

No. 768,837.

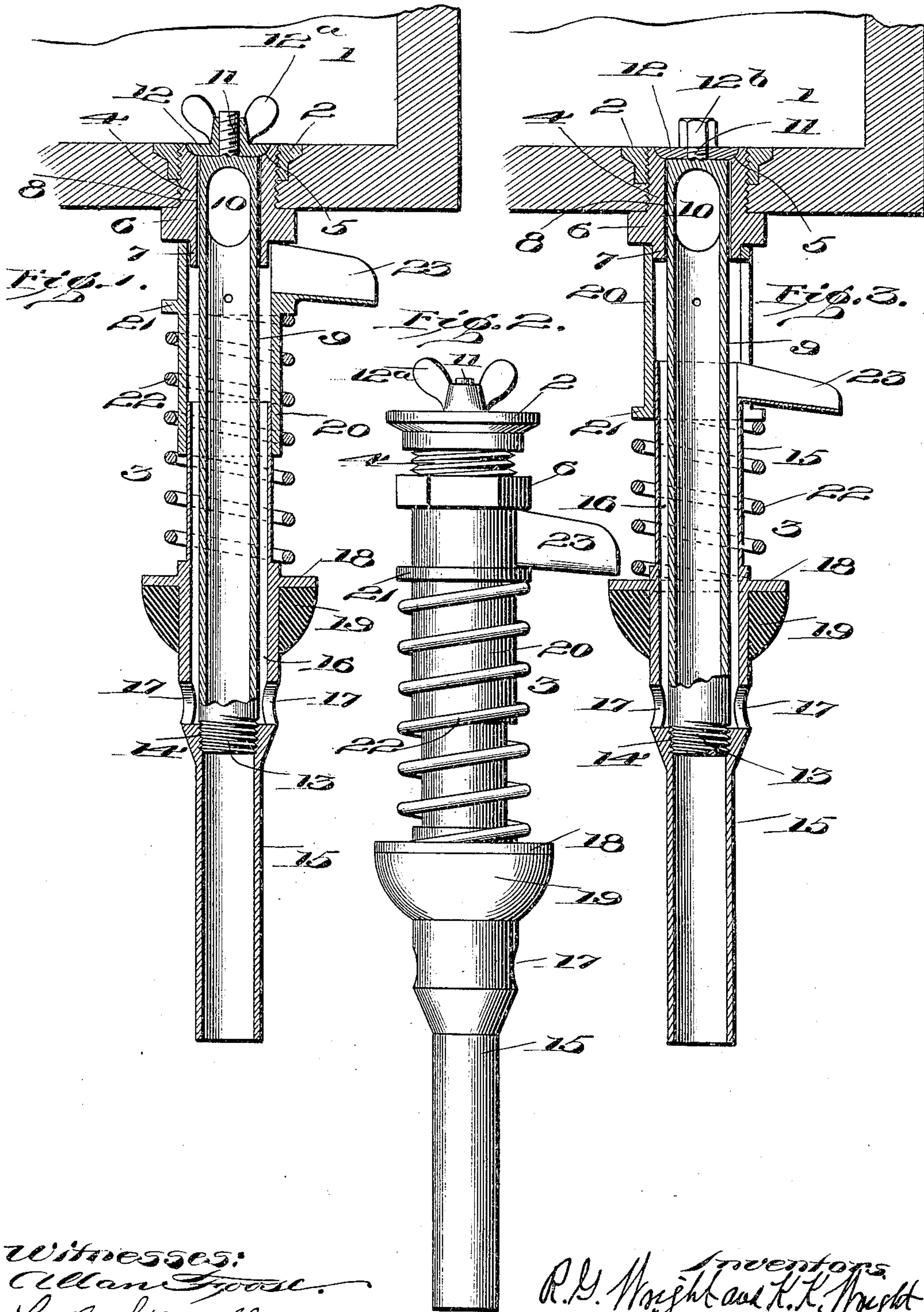
PATENTED AUG. 30, 1904.

