

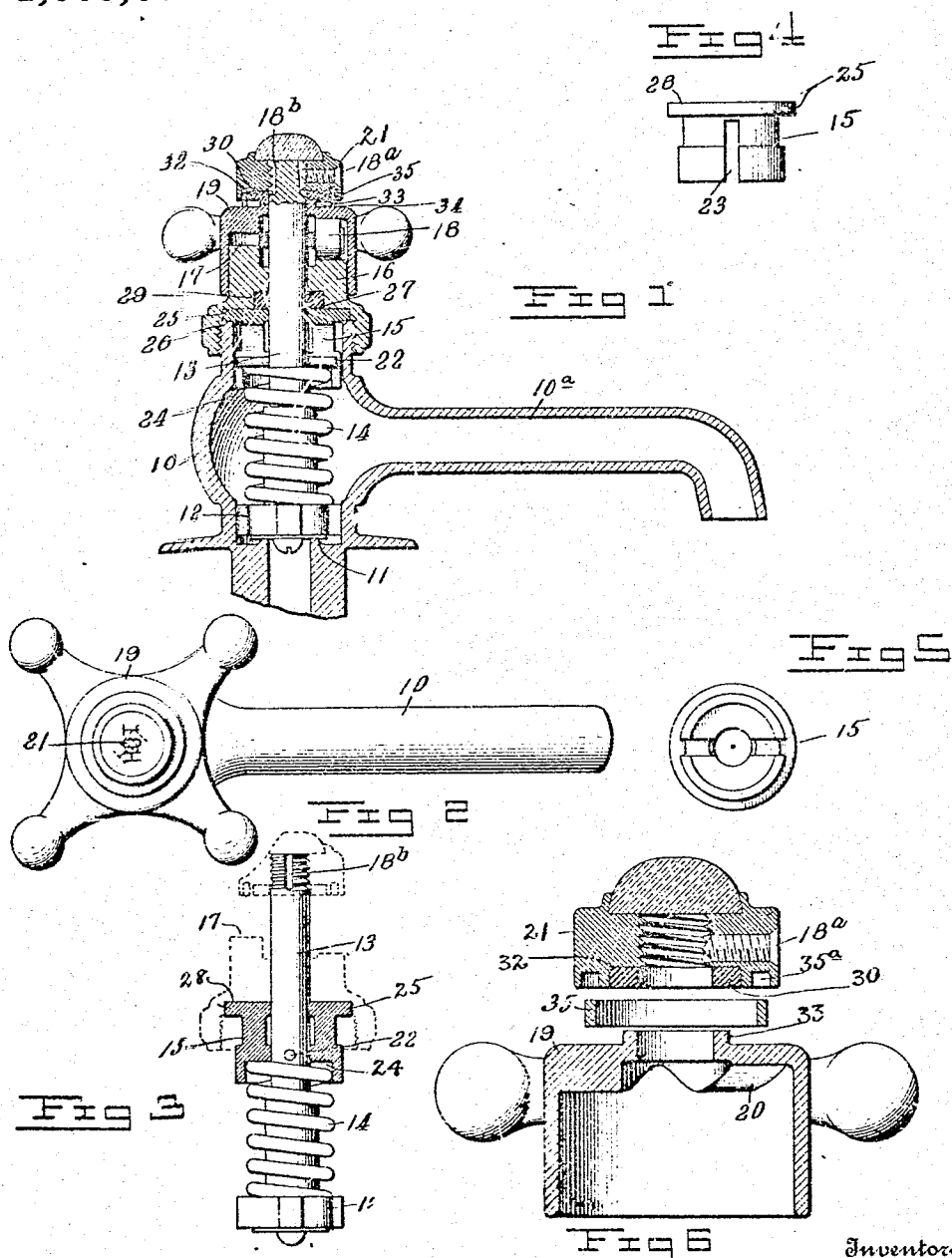
H. MUELLER & A. C. SCHUERMANN.
O. B. & A. MUELLER, EXECUTORS OF H. MUELLER, DEC'D.

SELF CLOSING BASIN COCK.

APPLICATION FILED MAR. 10, 1910.

