

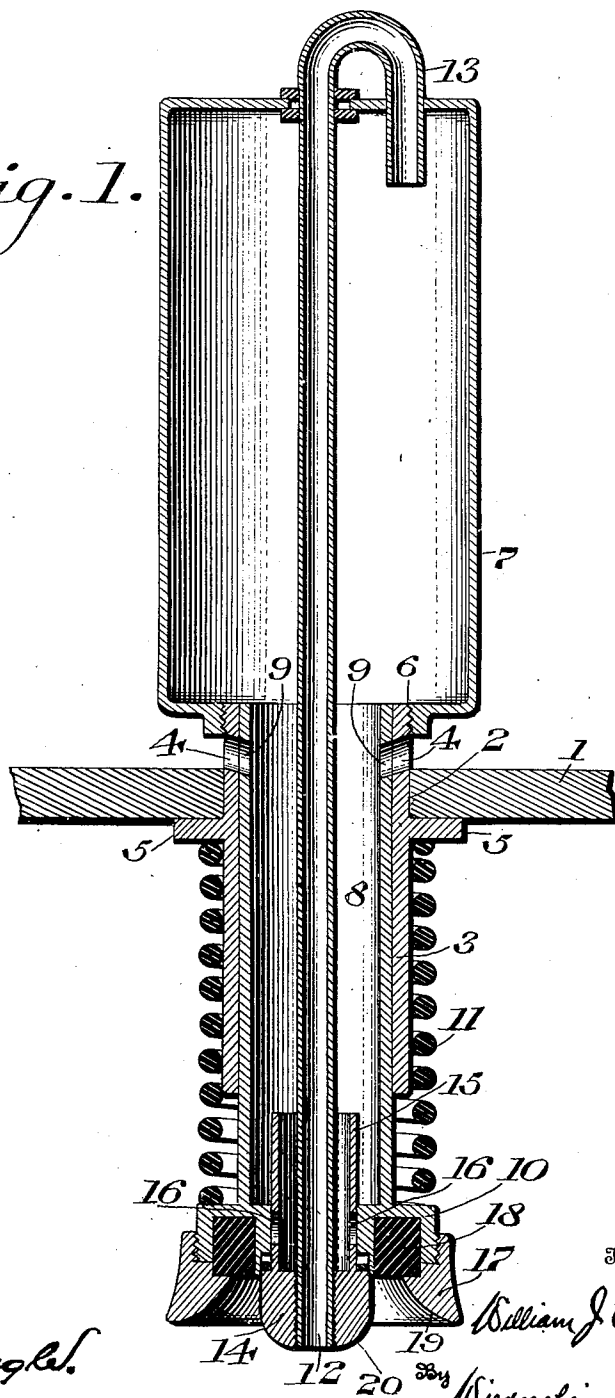
No. 889,106.

PATENTED MAY 26, 1908.

W. J. CUNNINGHAM.
RECEPTACLE FILLING VALVE.
APPLICATION FILED DEC. 15, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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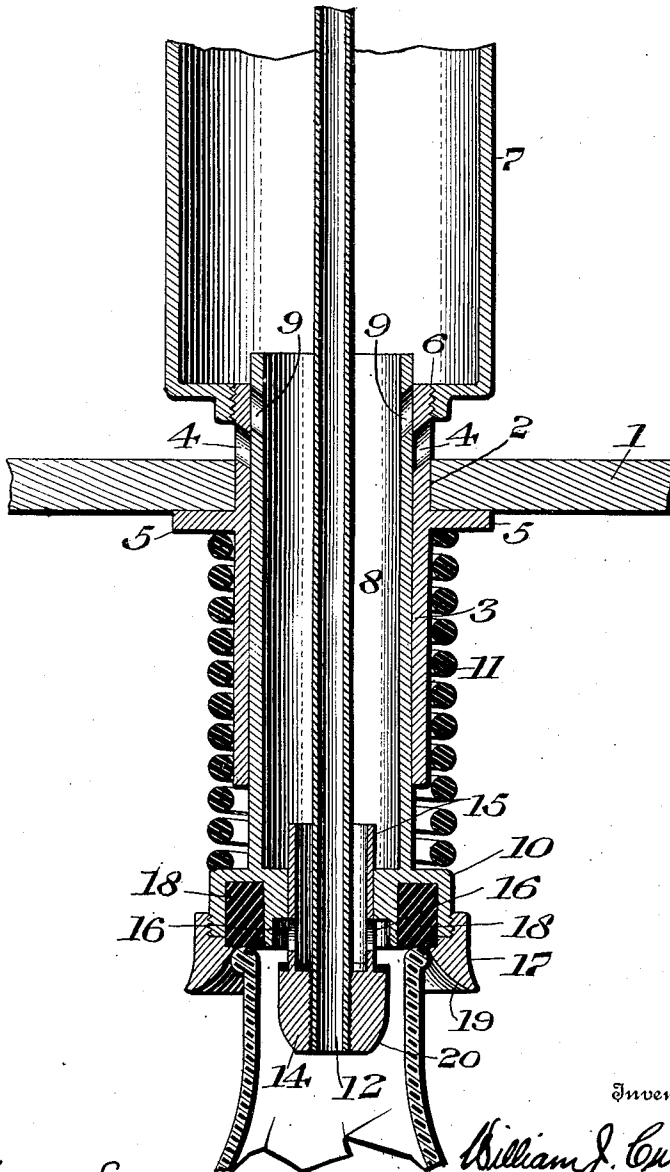
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM J. CUNNINGHAM, OF PHILADELPHIA, PENNSYLVANIA.

