No. 690,092. Patented Dec. 31, 1901.

W. B. M. BASHLINE.

VALVE.

(Application filed Apr. 18, 1900. Renewed Nov. 13, 1901.)

(No Model.)

FIG. 1

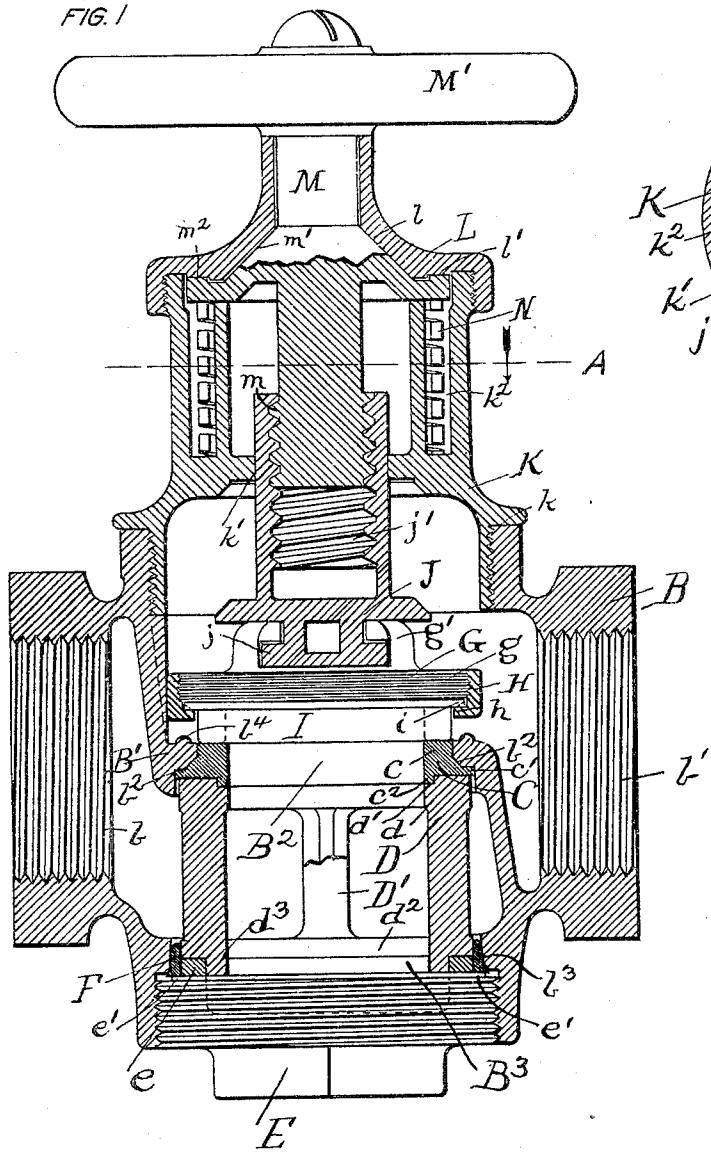
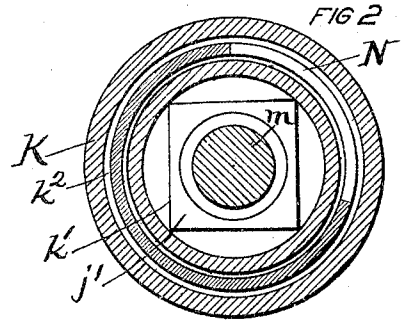


FIG 2



SECTION AT A

WITNESSES

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WILLIAM B. M. BASHLINE, OF WARREN, PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 690,092, dated December 31, 1901.

Application filed April 18, 1900. Renewed November 13, 1901. Serial No. 82,125. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. M. BASHLINE, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Valves; and I do hereby 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.

This invention relates to valves; and it consists in certain improvements in the construction thereof, as will be hereinafter fully described, and pointed out in the claims.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 shows a centrally-located vertical section of the valve, and Fig. 2 a section at A.

