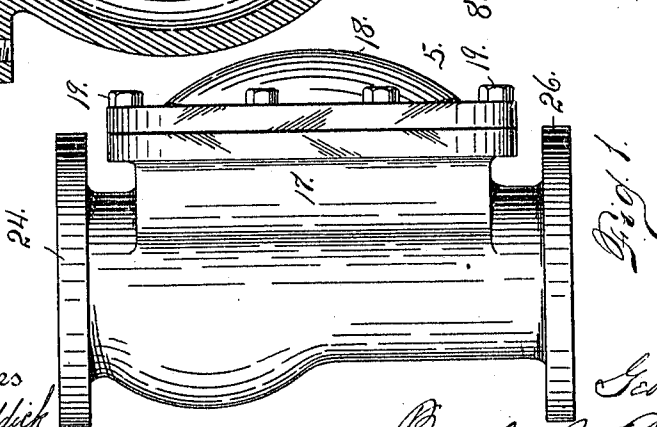
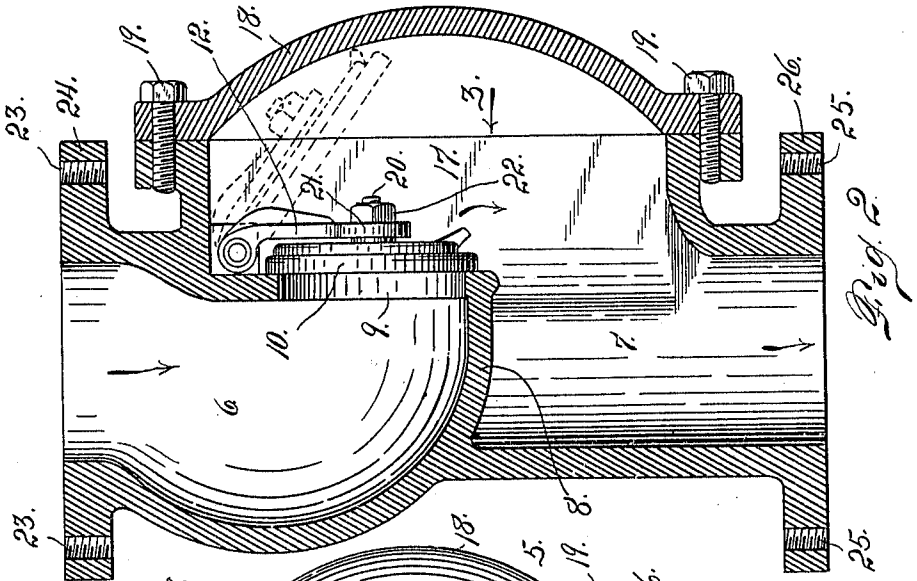
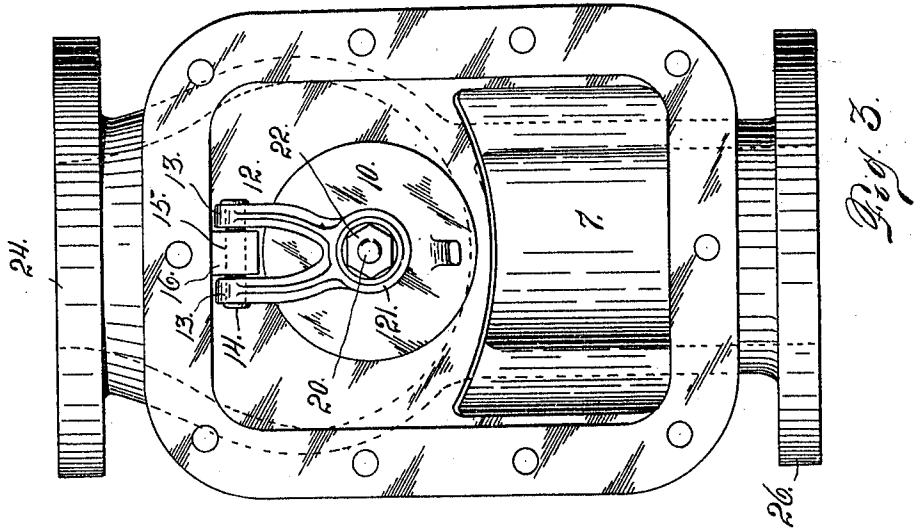


G. WOODALL.  
 FLAP CHECK VALVE.  
 APPLICATION FILED JULY 14, 1908.

955,931.

Patented Apr. 26, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE WOODALL, OF NEW YORK, N. Y.

FLAP CHECK-VALVE.

955,931.

Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed July 14, 1908. Serial No. 443,474.

To all whom it may concern:

Be it known that I, GEORGE WOODALL, a citizen of the United States, residing in the city and county of New York and State of New York, have invented certain new and useful Improvements in Flap Check-Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in flap check valves, my object being to provide a downward intake full-openings flap check valve which so far as I am aware is new.