R. G. & K. K. WRIGHT.
DEVICE FOR FILLING BOTTLES.

APPLICATION FILED FEB. 11, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



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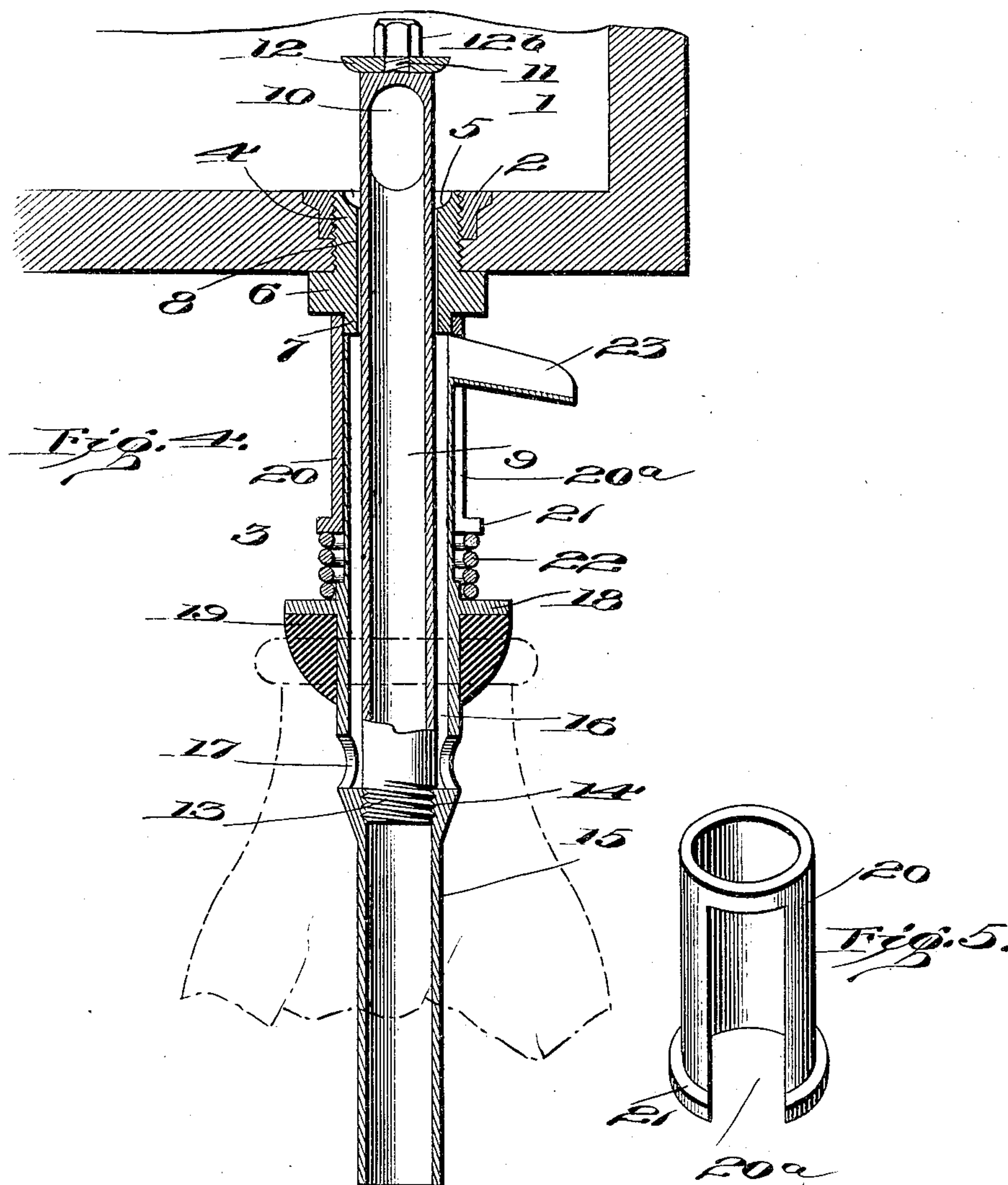
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UNITED STATES PATENT OFFICE.

RALPH G. WRIGHT AND KIRK K. WRIGHT, OF BUFFALO, NEW YORK.

DEVICE FOR FILLING BOTTLES.

SPECIFICATION forming part of Letters Patent No. 768,837, dated August 30, 1904.

Application filed February 11, 1904. Serial No. 193,036. (No model.)

To all whom it may concern:

Be it known that we, RALPH G. WRIGHT and KIRK K. WRIGHT, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Devices for Filling Bottles, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an apparatus for filling milk-bottles and other receptacles, and especially to the valves for such an apparatus.

