C. HARRISON.

Self-Closing Cocks.

No. 150,154. Patented April 28, 1874.

Fig. 1.

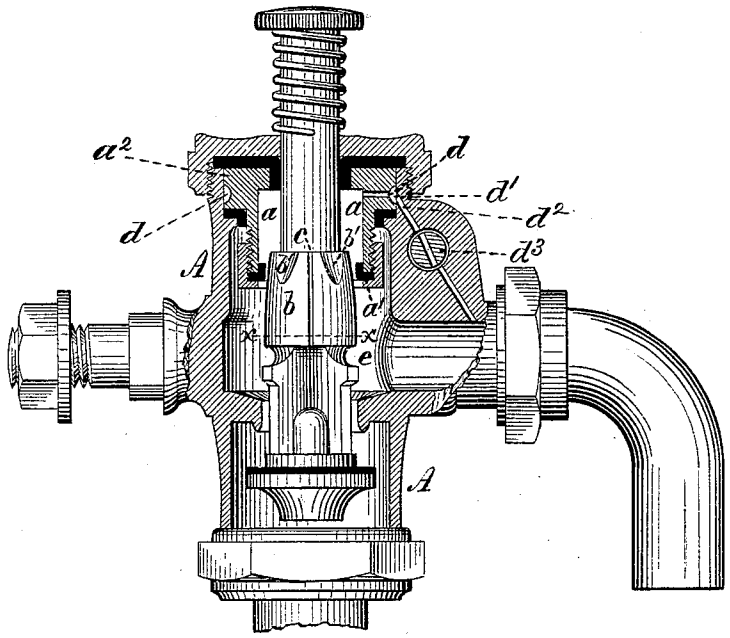
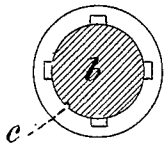


Fig. 2.



Witnesses:

Edw^d Payson

Geo. W. Miatt

Inventor:

Charles Harrison.

per Edw. E. Quimby

Atty.

UNITED STATES PATENT OFFICE.

CHARLES HARRISON, OF NEW YORK, N. Y.

IMPROVEMENT IN SELF-CLOSING COCKS.

Specification forming part of Letters Patent No. **150,154**, dated April 28, 1874; application filed April 14, 1874.

To all whom it may concern:

Be it known that I, CHARLES HARRISON, of the city, county, and State of New York, have invented a certain Improvement in Self-Closing Cocks, of which the following is a specification:

My invention relates especially to self-closing cocks, in which the old form of cup leather valve is superseded by the use of a tapering plunger or enlargement of the valve-stem, in conjunction with a variable chamber having an adjustable outlet, as described and claimed in Minford S. Clark's patent, No. 141,630, dated August 12, 1873.

In Clark's arrangement, and in all devices having an adjustable outlet from the variable chamber, it sometimes occurs that said outlet becomes partially or wholly obstructed, owing to impurities in the water, imperfections in the leather packing, or from other causes, and when such obstruction is complete the valve is, of course, held open until the defect is remedied. The projection of the periphery of the cock into the outlet-channel, when the cock is turned so as to retard the flow of liquid from the variable chamber, also tends to stop the passage of impurities in the water at that point.

My invention consists in a longitudinal notch or groove, formed in the periphery of the tapering plunger or enlargement of the valve-stem, which constitutes an additional and positive channel for the escape of liquid from the variable chamber, relieving the pressure of water through the adjustable outlet, and, in case of the obstruction of the latter, providing for the closing of the valve. The area of this supplementary channel is considerably less than that of the adjustable outlet, so that the main flow of liquid will be through the latter, which is still relied upon to regulate the escape of liquid from the variable chamber, and, consequently, the time which the valve remains open.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of a cock, such as is described in M. S. Clark's patent, before mentioned, showing the application of my improvement; and Fig. 2, a cross-section of the plunger in plane of line x x, Fig. 1.

The interior of the cylinder a, contained within the shell of the cock A, constitutes the variable chamber, and is nearly filled by the plug b when the valve is at rest. The plug or enlargement of the valve-stem b is slightly tapered, and is partially grooved or corrugated, as shown at b' b', Fig. 1, on the end toward the variable chamber, so that when the valve-stem is depressed, as shown in the drawing, the plug ceases to completely fill the aperture surrounded by the packing-ring a^1, and thus allows the variable chamber to be filled with fluid. As the plug moves back it fills the mouth of the variable chamber, and thus forces the contained liquid out through the lateral aperture d and into an annular chamber formed by a groove, d^1, in periphery of the flange a^2 of the cylinder a. This groove is opposite the outlet d^2, by means of which the variable chamber is mainly discharged. The discharge through the outlet d^2 is regulated by means of the cock d^3. I form a longitudinal groove, c, in the periphery of the plug b, so that when the plug fills the mouth of the variable chamber, as above described, a small channel is left between the plug and the packing a^1, through which fluid escapes from the variable chamber directly into the outlet-passage e of the cock. The area of this channel c is small in comparison with that of the adjustable outlet d^2, so as not to impair the usefulness of the cock d^3 in regulating the escape of the main body of liquid contained in the variable chamber, but is sufficient to insure the emptying of the latter and the closing of the valve, should the adjustable outlet become obstructed.

I claim as my invention—

The combination of the variable chamber, of a slow-closing cock, with an adjustable outlet and a supplementary outlet, substantially such as described, and for the purpose set forth.

CHAS. HARRISON.

Witnesses:

GEO. E. POOLE,

GEO. W. MIATT.