W. R. WALKER.

VALVE.

APPLICATION FILED AUG. 18, 1917.

1,304,519. Patented May 20, 1919.

Fig. 1.

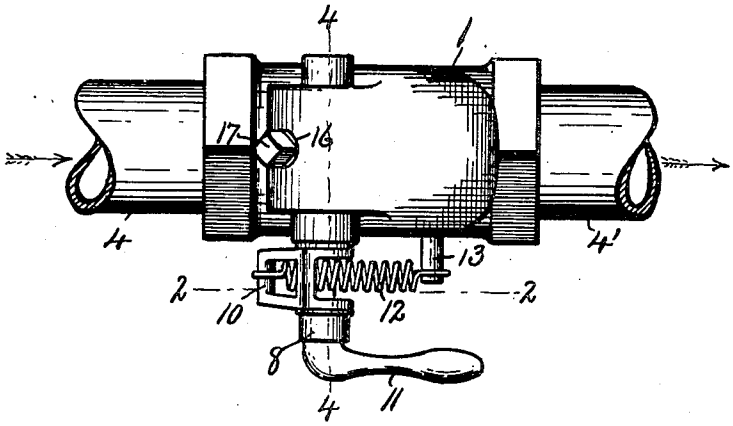


Fig. 2.

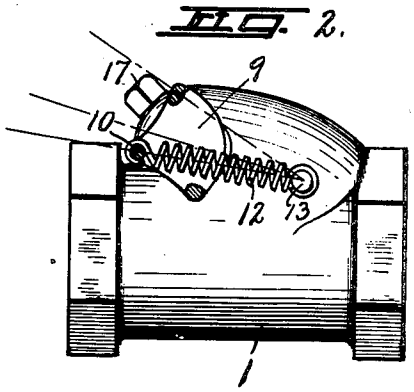


Fig. 3.

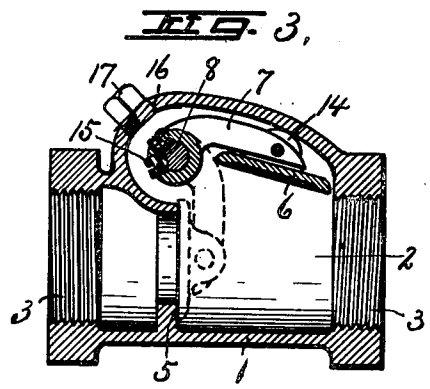
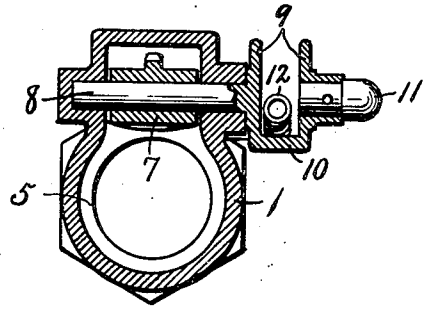


Fig. 4.



WITNESSES:

H. Ritust.

W. R. Walker INVENTOR

BY Howard P. Denison

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLARD R. WALKER, OF SYRACUSE, NEW YORK.

VALVE.

1,304,519. Specification of Letters Patent. Patented May 20, 1919.

Application filed August 18, 1917. Serial No. 186,909.

To all whom it may concern:

Be it known that I, WILLARD R. WALKER, a citizen of the United States of America, and resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Valves, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in valves of the swinging type adapted to open in the direction of movement of the liqud through the valve case, to be used more particularly in the waste pipes or drainage outlets of dish-washers and analogous machines.

The primary object is to provide simple means for automatically closing and opening the valve when swung by its operating means to corresponding sides of a medial plane of movement so that the valve will be yieldingly held in both its open and closed positions.

Another object is to utilize the valve seat and portion of the case to coöperate with the valve for limiting its movement in reverse directions, and to thereby avoid external limiting stops.

A further object is to pivot the valve to its swinging support so that it may automatically adjust itself to its seat when closed.

Other objects and uses relating to specific parts of the device will be brought out in the following description.

In the drawings—

Figure 1 is a top plan of a valve embodying the features of my invention.

Fig. 2 is a longitudinal sectional view taken on line 2—2, Fig. 1.

Fig. 3 is a longitudinal sectional view through the center of the valve case and valve.

Fig. 4 is a transverse sectional view of the same device taken on line 4—4, Fig. 1.

This valve comprises a case —1— having a straight lengthwise passage —2— therethrough and internally threaded portions —3— at the ends of the passage for receiving pipe connections —4— and —4'— constituting a part of the waste pipe or drainage outlet system of the dish-washer or analogous machine, the intermediate portion of the case being provided with a valve seat —5—.

A disk valve —6— is pivotally mounted on the free end of a rock arm —7— which is secured to a rock shaft —8— within the valve case —1— to swing the valve —6— to and from its seat —5— and allow the valve to automatically adjust itself to said seat when closed, said valve being opened in the direction of flow of the liquid through the casing.

The shaft —8— is journaled in opposite walls of the casing in approximately the plane of the valve seat —5— and has one end extended through and some distance beyond the corresponding wall and provided with an external U-shaped crank-arm —9— having a wrist pin —10— at one side of its axis and a hand crank —11— by which the shaft may be turned at will.

A tension spring —12— is attached at one end to the wrist pin —10— and has its other end attached to a projection —13— on the valve case —1— at the side of said axis opposite the wrist pin which, when the valve is fully open or fully closed, is disposed at one side of a direct line through the shaft axis and point of connection of the spring with the case, so as to cause said spring to move across and to opposite sides of said axis for automatically closing and opening the valve as the shaft is rocked in reverse directions by its hand crank —11—.

The closing movement of the valve is, of course, limited by the valve seat —5—, while the opening movement is limited by a portion of the case —1— in the path of the rock arm —7— or lugs —14— on the valve.

The hub of the rock arm —7— is secured to the shaft —8— by means of a set screw —15— which, when the valve is closed, is registered with an opening —16— in the valve case to permit the insertion of a screw driver by which the set screw may be loosened and the shaft withdrawn endwise from the case, thus liberating the valve —6— and its supporting arm —7—, both of which are sufficiently small to permit them to pass through the discharge opening of the valve case if it should become necessary to remove or replace the valve, the opening —16— being normally closed by a plug —17—.

The particular advantage of the spring —12— and crank arm —9— connected as described is to assure a positive closing or opening of said valve by a slight movement of the hand crank —11— and also to assure the holding of the valve in either position of adjustment without special care on the

part of the operator, it being understood that the spring is of sufficient tension to counteract any water pressure which may be exerted on the valve tending to open the same.

What I claim is:

In combination with a valve case having a lengthwise passage therethrough and a valve seat intermediate the ends of the passage and at right angles to the axis thereof, a rock-shaft journaled in the case in approximately the plane of the valve seat and at one side thereof, a rock arm secured to the rock shaft within the case, a valve mounted on the rock arm and movable therewith to and from the valve seat, a U-shape crank arm on the outer end of the rock shaft and a tension spring extending in the same general direction as the passage and having one end attached to said crank-arm at one side of the axis of the rock-shaft and its other end attached to a portion of the case at a point beyond the valve seat so as to exert its tension in the direction of opening movement of the valve, the intermediate portion of said spring being movable across and to opposite sides of the axis of the shaft as the latter is moved in reverse directions to yieldingly hold the valve in both its closed position and in its open position.

In witness whereof I have hereunto set my hand this 14th day of August, 1917.

WILLARD R. WALKER.

Witness:
H. E. CHASE.