The valve herein shown and described is an improvement on the valve described in our pending application, Serial No. 159,251, filed May 29, 1903, for an apparatus for filling bottles.

One of the objects of the present invention is to produce a valve which can be easily taken apart for cleaning and will meet all sanitary requirements.

Another object is to produce a valve which can be cheaply constructed and easily and accurately operated.

Other objects will appear from the hereinafter description.

We will now describe our invention in detail in connection with the accompanying drawings, which clearly represent our invention and which form a part of this specification.

In the accompanying drawings, Figure 1 is a vertical sectional view of one of our valves in its normal or closed position and connected to the bottom of a tank to contain liquid with which bottles or other receptacles are to be filled. Fig. 2 shows the valve in side elevation disconnected from the tank. Fig. 3 is a vertical sectional view of a modified construction of the valve shown in its closed position and connected to the bottom of a tank. Fig. 4 is a vertical sectional view of said modified construction, showing the valve raised or in its open position. Fig. 5 is a perspective view of a detail.

The same parts in the several views are indicated by the same reference characters.

On the drawings the part marked 1 represents the tank.

2 is an internally-screw-threaded bushing se-

cured in an opening in the bottom of the tank, by which the valve 3 is secured to the tank.

4 is a hollow plug screw-threaded to fit in the bushing 2. This plug is provided on its upper end with a valve-seat 5. A flange 6, which is formed integral with the plug, rests against the under side of the tank. 7 is a downwardly-projecting collar, also formed on this plug.

8 is the opening in the plug, through which the tube 9, forming a part of the valve, moves. This tube 9 has an opening 10 at or near the upper end thereof, through which the liquid passes from the tank to the bottle when the valve is raised. The upper end of this tube is closed and is provided with a screw-threaded pin or projection 11, to which a puppet-valve 12 is secured, said valve fitting in the seat 5 to cut off the liquid from the tube 9. The lower end of this tube is provided with a screw-thread 13, which connects with the internally-screw-threaded portion 14 of another tube 15. These two tubes when connected together form a continuous channel, through which the liquid passes from the tank into the bottle when the puppet-valve 12 is raised off its seat 5. The tube 15 is enlarged at and above its screw-threaded portion 14, so that when the tubes 9 and 15 are secured together a channel or passage-way 16 is left between the outer surface of the said tube 9 and the inner surface of the said tube 15.

17 represents openings in the tube 15 just above the screw-threads 14 or at the bottom of the channel 16, these openings and channel being the passage-way for the escape of air, foam, and overflow milk when a bottle is being filled. The tube 15 is provided with a flange 18 above the opening 17 and against which the washer or stopper 19 is fitted.

20 is a sleeve which surrounds and snugly fits over the upper end of the tube 15. The upper end of this sleeve fits around the collar 7 of the plug 4, with its edge resting against the flange 6 of said plug. This sleeve is provided with a flange 21 near its upper end, against which the upper end of a coil-spring 22, which surrounds the sleeve and the tube 15, rests, the lower end of this spring resting against the flange 18. This sleeve is kept in

its normal position against the flange 6 by the coil-spring 22.

23 is an overflow-spout formed on the sleeve at or above the flange 21. This spout communicates with the channel 16 between the tubes 9 and 15. The upper end of the tube 15 telescoping with the sleeve 20, the ends of the coil-spring 22 resting against the flange 18 and the tube 15 and on the flange 21 on the sleeve 20, the spring tends to force the tube out of the sleeve and keeps the upper end of said sleeve seated in position around the collar 7 and against the flange 6 of the plug 4 and keeps the valve 12 on its seat 5 on said plug, as is clearly seen from the drawings. As many of these valves as desired may be connected to the bottom of the tank, as illustrated in my application above referred to.

In operation the bottle to be filled is placed under the lower end of the valve-tube 15. The bottle is then raised so that the tube 15 projects into the bottle, with the mouth of the bottle resting against the washer 19, by which the mouth of the bottle is closed. As the bottle is further raised it raises the tube 15 against the action of the spring 22 and telescopes it in the sleeve 20, and as the tubes 9 and 15 are connected together the puppet-valve 12, carried by the tube 9, is raised off its seat 5, as shown in Fig. 4, and the liquid in the tank—such as milk, for example—flows through the opening 10 at the upper end of the tube 9 down through this tube and through the tube 15 into the bottle. As the mouth of the bottle is closed by the stopper 19 foam, air, and overflow milk pass out of the bottle through the openings 17 and through the channel 16, the air escaping at the spout 23 and the milk and foam passing over or through the spout into a receptacle, where it is collected. When the bottle is filled, it is lowered, whereupon the spring 22 forces the tubes 9 and 15 to their normal position, and the puppet-valve is seated, and the supply of milk to the bottle is cut off.