1,009,681.

Patented Nov. 21, 1911.



Witnesses
G. M. Strucker
E. B. Warr

Inventors
Anton C. Schuermann/
Henry Mueller
By *Leys. Leiskman* *Reg*
Attorneys

UNITED STATES PATENT OFFICE.

HENRY MUELLER AND ANTON C. SCHUERMANN, OF DECATUR, ILLINOIS; ORA B. MUELLER AND ADOLPH MUELLER, EXECUTORS OF SAID HENRY MUELLER, DECEASED, ASSIGNORS TO H. MUELLER MANUFACTURING COMPANY, OF DECATUR, ILLINOIS, A CORPORATION OF ILLINOIS.

SELF-CLOSING BASIN-COCK.

1,009,631.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed March 10, 1910. Serial No. 543,411.

To all whom it may concern:

Be it known that we, HENRY MUELLER and ANTON C. SCHUERMANN, citizens of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Self-Closing Basin-Cocks, of which the following is a specification.

Our invention relates to self-closing faucets, and has to do particularly with the index member of these faucets.

As is well known the index of faucets which tells the character of the fluid supplied by the faucet is often located in line with or attached to the valve stem of the faucet. The index member of the faucet with which our invention has particularly to do is so located, being associated with an abutment mounted on the valve stem. This abutment is associated with an operating member which encircles the valve stem and bears against the abutment when turned to lift the valve stem and open the valve. Usually the operating member by bearing upon the abutment tends to turn the valve stem angularly so that unless the stem is secured against rotation in some manner, it is liable to become angularly displaced. The index member on the abutment is therefore liable to be thrown out of its preferred linear position. Likewise in the assembling of the cock when the stem is placed in the casing in many valves it is difficult to so place the stem and associated parts that the index member can be placed in the desired position. It is found further that when the parts are constructed and adjusted to overcome in some measure the difficulties named, the abutment on the stem which co-operates with the operating member is subject to wear, and that if lost motion is not present between the operating member and abutment at the beginning, it soon appears after the cock has been in use. Owing to this fact the abutment cannot be made to fit flush upon the operating member at all times without undue complication of the cock. Dirt, dust and soap very soon collect in the space between the abutment and operating member and render the fixture very unsanitary.

It is the object of our invention to overcome the above named difficulties and to produce a self-closing cock which is not

more expensive than others now in use, which is easily handled and repaired, and is efficient and durable.

We show one embodiment of our invention in the accompanying drawings, in which—

Figure 1 is a central vertical section of the cock of this embodiment taken along the plane which passes centrally through the discharge spout; Fig. 2 is a top plan view of this cock; Fig. 3 is a side elevation of the stem with the disk spring and collar attached, the collar being shown in section on the stem; Fig. 4 is an elevation of one of the parts associated with the stem. Fig. 5 is a bottom plan view of the same, and Fig. 6 is a sectional elevation of the operating member and the cooperating abutment which is fixed to the stem showing the parts ready for assembly.

10 is the main casing of the cock, 11 is the valve seat, 12 is the valve disk, and 13 is the stem to which the disk is attached. Mounted on the stem above the valve disk in serial order are a spring 14, a collar 15, a clamping member 16 having cam shaped surfaces 17 (see Figs. 1 and 3), a set of rollers 18 which bear on the surfaces 17, an operating member 19 provided with cam surfaces which cooperate with the surfaces 17, and the abutment 21 associated with the operating member 19. All of these elements, except the collar 15 and the abutment 21, are loosely mounted on the stem. In other words, excepting the collar 15 and the abutment 21, the remaining elements simply surround the stem.

