

H. C. MONTGOMERY.
SELF CLOSING VALVE.
APPLICATION FILED AUG. 5, 1910.

981,787.

Patented Jan. 17, 1911.

Fig. 1.

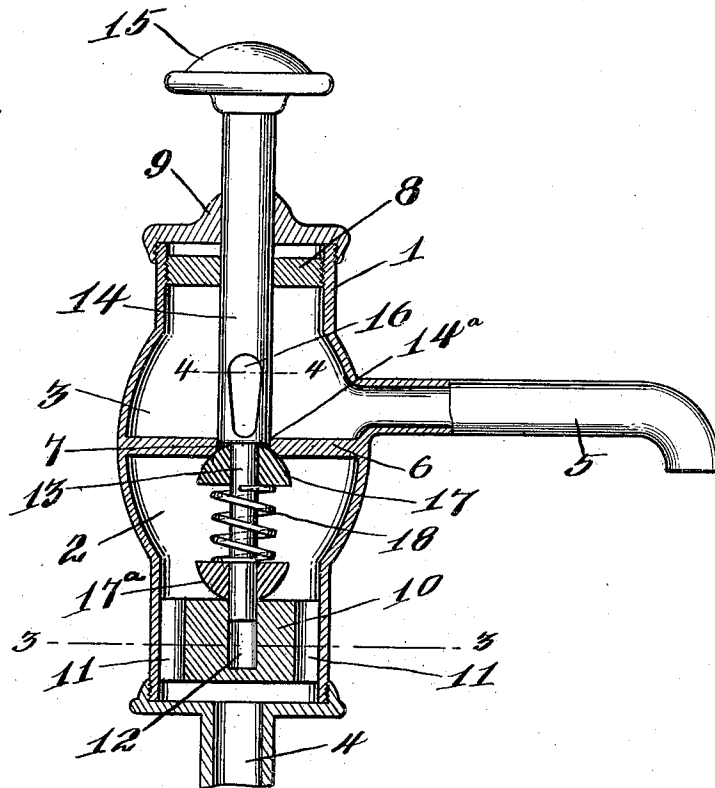


Fig. 2.

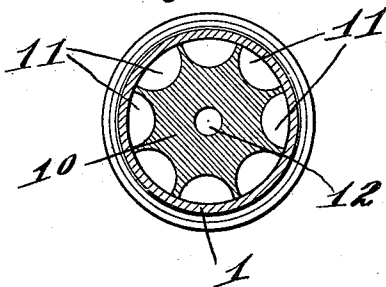
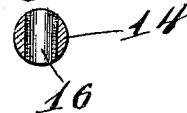


Fig. 3.



Witnesses:
Arthur E. Wesley
M. R. Wilson

Inventor:
Henry C. Montgomery,
by [Signature]
Attorneys.

UNITED STATES PATENT OFFICE.

HENRY C. MONTGOMERY, OF CHICAGO, ILLINOIS.

SELF-CLOSING VALVE.

981,787.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed August 5, 1910. Serial No. 575,773.

To all whom it may concern:

Be it known that I, HENRY C. MONTGOMERY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Self-Closing Valves, of which the following is a specification.

My invention has relation to a valve, but more particularly to that class known as reciprocating valves.

The principal object of my invention comprehends the production of a valve which will be self closing and which is so constructed that the pressure on the working parts of the valve, within the valve chamber, will be uniform, or equal, thereby permitting the valve to be easily operated, and when closed, to assist in keeping the working parts of the valve in their relative positions.

A further object of my invention resides in a valve which will eliminate excessive wear and thereby prevent leakage.

In the accompanying drawing which forms a part of this specification, and in which like reference numerals indicate corresponding parts throughout the several views;—Figure 1 is a vertical sectional view of a basin valve constructed in accordance with my invention. Fig. 2 is a cross sectional view taken on the line 3—3 of Fig. 1, and Fig. 3 is a cross sectional view taken on the line 4—4 of Fig. 1.

In the specific embodiment of my invention shown in the accompanying drawing, 1 indicates the valve casing which is formed with a valve chamber 2 and an upper chamber 3. The inlet is indicated at 4 and the discharge spout at 5, said inlet 4 and discharge spout 5 communicating with the valve chamber 2 and upper chamber 3 respectively, as shown in Fig. 1.