In the modification shown in Figs. 3 and 4 we have formed the overflow-spout 23 on the upper end of the tube 15, and this spout of course moves with the tube, while in the valve shown by Fig. 2 the spout is stationary. To permit this, we have provided the collar or sleeve 20 with a vertical slot 20^a, through which the spout projects and in which it moves vertically. With this exception the operation of this modification is the same as the other construction above described.

In the construction shown in Figs. 1 and 2 the valve 12 is formed integral with a butterfly-nut 12^a, this nut and pin 11 being provided with left-hand screw-threads, so that the valve may be removed from the tube 9 without liability of the tubes 9 and 15 being separated, or the tube 15 may be removed from the tube 9 without removing the valve 12 from the tube 9, it being understood, of course, that the

threads 13 and 14 on tubes 9 and 15 are right-handed. In the construction shown by Fig. 3 the valve 12 is held in place on the left-handed screw-threaded pin by an ordinary nut 12^b. The valve may be held on in any other well-known way.

To remove the whole valve from the tank without taking out the screw-threaded plug 4, the tube 15 is held in the hand, and the valve 12 is removed from the pin 11 by moving the nuts 12^a or 12^b, when the tube 9 is pulled out of the plug 4, carrying with it the sleeve 20 and spring 22. The tubes 9 and 15 may then be separated by screwing them at the joints 13 and 14. When this is done, all the parts may be thoroughly washed and cleaned. It is to be noticed that as the openings 17 in the tube 15 are at the bottom of the channel 16 there is no pocket formed wherein milk would settle and collect. When the tube 9 is removed from the tube 15, a brush may be pushed through the openings 17 and the ledge at the top of the screw-thread 14 thoroughly cleaned.

The tube 15 and the collar or sleeve 18 may be removed without removing the tube 9. This is done by holding the nut 12^a or 12^b so that the tube 9 will not turn. Then by turning or unscrewing the tube 15 from the lower end of the tube 9 the spring 22 and sleeve 20 come off with the tube 15. These removed parts, as well as the lower end of the tube 9, may be washed and the parts then reassembled.

By our construction it is seen that there are no closed tubes, pockets, or recesses into which milk will collect and become stale and all the parts may be easily and quickly separated and when separated the tubes, sleeve, and spout and all of their parts may be easily, quickly, and thoroughly cleaned.

While in describing the operation of our device we have stated that the bottle to be filled is raised to unseat the puppet-valve 12, it is of course understood that the bottle may be held stationary and the tank having our improved valve (or valves) secured to the bottom thereof lowered to the bottle, and when the stopper 19 comes in contact with the mouth of the bottle the parts will operate, as heretofore described, to open the valve 12, permitting the liquid in the tank to flow into and through the tubes 9 and 15 into the bottle and the air and overflow liquid to pass out through the openings 17 and the channel 16.

It is to be noticed that the spout in the first form of our device remains stationary and near the bottom of the tank and in the modification, in which the spout moves, it is carried up near the bottom of the tank before the milk overflows. In both instances it is seen that the overflow milk is discharged much higher than in the old forms of valves. This is quite advantageous, as the bottles can be put farther down in the filling-cases than could be done in the old forms of valves.

We do not wish to be understood as limiting our device to the exact construction shown and described, as it is apparent to any one skilled in the art that changes may be made in the construction without departing from the spirit and scope of our invention. For example, instead of forming the channel between the outer and inner tubes by making the outside diameter of the inner tube smaller than the inside diameter of the outer tube the channel may be formed by grooving one or the other tubes to form the channel or said tube may be corrugated for the same purpose. Other changes are obvious.

15 Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a valve, an outer tube having one part larger in diameter than the other, an inner tube secured in the larger part of the outer tube, a passage or channel between the two tubes, the outer tube having an opening in its wall communicating with said channel.