The collar member 15 is shown in section in Fig. 3, in elevation in Fig. 4, and in bottom plan in Fig. 5. This member is splined on the valve stem by a pin 22 which passes through the stem and engages the collar in slot 23 cut transversely of the collar from its under side. The depth of this slot is such as to admit the vertical movement of the valve stem through a certain range. In the bottom of this collar is formed a socket 24 which receives the end of the spring 14. The top of the collar is provided with a flange 25 which bears on a seat 26 formed for it on top of the casing 10, and against which it is clamped by means of the clamping member 16. The clamping member 16 is formed on its underside with an extend-

ed engaging surface 27 which engages directly in frictional contact the extended top surface 28 of the collar 15. It is to be observed that the extended engaging surfaces of the collar 15 and the clamping member 16 respectively, are of much greater area than the small engaging surfaces of the valve seat and valve disk respectively. A rubber or other packing 29 is provided just above the collar 15 and within a recess in the clamping member 16.

Above operating member 19, the abutment 21 is provided with an engaging surface 30. Preferably this engaging surface is formed on an annular ring of antifrictional metal seated in a socket 32 on the underneath side of the abutment. In order to compensate for wear this engaging surface instead of bearing directly upon the top of the operating member 19 is made to bear upon an annular upward projection or flange 33. Due both to lost motion incident to wear and to need for adjustment of the abutment 21 to the desired position, there needs be a space 34 between the abutment 21 and operating member 19. This space soon becomes filled with dirt and soapy materials if it is left opened. We provide an annular band or ring 35 seated in a socket 35^a on the underside of the abutment 21 near its outer edge and bearing loosely on the top of the operating member 19, to keep this space 34 closed. We form the socket 35^a of a depth sufficient to allow for the adjustment of the index member and the abutment, without clamping the space closing member 35 tightly.

With a cock constructed in the manner described the index member is readily adjusted to any position desired with ease. The adjustment is preferably made in the assembly of the valve, though it can be done by a plumber with equal facility when the fixture is installed. The procedure is as follows: All of the parts of the valve may be removed from the casing by removing first the abutment 21, which it is to be noted is held in position by a screw 18^a entering one of the slots 18^b in the upper end of the stem, and then the clamping member 16. All of the parts of the valve associated with the stem, excepting the operating member 19 and its associated rollers, the abutment 21 and clamping member 16, are then placed in position on the stem, as shown in full lines in Fig. 3. The stem is then entered in the casing 10, as shown in Fig. 1 in its proper position. The clamping member 16 is then screwed to the casing and down upon the collar 15. As soon as the extended engaging surfaces of the collar and clamping member meet, the upward pressure of the spring 14 causes a relatively great frictional contact, greater than the frictional contact of the disk 11 with its seat. The result is

that the valve stem through the pin 22 and the collar 15 is latched firmly in frictional engagement with the clamping member and so turns with it as the clamping member is being screwed down, until the flange 25 of the collar strikes the seat 26 on top of the casing and rotary motion of the clamping member is stopped. Then the rollers 18 and operating member 19 are placed in position on the stem, next the ring 35 is placed over the stem 13 resting upon the operating member 19. After this the abutment 21 is screwed on the stem so that there is a little lost motion between abutment 21 and operating member 19. Then the abutment 21 is locked to the stem with set screw 18^a, its point entering one of the slots 18^b. Assume that the index member is then in the 45° position shown by dotted lines in Fig. 2. This position is observed by the operator, and noted by him as being 45° from the position at right angles to the spout 10^a of the cock. If it is desired that the index be fixed in the position at right angles to the spout, as shown in full lines, it is necessary that it be turned counter-clockwise through an angle of 45°. To do this the operator simply unscrews the clamping member 16 a few revolutions, just far enough to loosen up the parts and relieve in some measure the upward pressure of the spring 14 through the collar 15 on the clamping member. The clamping member is then held by hand and in fixed position with respect to the casing 10, while the abutment and stem are turned counter-clockwise through 45° by hand or by using a wrench on the abutment. Holding the abutment in its adjusted position with respect to the clamping member, the clamping member is then promptly screwed back into place and until it clamps the flange 25 to its seat 26 on the casing. On account of the extended engaging surfaces and frictional contact of the collar 15 and clamping member 16 there is no slippage between them, and the valve stem, and hence the abutment 21 and index member is maintained in the same angular relation with respect to the clamping member 16 to which it is adjusted, and the index member is after this adjustment in the right position when the clamping member is screwed up firmly. The abutment 21 need not be held by hand unless it is found that the stem turns within the clamping member. Likewise adjustment of the index member may be made to any other position, and when so adjusted is held rigidly in position by virtue of the firm engagement of the flange 25 of the collar 15 with its seat 26.