RECEPTACLE-FILLING VALVE.

No. 889,106.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed December 15, 1906. Serial No. 348,033.

To all whom it may concern:

Be it known that I, WILLIAM J. CUNNINGHAM, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Receptacle-Filling Valve, of which the following is a specification.

My invention relates to a new and useful receptacle filling valve which is more especially adapted for use in filling receptacles and consists of means for permitting the escape of air from the receptacle when the fluid is caused to flow thereinto.

It further consists in providing means for conducting the air which escapes from the receptacle to a point where it exerts pressure upon the upper surface of the fluid which is to enter the vessel.

It further consists of novel details of construction all as will be hereinafter fully set forth.

Figure 1 represents a vertical sectional view of the valve. Fig. 2 represents a vertical sectional view showing the parts in a different position.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings: I have found in practice, that in order to fill a receptacle with fluid, it is necessary not only to control the fluid but also to provide some means for the easy escape of the air from the receptacle in order that the fluid will flow thereinto and my invention is designed more especially for this purpose. In addition, I take the air from the receptacle and conduct the same to a point above the surface of the liquid which is to flow into the vessel, in order that it will act as an additional pressure upon the fluid.

In the drawings I have shown a construction for carrying out my invention but it will be apparent that other instrumentalities may be employed and certain changes made, which will accomplish the same results and I do not, therefore, desire to be limited to the exact construction as shown and described, but wish to make such changes as may be necessary.

1 designates a tank or reservoir only a portion of which is shown and which may be of any suitable size or dimension and which is provided with an opening 2, in which is seated a sleeve 3, provided with ports 4 communicating with the interior of the tank and having a flange 5 thereon which abuts against the bottom of the tank 1. Secured

to said sleeve in any desired manner and in the present instance by the threads 6, is a receptacle 7.

8 designates a movable sleeve which is provided in the present instance with the ports 9 adapted to normally register with the ports 4 in the sleeve 3, said sleeve 8 having the head 10 thereon, against which, is adapted to bear, a spring 11 which also in the present instance, bears against the flange 5 so that the movable sleeve 8 and sleeve 3 are normally held, in the position seen in Fig. 1, with the ports registering.

12 designates a pipe which is suitably secured to a suitable point of the receptacle 7 and is provided with the downwardly turned end 13, which projects a suitable distance into the said receptacle in order that said pipe will discharge into the upper portion of said receptacle. Screwed or otherwise secured to the pipe 12 is a cap or head 14 to which is attached a sleeve 15, which is provided with ports 16, it being noted that the head 10 of the sleeve 8 is normally seated in such a manner with respect to the ports 16, that the same are closed so that said head 10 serves as a valve for said ports. The tube 15 projects upwardly a slight distance into the sleeve 8 and the upper portion of said tube 15 is open to the interior of said sleeve 8. A cap 17 is screwed or otherwise secured to the head 10 which latter may also be provided with the resilient washer 18.

The operation of the device will be readily seen. The reservoir 1 is filled with milk or other fluid and the port 4 is in register with the port 9 in the sleeve so that the milk or fluid fills the tube 15, the sleeve 8 and interior of the receptacle 7, the ports 16 of the tube 15 being closed. When the bottle or other receptacle is placed beneath the valve and a pressure is exerted upwardly by the bottle or by a downward movement, if imparted to the reservoir 1, the cap 17, head 10 and sleeve 8 are moved with respect to the sleeve 3 and receptacle 7. That is to say, there is a relative movement between these parts so that the ports 4 are closed and the head 10 which serves as a valve for the ports 16 is moved upwardly, so that the ports 16 are open and the milk or other fluid can flow from the interior of the sleeve 8 and the receptacle 7 into the bottle, it being noted that by reason of the position of the ports 16, the fluid is forced outwardly against the sides of the bottle, leaving the central portion

thereof empty and as said head 14 and tube 12 are within the bottle, air from the latter passes up through the tube 12 and downwardly through the end 13 thereof into the upper portion of the receptacle 7, acting as additional pressure for forcing the fluid from the receptacle 7, it being noted that the capacity of the receptacle 7 and sleeve 8 are equal to the capacity of the bottle to be filled. As soon as the ports 16 are closed which occurs by the action of the spring 11 when the pressure is removed the ports 4 again register with the ports 9 and the milk or fluid again flows into the receptacle 7 and sleeve 8, ready for the next operation.