2. In a valve, an outer tube having one part larger in diameter than the other, an inner tube secured in the larger part of the outer tube and of less diameter than the larger part whereby a space or channel is provided between the two, the outer tube having an opening in its wall communicating with said channel.

3. In a valve, an outer tube having one part thereof enlarged, said tube being internally screw-threaded at the junction of the smaller and larger parts, an inner tube in the larger portion of the outer tube, one end of which is screw-threaded and fitted into the internal thread of the outer tube, a channel between said inner tube and the larger part of the outer tube, and an opening in the wall of the outer tube communicating with said channel.

4. In a valve, an outer tube, an inner tube rigidly and detachably secured to the outer tube, a channel between the two tubes, the outer tube being provided with an opening in its wall communicating with said channel, a valve connected to the upper end of the inner tube, a device through which this end of the tube passes, said device being provided with a valve-seat, a collar or sleeve surrounding a portion of the tubes, said sleeve resting against said device, and means to hold the collar against said device.

5. In a valve, an outer tube, an inner tube rigidly and detachably secured to the outer tube, a channel between the two tubes, the outer tube being provided with an opening in its wall communicating with said channel, a valve connected to the upper end of the inner tube, a hollow plug through which the inner tube passes, said plug being provided with a valve-seat, a sleeve surrounding the free end of the enlarged part of the outer

tube, said sleeve resting against the said plug and a spring surrounding the larger portion of the outer tube and adapted to keep the sleeve in place against the plug and force the outer tube out of the sleeve and the valve on the inner tube to its seat.

6. In a valve, an outer tube, an inner tube detachably secured to the outer tube, a channel between the two tubes, an opening in the wall of the outer tube communicating with said channel, a valve on the free end of the inner tube, an opening in the wall of the inner tube at or near the said free end, a plug through which the inner tube passes, said plug having a seat on which the valve carried by the inner tube is seated, a flange on said plug, a collar, one end of which normally rests against said flange, the other end of which surrounds and telescopes with the outer tube, a spring surrounding said sleeve and said outer tube, and means on the said collar and on said outer tube against which the ends of the spring bear, as and for the purpose set forth.

7. In a valve, an outer tube, an inner tube detachably secured to the outer tube, the inner and outer tubes being of such relative diameters that a passage-way is formed between the two tubes, an opening in the wall of the outer tube communicating with said passage-way, a valve on the free end of the inner tube, an opening at or near the said free end of the walls of the inner tube, a plug through which the inner tube passes, said plug having a seat on which the valve carried by the inner tube is seated, a flange on said plug, a collar, one end of which normally rests against said flange, the other end of which surrounds and telescopes with the outer tube, a spring surrounding said sleeve and said outer tube, and means on the said collar and on said outer tube against which the ends of the spring bear, as and for the purpose set forth.

8. In a valve, an outer tube, an inner tube detachably secured to the outer tube, a channel between the two tubes, an opening in the wall of the outer tube communicating with said channel, a valve on the free end of the inner tube, an opening at or near the said free end of the walls of the inner tube, a plug through which the inner tube passes, said plug having a seat on which the valve carried by the inner tube is seated, a flange on said plug, a collar, one end of which normally rests against said flange, the other end of which surrounds and telescopes with the outer tube, a spring surrounding said sleeve and said outer tube, and a spout on said sleeve communicating with the channel between the tubes.

9. In a valve, an outer tube, an inner tube detachably secured to the outer tube, the inner and outer tubes being of such relative diameters that a passage-way is formed between

the two tubes, an opening in the wall of the outer tube communicating with said passage-way, a valve on the free end of the inner tube, an opening at or near the said free end of the walls of the inner tube, a plug through which the inner tube passes, said plug having a seat on which the valve carried by the inner tube is seated, a flange on said plug, a collar, one end of which normally rests against said flange, the other end of which surrounds and telescopes with the outer tube, a spring surrounding said sleeve and said outer tube, and a spout on said sleeve communicating with the channel between the tubes.

10. In a valve, an outer tube, one portion of which is larger in diameter than the other, an inner tube in the larger portion of the outer tube, said inner tube being rigidly and detachably secured to the outer tube, there being a channel between the two tubes, a wall in the outer tube communicating with said channel, a sleeve surrounding the larger portion of the outer tube, a spout connected to said sleeve and communicating with said channel, a spring surrounding the sleeve and the outer tube, as and for the purpose set forth.