B marks the valve-chamber, b the inlet-port, and b' the outlet-port. Arranged in the chamber is a diaphragm B', through which extends the opening B^2, forming the valve-passage. The opening B^2 has the beveled edge b^2, so that it decreases in diameter or tapers toward the top. Arranged in this opening is the seat-ring C, preferably of some seating material, such as rubber. This seat-ring has the upwardly-extending shoulder c, which forms the seat proper, and has the outwardly-extending shoulder or flange c', which engages the diaphragm B' just at the edge of the opening B^2. It also has the downwardly-extending shoulder c^2, which extends into and registers with an annular groove d', arranged on the upper edge of the ring d. The ring d forms the upper end of a follower D. This follower D has the spider portion D' below the ring d, through which the matter passing through the valve passes. At its lower end it is provided with a ring d^2, from which extends downwardly a shoulder d^3. This shoulder d^3 fits into a ring e on the upper edge of a screw-plug E. This screw-plug E is screwed into an opening B^3 in the valve-chamber. This opening B^3 is large enough to admit the seat-ring C and the follower D. The opening is placed opposite the valve-passage, so that the follower and the seat-ring may be moved to position through the opening B^3. The screw E has a shoulder e' just outside of the ring e. Arranged on this shoulder is a packing-ring F. The opening B^3 is provided with a tapered shoulder b^3, and the ring F is forced against this tapered shoulder by means of the screw-plug E. The shoulder e' gives clearance between the threads of the screw-plug and the under side of the beveled shoulder b^3, so as to allow the screw-plug to force the packing-ring F to its seat. The packing-ring F is forced into its seat by the screw-plug E and forms a closure both on the shoulder e' and on the beveled shoulder b^3. This operation of the screw-plug also operates against the follower D and forces the seat-ring C into the opening B^2. The beveled shoulder b^2 not only centers the seat-ring in its upward passage, so that it may be readily moved to place, but also forms a wedged surface against the seat-ring and is forced to form a tight joint. The beveled surface of the shoulder b^3 also serves the function of centering the packing-ring F as the parts are being assembled, so that there is no danger of the ring catching on the under side of the shoulder.

The valve G comprises the head g and stem-socket g'. The head g is screw-threaded, and on this screw-thread is secured a flange-nut H, having the underhanging flange h. The flange a engages the shoulders i of the valve I and holds it in place. Fitting into the socket g' is the stem-head j of the stem J. The stem J has the upwardly-extending portion, which is preferably square in cross-section to prevent its turning in the dome. It is provided with the internal screw-thread j', in which the screw-thread portion m of the stem M operates.

Screwed into the upper part of the valve-chamber is the dome K, a tight joint being effected with the chamber by means of the seat k. The dome K is provided with the opening k', which registers with the stem J and prevents it from turning. Secured to the upper end of the dome K is the cap L. The cap L is provided with the beveled seat l and the seat l'. The stem M is also provided with the beveled seat m' and seat m^2, which are arranged to fit and form joints with the seats l and l', respectively. A spring N, arranged in a groove k^2, is tensioned against the under side of the seat m^2 and forces the seats m' and

m^2 into contact with the seats l and l', thus forming a close joint. The stem M is provided with the usual handle M', by which it may be turned.

The seat-ring C, follower D, and screw-plug E are assembled by placing the seat-ring in the groove d' and then placing the follower within the ring e. The packing F is readily put in place and the whole passed through the opening B^3. The beveled shoulders b^2 and b^3 center the parts so as to insure the entering of the seat-ring C into the opening B^2 and the packing-ring F in the opening B^3.

The valve is operated in the usual manner. It will readily be seen that by turning the hand-wheel M' the screw-thread m will raise and lower the valve G. It may be desirable to dispense with the composition seat formed by the seat-ring C and use a metallic seat. This can be done by removing the follower and seat-ring. I have provided a metallic seat b^4 on the upper face of the diaphragm B'. The flange h on the nut H forms a metallic seat with this ring. If the valve is used with the inlet-port at b' and the outlet-port at b, the follower and seat-ring C may be pressed out of the valve and the valve closed by means of the metallic valve on the seat b^4. A new seat-ring C can then be applied and put into place by unscrewing the valve-stem M as the screw-plug E is moved into place. In this way a new seat can be applied to the valve without cutting off the fluid-supply from the valve. This function is an important one in relation to the use of the metallic seat and in the details of construction which allow of this change of seat during the presence of the liquid in the valve-chamber.

The seats m' and m^2, operating upon the cap L, do away with the necessity of the stuffing-box and the usual packing. The spring holds these parts in their seats at all times.

The follower D and the screw-plug E may be made in one piece; but I prefer the construction shown.