The upper chamber 3 and the valve chamber 2 are separated by means of a horizontal wall 6 formed integral with the valve casing and having an opening 7 formed centrally therethrough. The upper end of the valve casing is provided with the usual packing box 8 and screw cap 9. Fixedly mounted in the lower end of the valve chamber 2 is a barrel 10, the lower end of which terminates a short distance above the mouth of the inlet 4. The sides of the barrel 10, as shown in Fig. 2, are cut into segments of circles as at 11, and through which the water entering

through the inlet 4 passes up into the valve casing 2. The center of the barrel 10 is provided with a vertical bore 12. The bore 12 does not extend entirely through the barrel and only serves as a guide for the lower reduced end 13 of the valve stem 14. The walls of the valve stem 14 are straight and its upper portion works in the opening 7 of the flange 6, and through the packing box 8 and screw cap 9, and has its upper end provided with a suitable hand piece 15. Formed transversely through the upper portion of the valve stem 14 is a tapering slot or port 16. The lower end of the slot 16 terminates at a short distance from the lower end of the upper, or large, portion of the valve stem, and is adapted to be wholly within the upper chamber 3 of the valve casing when the valve is closed. Loosely mounted on the lower reduced end 13 of the valve stem 14 there are a pair of semi-spherical members 17 and 17^a which are formed of any suitable non-corrodible material. The members 17 and 17^a are arranged on the reduced end 13 of the valve stem, so that their flat faces will be presented toward each other, and they are normally held apart by means of a spring 18 coiled about said reduced end 13 of the valve stem, with the circular face of the upper movable member 17 in close contact with the under side of the wall 6 and the shoulder 14^a, formed on the valve stem 14 by the reduced end 13, and the circular face of the lower stationary member 17^a in contact with the upper end of the barrel 10, as shown in Fig. 1. If desired, the under side of the wall 6 around the opening 7 may be countersunk to conform to the curvature of the member 17, so as to effect a tight fit and prevent any possibility of any liquid escaping through the opening 7, around the valve stem 14, into the upper chamber 3, when the valve is closed. The member 17^a serves as an abutment for one end of the spring 18.

In the practical use of my invention, when it is desired to open the valve, the valve stem 14 is pushed downwardly. The shoulder 14^a on the valve stem, engaging the upper member 17, will cause the same to move toward the lower member 17, and on the continued downward movement of the valve stem, the lower end of the slot or port 16 formed therein will pass below the under side of the wall 6, and enter the valve chamber 2. Obviously, this will establish com-

munication between the valve chamber 2 and upper chamber 3 and allow the liquid to pass from the valve chamber 2 through the port 16 into the upper chamber 3 and out
5 through the discharge spout 5. By reason of the fact that the sides of the port 16 taper, the volume of liquid discharged may be regulated. The depth of the bore 12 in the barrel 10 is slightly greater than one-
10 half the length of the port 16, so that when the valve stem 14 reaches the limit of its downward movement, the port 16 will be partly below and partly above the wall 6, but the area of the port on either side of
15 the wall will be equal when the full volume of liquid will be discharged. When it is desired to close the valve, the valve stem is released and the spring, together with the pressure within the valve chamber,
20 will return the upper member 17 to its seat, and as this member bears against the shoulder 14^a, as it moves upwardly, it will also move the valve stem 14 upwardly until it reaches the position shown in Fig. 1, and
25 the port 16 is wholly within the upper chamber 3.

From the foregoing it will be seen that I provide a self closing valve which is extremely simple and inexpensive of construction and will admirably serve the purpose
30 for which it is intended.

While I have shown my invention as applied to a basin valve, it will be understood

that it is also applicable to practically any kind of valve and no limitation is implied
35 by reason of the particular structure shown.

I claim:

A self-closing valve comprising a valve casing, having a valve chamber and an upper chamber, an inlet communicating with
40 said valve chamber, and a discharge spout communicating with said upper chamber, the wall between the chambers having a valve seat, a barrel mounted in the valve chamber and spaced from its lower end,
45 said barrel having its sides recessed to establish communication between the inlet and the valve chamber, and provided with a bore, a reciprocatory valve stem passing through the aforesaid valve seat, and hav-
50 ing its lower end reduced, and adapted to enter the bore in the barrel, said valve stem having above its reduced portion a tapered transverse port, a pair of members loosely
55 mounted on the reduced portion of said valve stem, and a coiled spring interposed between the members for normally holding one of said members on the aforesaid valve seat and the other of said members against
60 the upper end of the aforesaid barrel.

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

HENRY C. MONTGOMERY.

Witnesses:

H. M. TAYLOR,
ARTHUR WESLEY.