LA FAYETTE E. BOWSER.

VALVE.

APPLICATION FILED FEB. 3, 1909.

998,155.

Patented July 18, 1911.

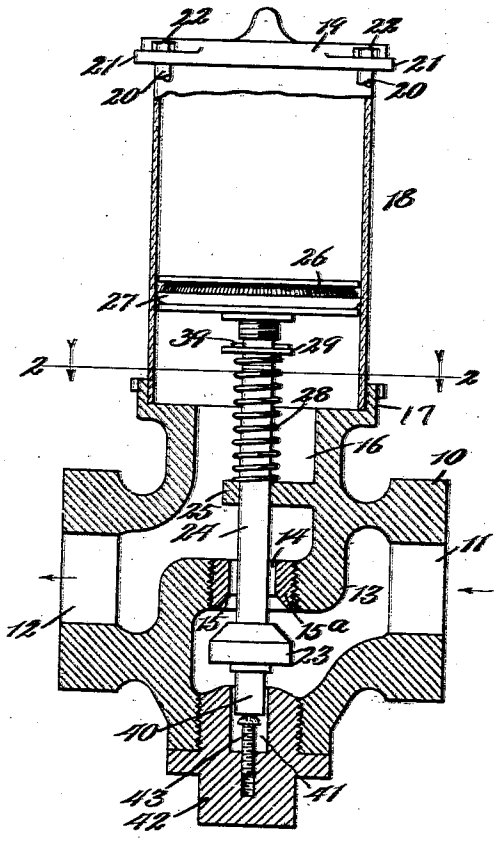

Fig. 1.

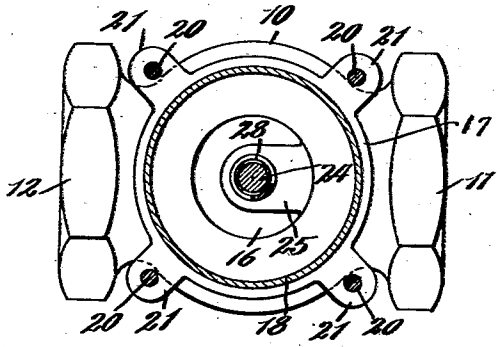

Fig. 2.

Witnesses:

Inventor:
La Fayette E Bowser
By Bowser & Hopkins
Attys

UNITED STATES PATENT OFFICE.

LA FAYETTE E. BOWSER, OF FORT WAYNE, INDIANA, ASSIGNOR TO S. F. BOWSER & COMPANY, INCORPORATED, OF FORT WAYNE, INDIANA, A CORPORATION OF INDIANA.

VALVE.

998,155. Specification of Letters Patent. Patented July 18, 1911.

Application filed February 3, 1909. Serial No. 475,889.

To all whom it may concern:

Be it known that I, LA FAYETTE E. BOWSER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Valves, of which the following is a specification.

This invention relates to improvements in valves and more particularly to the operating mechanism therefor and the primary object of the invention is to provide an improved valve of this character particularly adapted for use with liquid supply tanks, which latter are located at a high elevation.

A further object is to provide an improved device of this character which is adapted to be located between the source of supply and dispensing apparatus whereby the suction caused by the operation of the dispensing apparatus will automatically unseat the valve.

A further object is to provide improved means for limiting the movement of the valve in one direction.

A further object is to provide an improved device of this character which will be simple, durable and cheap in construction, and effective and efficient in operation and in which ready access may be had to the various parts.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawing, illustrating an embodiment of the invention, and in which—

Figure 1 is a longitudinal sectional view of an improved device of this character constructed in accordance with the principles of this invention. Fig. 2 is a detail sectional view taken on line 2—2 of Fig. 1.

Referring more particularly to the drawing and in the present exemplification of the invention, the numeral 10 designates the valve casing, which is provided with an inlet opening 11 and an outlet opening 12, and a partition 13 to divide the casing into two compartments, having communication through an opening 14 within which opening is seated a bushing 15ª having a valve seat 15. The casing 10 is provided with an opening 16 which opens through the top thereof and surrounding the opening 16 and spaced therefrom is a flange 17.

The casing 18 which may be of any desired size and configuration is adapted to rest by one extremity upon the valve casing 10 and within the flange 17. This casing 18 has communication with the opening 16 in the valve casing, which latter has communication with the outlet opening 12.

A top 19 is provided for the casing 10 and the casing and top may be secured to the valve casing 10 in any desired or suitable manner, preferably by means of tie rods or bolts 20 which pass through ears or projections 21 on the top 19. These tie-rods or bolts are provided with heads 22 which rest upon the ears or projections 21 and the other extremities thereof are secured to the valve casing 10 in any desired or suitable manner.

