extending flange, said tube and sleeve having ports which register with each other when the closure is thrust inwardly, a spring applied to yieldingly hold the closure in its outwardly-extended position, said flange on the outer end of the sleeve being provided on its outer face with a plurality of lugs or projections adapted for contact with the surface on which the bottle rests.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 26th day of March, A. D. 1904.

FRANK G. KAMMERER.

Witnesses:

C. CLARENCE POOLE,
GERTRUDE BRYCE.