Ordinarily the casing of a check valve when arranged for intake purposes must be in a horizontal position or in such a position that the direction of the flow of the water is in a horizontal line. Hence where it is desired to connect the lower part of a tank with a standpipe through which the fluid passes downwardly into the tank, the standpipe must be first connected with the horizontally disposed valve casing by an elbow at one extremity, the opposite extremity of the valve casing requiring another elbow, the latter being in direct communication with an elbow connected with the bottom of the tank. With my improved construction in an arrangement of this character, the check valve may be placed in the vertical portion of the standpipe whereby only one elbow is required to connect the standpipe with the tank. In the old form of construction heretofore outlined, two additional elbows are required in order that the valve casing may occupy a horizontal position. Hence the advantage of my improved construction over check valves heretofore in use so far as I am aware. In my improved construction the check valve is arranged to close an opening occupying a vertical plane. The valve is hung upon an arm whose body portion occupies a vertical position when the valve is closed. The upper extremity of this arm swings upon a horizontally disposed hinge pin. As the water enters the casing from above, the valve is adapted to swing outwardly or away from the opening to allow

the water to pass freely therethrough and thence downwardly to the discharge extremity of the casing.

Having briefly outlined my improved construction, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a side elevation of my improved check valve. Fig. 2 is a vertical longitudinal section of the valve, the parts being shown on a larger scale. In this view the valve piece and its swinging arm are shown in elevation and in two positions, one in full lines and the other in dotted lines. Fig. 3 is a view looking in the direction of arrow 3 Fig. 2, the removable member of the check valve casing being absent.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the check valve casing considered in its entirety. It will be assumed that this casing occupies a vertical position, that is to say with the compartment 6 of the chamber uppermost, and the compartment 7 lowermost. It will also be assumed that the fluid will enter the valve casing at the top and discharge at the bottom as indicated by the arrow (see Fig. 2). The lower part of the compartment 6 is separated from the compartment 7 by a partition 8. Above this partition is an opening 9 lying in a vertical plane. This opening is normally closed by a valve piece hung upon a vertically disposed bifurcated arm 12. The upper extremities of the bifurcated member of this arm are provided with eyes 13 through which a hinge pin 14 is passed. This hinge pin also passes through an opening 15 formed in a lug 16 cast integral with the casing and best illustrated in Fig. 3. Interposed between the two compartments 6 and 7 of the valve casing is a compartment 17 through which the fluid passes after leaving the opening 9 on its way to the compartment 7. This compartment 17 is closed by a removable plate 18 connected with the body of the casing by cap screws 19 which pass through registering openings formed in the meeting flanges of the cap and casing. The valve piece 10 is disk-shaped and is provided on its outlet

side with a centrally located threaded stem 20 which passes through an eye 21 formed in the lower extremity of the arm 12. A nut 22 is screwed upon this stem whereby the said arm is connected with the valve piece.

When the valve is in use, the casing is supposed to be connected with a vertically disposed pipe, the upper extremity of the casing being connected with the pipe by screws or bolts passed through openings 23 formed in a circular flange 24 surrounding the upper extremity of the casing; while the lower extremity of the casing is connected with the pipe by screws or bolts passed through openings 25 formed in a flange 26 with which the lower extremity of the casing is provided. The cap 18 is applied to the casing in front of the valve piece and is interiorly concave whereby the compartment 17 is enlarged thus making room for the outward swing of the valve piece when in the open position (see dotted lines in Fig. 2).

Assuming that the valve mechanism is arranged as just explained, the fluid under pressure will enter the chamber 6 at the top, and cause the valve piece 10 to swing outwardly to the dotted line position in Fig. 2 whereby the fluid will pass through the opening 9, into the compartment 17 of the casing and thence downwardly through the compartment 7 and out of the casing at the bottom.

It will be understood that the valve piece is easily accessible for purposes of repair, by simply removing the cap 18 which is

readily attachable and detachable as heretofore explained.

Having thus described my invention, what I claim is:

A valve comprising a vertically disposed casing, said casing having two chambers therein, one of said chambers having an outwardly bulged and concave wall formed in the upper part of said casing, the other chamber having a removable concave cap on the casing and forming a part of the wall of the said chamber, a vertically disposed partition between the first named chamber and the upper part of the last named chamber, the said partition having an opening therein, a valve plate normally closing said opening, a perforated lug in the casing located above the valve, a bifurcated arm having its lower end removably secured to the valve plate, a pin passing through the ends of said bifurcated arm and through the lug for pivotally suspending the valve plate in a normally closed position over the opening, the said valve plate adapted to swing laterally into the last named compartment for opening purposes, the said compartment having a discharge passage in vertical alignment with the vertically disposed partition, substantially as described.

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

GEORGE WOODALL.

Witnesses :

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E. J. WALTJEN.