A valve 23 is provided within one of the chambers in the valve casing 10 and coöperates with the valve seat 15 to close the opening 14. This valve 23 is provided with a stem 24 which passes through a suitable support 25 and extends through the opening 16 and into the casing 18. A piston 26 having suitable packing 27 is arranged to move within the casing 18 and is connected to the valve stem 24 in any desired or suitable manner.

Surrounding the valve stem 24 is an elastic member 28 such as a coil spring or the like, one end of which is adapted to rest upon the support 25 and the other extremity engages a suitable washer or collar 29 which surrounds the stem 24 and which latter may be secured in position by means of a suitable fastening device 39, such as a cotter pin or the like and tends normally to move the valve 23 and piston 26 in a direction to seat the valve 23.

Projecting beyond the other end of the valve 23 is an extension 40 which is adapted to enter a recess 41 in a removable cap 42, and arranged within the recess 41 is an adjustable member 43, such as a screw or the like, which is arranged within the path of movement of, and is adapted to be engaged by, the extremity of the extension 40 so as to limit the movement of the valve 23 in one direction. Obviously this member 43 may be adjusted to any desired extent for varying the movement of the valve in one direction. By locating the member 43 en-

tirely within the cap 42 it will be apparent that the latter may be removed from the casing so that the member 43 may be adjusted to any desired extent, and when so adjusted and the cap replaced, all danger of accidental or unauthorized adjustment of the member 43 will be obviated.

This valve is particularly adapted for use with a dispensing mechanism in the form of a pump or the like, and the outlet end 12 thereof is connected to the pump. The space between the piston 26 and the top 19 of the casing is filled with air, so that when the piston is drawn down by force of the suction created by the operation of the pump, the air in the casing will expand, and when the suction ceases and the spring 28 forces the piston back into the casing to seat the valve 23, the air will be again compressed. When the pump is operated, the suction created thereby will be exerted upon the piston 26 to move the latter in the casing 18 in a direction to unseat the valve 23 against the tension of the elastic member 28, and the liquid will be caused to flow into the inlet opening 11 through the valve casing 10 and out of the outlet opening 12. As soon as the operation of the pump is stopped, the tension of the elastic member 28 will seat the valve 23 in the manner set forth. Obviously the valve stem 24 may be provided with a series of openings to receive the fastening device or cotter pin 39, whereby the tension of the elastic member 28 may be varied.

In order that the invention might be fully understood, the details of the foregoing embodiment thereof have been thus specifically described but

What I claim as new is—.

1. In a valve, the combination of a casing having a passage therethrough provided with an inlet and an outlet, a valve proper for closing the passage, a chamber supported by the casing and having communication with the passage on the outlet side of the casing, a piston movable in the casing, a stem connecting the valve and piston whereby suction through the outlet opening will operate directly upon the piston to move the latter to open the valve, an elastic member surrounding the stem and tending normally to move the piston in a direction to close the valve, all of said parts being housed in the casing and chamber, and means for limiting the opening movement of the valve.

2. In a valve, the combination of a casing having a passage therethrough provided with an inlet and an outlet, a valve proper for closing the passage, a chamber supported by the casing and having communication with the passage on the outlet side of the casing, a piston movable in the casing, a stem connecting the valve and piston whereby suction through the outlet opening will operate directly upon the piston to move the latter to open the valve, an elastic member surrounding the stem and tending normally to move the piston in a direction to close the valve, all of said parts being housed in the casing and chamber, and adjustable means also housed within the casing for limiting the opening movement of the valve.

3. In a valve, the combination of a casing having a passage therethrough provided with an inlet and an outlet, a valve proper for closing the passage, a chamber supported by the casing and having communication with the passage on the outlet side of the casing, a piston movable in the casing, a stem connecting the valve and piston whereby suction through the outlet opening will operate directly upon the piston to move the latter to open the valve, an elastic member engaging a fixed stop, said elastic member being disposed about the stem and having an adjustable connection therewith whereby the tension of the elastic member may be varied, said elastic member tending normally to move the piston in a direction to close the valve, all of said parts being housed in the casing and the chamber, and an adjustable stop also housed in the casing and arranged in the path of movement of the valve to be engaged thereby for limiting the opening movement of the valve.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 23rd day of January A. D. 1909.

LA FAYETTE E. BOWSER.

Witnesses:
WM. A. BUSCH,
B. M. BRINK.