11. In a valve, a plug having a valve-seat therein, an inner tube having a valve on one end thereof and an opening at or near said end, an outer tube of larger diameter than the inner tube, the outer and inner tubes being rigidly and detachably connected, said outer tube having an opening in the wall therein, a collar surrounding the outer tube and held in position by the outer tube and the said plug, and means for holding the collar against said plug.

12. In a valve, a plug having a valve-seat therein, a tube movable in said plug, a valve carried by said tube having an opening in the wall thereof, an inner tube, a passage-way being formed between the inner and outer tubes, an opening in the wall of the outer tube communicating with said passage-way, a sleeve surrounding the outer tube and supported by said outer tube and the said plug, a spout connected to said collar and communicating with said passage-way, and a spring surrounding the collar and the outer tube, said spring being arranged and adapted to normally hold the valve on the inner tube on the seat in the plug.

13. In a valve, a hollow plug having a valve-seat in one end thereof, an inner tube adapted to move in said hollow plug, a valve carried by one end of the tube adapted to be seated in the seat, said tube having an opening in the wall thereof near the valve, an outer tube of larger diameter than the inner tube, the two tubes being detachably secured together with a passage-way between them, the outer tube having an opening which communicates with said passage-way, and a spout communicating with said passage-way.

14. In a valve, a hollow plug having a valve-

seat in one end thereof, an inner tube adapted to move in said hollow plug, a valve carried by one end of the tube adapted to be seated in the seat, said tube having an opening in the wall thereof near the valve, an outer tube of larger diameter than the inner tube, the two tubes being detachably secured together with a passage-way between them, the outer tube having an opening which communicates with said passage-way, a spout communicating with said passage-way, a sleeve, one end of which surrounds the upper end of the outer tube, the other end being seated on the hollow plug, and means for normally keeping the valve in the inner tube on its seat.

15. In a valve, a hollow plug having a valve-seat in one end thereof, an inner tube adapted to move in said hollow plug, a valve carried by one end of the tube adapted to be seated in the seat, said tube having an opening in the wall thereof near the valve, an outer tube of larger diameter than the inner tube, the two tubes being detachably secured together with a passage-way between them, the outer tube having an opening which communicates with said passage-way, a spout connected with said passage-way, a sleeve, one end of which surrounds the upper end of the outer tube, the other end being seated on the hollow plug, and a spring surrounding the sleeve and the outer tube, said spring being adapted to keep the sleeve against the plug and the valve on the inner tube on its seat in the plug.

16. In a device for filling bottles, a liquid-reservoir, an opening in said reservoir having a valve-seat therein, a discharge-tube in said opening, a valve carried by said tube, a second tube carried by the first tube, the said second tube being of larger diameter than the first tube forming a passage-way between the two tubes, and means on the second tube for closing the mouth of the bottle, said tube being provided with an opening below said means which communicates with said passage-way.

17. In a device for filling bottles, a tank, an opening in the tank, a hollow plug in said opening, said plug having a valve-seat therein, a tube movable in said hollow plug, one end of the tube being closed and provided with an opening near said closed end, a valve connected to said end of the tube, one portion of which is of larger diameter than the first tube, the first tube being within the larger portion of the second tube and detachably secured to the second tube, a channel being formed between the two tubes, the outer tube having an opening which communicates with the said channel, means on the outer tube for closing the mouth of a bottle, a spout communicating with said channel, a sleeve, one end of which surrounds the enlarged portion of the second tube, the other end of the sleeve seated on the hollow plug, a spring surround-

ing the sleeve and the outer tube, one end of the spring bearing against the sleeve and the other against the outer tube whereby the sleeve is held in position and the valve in the first tube normally held to its seat.

18. In a valve, an outer tube, an inner tube rigidly and detachably secured in the outer tube, a channel between the two tubes, a valve connected to one end of the inner tube, means through which the inner tube passes, said means having a valve-seat, a sleeve surrounding the tubes, the outer tube adapted to telescope in said sleeve, and means for normally extending the sleeve and tube and keeping the valve on its seat.