The construction above described is more particularly adapted for use in machines where a plurality of valves are employed, to fill a plurality of bottles and I preferably use the valve in a construction of machine where the tank is moved downwardly against the bottle, so that the head 10 contacting with bottle, compresses the spring 11, opening the ports 16. It will be further apparent that I may, if desired, shorten the sleeve 8 so that the upper end thereof is normally below the port 4, thus dispensing with the necessity of having the ports 9. In lieu of screwing the head 14 to the tube 12 I may employ some other means for securing the tube 12 in position with respect to the receptacle 7.

It will be noted that the cap 17 is provided with the inclined or curved inner wall 19 and that the head 14 is provided with the inclined or curved outer wall 20, whereby the two walls act as guides to properly center the bottle with respect to the valves and direct the mouth of said bottle properly against the washer or gasket 18, it being necessary that the bottle is in proper position before the ports 16 are opened, so that the fluid cannot flow until the bottles are ready to receive the same and thus none of the fluid will be lost. It will be noted also that the relation of the head 10 with the ports 16 is such that there is a slight movement permitted before the ports are opened, which is an additional safeguard against accidental flow of the liquid before the bottle is properly centered.

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

1. In a device of the character described, a tank adapted to hold liquid, a measuring receptacle having an inlet normally open, a discharge opening from said receptacle, means normally closing said opening and adapted to be actuated to close said inlet when said discharge opening is opened, means for normally holding said opening, and closing means in proper position, and means for conducting the air from the bottle to be filled and discharging the same upon the upper surface of the fluid in said receptacle.

2. In a device of the character described, a receptacle, a discharge opening therefor, an automatically operated sleeve connected with the receptacle for closing said opening, and means for conducting air from the bottle to be filled, and discharging the same upon the upper surface of the fluid in said receptacle.

3. In a device of the character described, a receptacle, a port through which the fluid passes to fill the same, a discharge opening for said receptacle, a sleeve normally closing said discharge opening and adapted to be operated to open the same and close said inlet port, and means for conducting the air from the bottle to be filled, and discharging the same upon the upper surface of the fluid in the receptacle.

4. In a device of the character described, a receptacle, an inlet opening through which the fluid passes to fill said receptacle, a discharge opening for said receptacle, a suitably operated sleeve for normally closing said discharge opening and adapted to close said inlet port when the discharge opening is open and a pipe adapted to conduct the air from the bottle to be filled and discharge the same upon the upper surface of the fluid.

5. In a device of the character described, a receptacle, a port through which fluid is adapted to enter said receptacle, a sleeve normally allowing said port to remain open, a discharge opening for said receptacle and adapted to be normally closed by said sleeve, means for normally holding said sleeve in said position, said sleeve being adapted to be actuated to open said discharge port and close said inlet port, and a tube adapted to conduct air from the bottle to be filled.

6. In a device of the character described, a receptacle, a port through which fluid is adapted to enter said receptacle, a sleeve normally allowing said port to remain open, a discharge opening for said receptacle and adapted to be normally closed by said sleeve, means for normally holding said sleeve in said position, said sleeve being adapted to be actuated to open said discharge port and close said inlet port, and a tube adapted to conduct air from the bottle to be filled and discharge the same upon the upper surface of the liquid.

7. In a device of the character described, a tank adapted to hold liquid, a measuring receptacle and having an inlet which is normally opened in order that the receptacle will be filled by the liquid from the tank, a discharge opening therefor, means normally closing the said opening and adapted to close said inlet when said discharge opening is open, and stationary means for conducting the air from the bottle to be filled and discharging the same upon the upper surface of the liquid in said receptacle.

8. In a device of the character described, a

measuring receptacle adapted to contain liquid, an inlet port for said receptacle, a tube carried by said receptacle and adapted to conduct air from the bottle to be filled and discharge the same on the upper surface of the fluid in said receptacle, a head carried by said tube and having a discharge opening for the receptacle, and a sleeve controlling said inlet and said discharge openings.

9. In a device of the character described, a receptacle, a port through which the fluid passes to fill the same, a discharge opening for said receptacle, a sleeve controlling said inlet port and said discharge opening and adapted so that when the port is open the discharge opening is closed, resilient means for normally holding the said port in open position and means for conducting air from the bottle to be filled and discharging the same upon the upper surface of the fluid of said receptacle.

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