What I claim as new is—

1. In a valve, the combination of a chamber having a diaphragm, through which there is a valve-opening, said opening being arranged with beveled edges, said valve-chamber also having an opening opposite the valve-passage and opposite the larger diameter to said opening; a seat-ring, arranged to fit in said opening; and means for crowding said ring to its seat, said means and seat-ring being adapted to enter the opening opposite the valve-passage.

2. In a valve, the combination of a chamber, B, having the diaphragm, B', in which is the opening, B^2, having the beveled edge, b^2, said chamber also having the opening, B^3; the seat-ring C, arranged to fit in the opening, B^2; a follower arranged beneath said seat-ring, said follower being provided with means for centering the seat-ring upon it, said follower being also adapted to enter the opening, b^3; and the screw-plug, E, for moving said follower to its place.

3. In a valve, the combination with the valve-chamber, having a valve-passage and an opening opposite the valve-passage, said opening having a beveled edge, b^3; a removable seat, adapted to be passed through said opening, opposite the valve-passage; a screw-plug for holding said seat in its place; a packing-ring, F, arranged within the opening opposite the valve-passage and resting upon the screw-plug and against the beveled shoulder, b^3.

4. In a valve, the combination of the chamber, having the diaphragm, B', through which is the opening, B^2, said chamber having also the opening, B^3, opposite the opening, B^2, said opening, B^2, having the beveled shoulder or edge, b^2, and said opening, B^3, having the beveled edge or shoulder, b^3; the seat-ring, C, arranged to fit in the opening, B^2, and having the shoulder, c^2, and shoulder, c'; the follower, D, having the annular groove, d', into which fits the shoulder, c^2, of the seat-ring, and having also the spider portion, D' and ring, d^3; the screw-plug, E, having the ring, e, and shoulder, e', and the packing-ring, F, placed on the shoulder, e' and arranged to be crowded into position by the action of the screw-plug, E.

5. In a valve, the combination of the valve-chamber, B, having the diaphragm, B', through which is the valve-passage, B^2; a removable seat-ring, C, arranged to fit in said opening; and a raised metallic seat, b^4, outside of the seat-ring and projecting above said ring for the purposes described.

6. In a valve, the combination of the chamber, B; the dome K; the cap, L, having the seats l and l'; the valve; the stem, J, extending therefrom; the operating-stem, M, having the screw-thread, m, for operating upon the valve-head stem, said operating-stem having the valve-seats, m' and m^2, arranged to seat upon the seats l, and l', respectively; and the spring, N, arranged in the dome and tensioned against the stem.

7. In a valve, the combination with the valve-chamber, B, and the diaphragm, B', therein, through which passes the valve-passage, B^2, said chamber also having the opening, B^3, opposite said passage, said openings, B^2 and B^3, having the beveled edges or shoulders, b^2 and b^3, respectively; the seat-ring, C, arranged in the opening, B^2, and proportioned to form a fit therewith, said ring being provided with the shoulder, c', arranged under the shoulder, b^2, and the shoulder, c^2; the follower, D, comprising the spider portion, D', the ring, d, in which is arranged the annular groove, d', the groove, d', being arranged to receive the shoulder, c^2, and the ring, d^2, having the projecting shoulder, d^3; the screw-plug, E, arranged in the opening, B^3, having the ring, e, encircling shoulder, d^3, and also provided with the shoulder, e', outside of the ring, e; the packing-ring, F,

arranged on the shoulder, e', and against the shoulder, b^3; the valve, G, having the screw-threaded head, g, and socket g'; the flange-nut, H, arranged on the head, g, having the underhanging flange, h; the valve-seat, I, provided with the shoulder, i, arranged within the flanges, h; the stem, J, having the head, j, arranged in the socket, g', and the screw-thread, j'; the dome, K, secured to the upper part of the chamber, B, and having the rectangular opening, k', for engaging the extension, J, and having the groove, k^2; the stem, M, having the screw-threaded portion, m, for operating in the screw-thread, j', of the stem, J, said stem, M, also having the valve-seats, m' and m^2; the cap, L, provided with the valve-seats, l and l', adapted to seat with the seats m' and m^2 respectively; and the spring, N, arranged in the groove, k^2, and tensioned against the stem, m.

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

WILLIAM B. M. BASHLINE.

Witnesses:

H. C. LORD,

R. F. LANZA.