19. In a valve, an outer tube, an inner tube rigidly and detachably secured to the outer tube, a channel or passage-way between the two tubes, a valve connected to one end of the inner tube, a plug through which the inner tube passes, said plug being provided with a valve-seat, a sleeve surrounding the outer tube, said outer tube adapted to telescope in said sleeve, the upper end of said sleeve resting against the plug, a spring surrounding the outer tube and adapted to hold the sleeve in place against the plug and to force the outer tube out of the sleeve and the valve on the inner tube to its seat.

20. In a valve, an outer tube, an inner tube detachably secured in the outer tube, a channel between the two tubes, a valve on one end of the inner tube, said tube having an opening in its wall at or near said end, a plug through which the inner tube passes, said plug having a seat on which the valve carried by the inner tube is seated, a flange on the plug, a sleeve surrounding the outer tube and into which said tube is adapted to telescope, a spout on said sleeve communicating with a channel between the two tubes, one end of said sleeve normally resting against the flange, a spring surrounding said sleeve and a flange on the outer tube against which the ends of the spring bear, as and for the purpose set forth.

21. A valve, an outer tube and an inner tube, said tubes being detachably secured together and having a channel between them, a valve on one end of the inner tube, said tube having an opening at or near said end, a plug through which the inner tube passes, said plug having a seat on which the valve is seated, a flange on said plug, a sleeve, one end of which normally rests against said flange, the other end of which surrounds and telescopes with one end of the outer tube, a spring surrounding said sleeve and said outer tube, and means on said sleeve and on said outer tube against which the ends of the spring bear, as and for the purpose set forth.

22. In a device for filling bottles, a liquid-reservoir, an opening in said reservoir having a valve-seat therein, a discharge-tube in said

opening, a valve carried by said tube and adapted to be seated on said valve-seat, an outer tube carried by the discharge-tube with a passage-way between the two tubes, means on the outer tube for closing the mouth of the bottle, said passage-way extending below said means for closing the mouth of a bottle.

23. In a device for filling bottles, a liquid-reservoir, an opening in said reservoir having a valve-seat therein, a discharge-tube in said opening, a valve carried by said plug, a second tube surrounding the first tube with a passage-way between the two tubes, a stopper on the second tube for closing the mouth of the bottle, said passage-way extending below said stopper and into a bottle, a sleeve surrounding the second tube and having a spout communicating with said passage-way, the sleeve resting against the under side of the reservoir and adapted to have the second tube telescoping within it, a spring surrounding the sleeve one end of which bears against the sleeve and the other against the outer tube, adapted to force the second tube out of the collar and to keep the valve on its seat.

24. In a valve, an outer tube having one part thereof larger in diameter than the other, an inner tube secured in the larger part of the outer tube, there being a passage-way or channel between the two tubes, a portion of the outer tube adapted to extend into the mouth of a vessel, and the channel or passage-way adapted to communicate with the inside of the vessel when the tube is inserted in the vessel.

25. In a valve, an outer tube having one part thereof enlarged, an inner tube in the larger portion of the outer tube, one end of the inner tube being secured to the larger tube at the junction of the smaller and larger parts, there being a channel between said inner tube and the larger part of the outer tube, a portion of the outer tube adapted to extend into a vessel and the channel communicating with the vessel when the tube is inserted in the vessel.

26. In a valve, an outer tube, an inner tube rigidly and detachably secured to the outer tube, there being a channel between the two tubes, a valve connected to the upper end of the inner tube, a device through which this end of the tube passes, said device being provided with a valve-seat, a collar or sleeve surrounding a portion of the two tubes, said sleeve resting against said device and means for holding the collar against said device, the tubes adapted to extend into the mouth of a bottle and a channel communicating with the inside of the bottle when the tubes are inserted therein.

27. In a device for filling bottles, a reservoir, an opening in said reservoir having a valve-seat therein, a discharge-tube in said opening, a valve carried by said tube and

adapted to be seated on said valve-seat, an
outer tube connected to the inner tube with a
channel or passage-way between the two tubes,
an outer tube adapted to extend into the mouth
5 of a bottle and means on the outer tube for
closing the mouth of the bottle, said passage-
way or channel communicating with the inside
of the bottle when the tube is inserted therein.

In testimony whereof we affix our signatures
in the presence of two witnesses.

RALPH G. WRIGHT.
KIRK K. WRIGHT.

Witnesses:

HIRAM R. WATSON,
MERLE H. DENISON.