By virtue of the provision of a plurality of slots 18^b at the upper end of the valve stem the abutment may be locked in any one of several angular positions with respect to the stem by the set screw 18^a. This makes

it possible to minimize the angular adjustment of the index member and stem with respect to the spout, as the abutment can then be set with the locking screw 18^a in the slot 18^b which places the index in the position nearest to that desired, and which at the same time positions the abutment close enough to the operating member 19 to prevent undue lost motion.

10 The operating member, the space closing member and the abutment are assembled on the stem in the order shown in Fig. 6, and in assembled relation as shown in Fig. 1. As the socket 35^a for the space closing member 35 is of greater depth than will allow the member 35 to be clamped tightly between the operating member 19 and the abutment 21, the engaging surface 30 of the abutment is engaged by the operating member when the valve is operated and all wear is taken by the proper surfaces. Within the ordinary limits of wear upon the surface 30 of the abutment, and adjustment of the index member, the space closing member 35 remains loose in its socket, and bearing upon the upper surface of the operating member, effectually excludes dirt and filth from the space between the abutment and operating member.

30 What we claim is:

1. A valve structure embodying two members positioned end to end adjacent each other and each having end portions spaced apart from portions of the other member, a socket in the end of one member adjacent its peripheral edge portion, and a space closing member entered in said socket and extending across the space between said members and bearing loosely on the other member.

2. A valve structure embodying two members positioned end to end adjacent each other, and each having end portions spaced apart from portions of the other member, and means which prevents the accumulation of dirt between said end portions comprising a separate band of metal one end of which is fitted on the one member, and the other end of which bears freely on the other member, said separate band of metal having a measure of free play between the said surfaces.

3. In a self-closing valve, an operating member, an abutment member cooperating therewith, each member having a portion spaced apart from the other member, a socket in one of said members adjacent the edge of said space, and a space closing member entered in said socket and bearing loosely on said other member.

4. In a self-closing valve, an operating member, an abutment member cooperating therewith, one of said members being above

the other member, and each member having a portion spaced apart from the other member, a socket in the upper of said members, adjacent the edges of said space, and a space closing member entered in said socket and bearing on said other member.

5. In a self-closing valve, a casing, a valve seat, a valve disk, a valve stem, a collar splined on said stem, a seat for said collar on said casing, and a clamping member adjusted to clamp said collar to its seat on said casing, and a spring between the valve disk and the collar, and an indicator associated with said stem.

6. In a self-closing valve, a casing, a valve seat, a valve disk, a valve stem, a collar splined on said stem, a seat for said collar on said casing, a clamping member which clamps said collar to said casing, a socket in the bottom of said collar, a spring surrounding said stem and bearing with one end in said socket, and with the other end on said disk, and an indicator associated with said stem.

7. In a self-closing valve, a casing, a valve seat, a valve disk, a valve stem, a collar splined on said stem, a seat for said collar on said casing, a clamping member which clamps said collar to its seat on said casing, the engaging surfaces of said collar and clamping member having greater frictional contact than the engaging surfaces of the valve disk and seat, and an indicating member associated with said stem.

8. In a self-closing valve, a casing, a valve seat, a valve disk, a valve stem, an adjustable collar splined on said stem, a seat for said collar on said casing, a clamping member which is adapted to clamp said collar to its seat, and an indicating member associated with said stem.

9. In a self-closing valve, a casing, a valve seat, a valve disk, a valve stem, an adjustable collar splined on said stem, a seat for said collar on said casing, a clamping member which is adapted to clamp said collar to its seat, an abutment secured to the stem and carrying an indicating member, an operating member for the valve surrounding said stem and engaging said abutment, said abutment and said operating member each having a portion spaced from the other member, and a space closing member between said abutment and said operating member.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

HENRY MUELLER.
ANTON C. SCHUERMAN.

Witnesses:

L. F. McKUBBEN,
W. R. GUSTIN.