No. 664,354. Patented Dec. 18, 1900.

J. H. JOHNSON.

STOP AND WASTE COCK.

(Application filed Oct. 1, 1900.)

(No Model.)

Fig. 1.

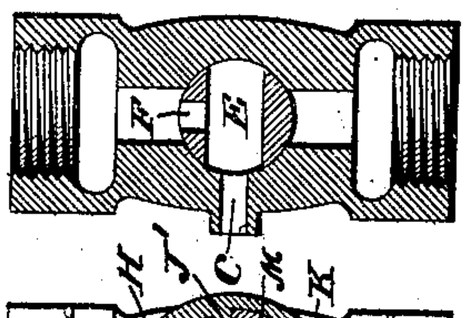


Fig. 2.

Fig. 3.

Fig. 4.

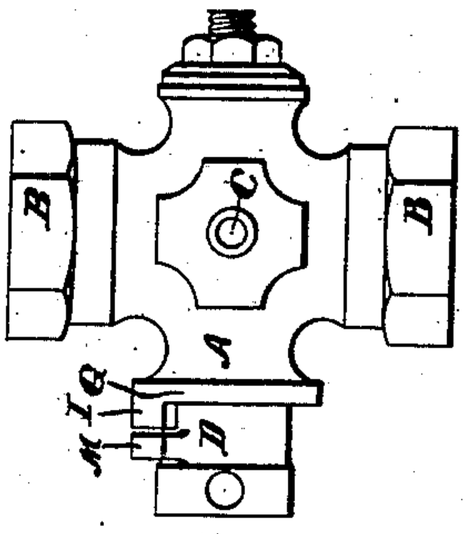


Fig. 7.

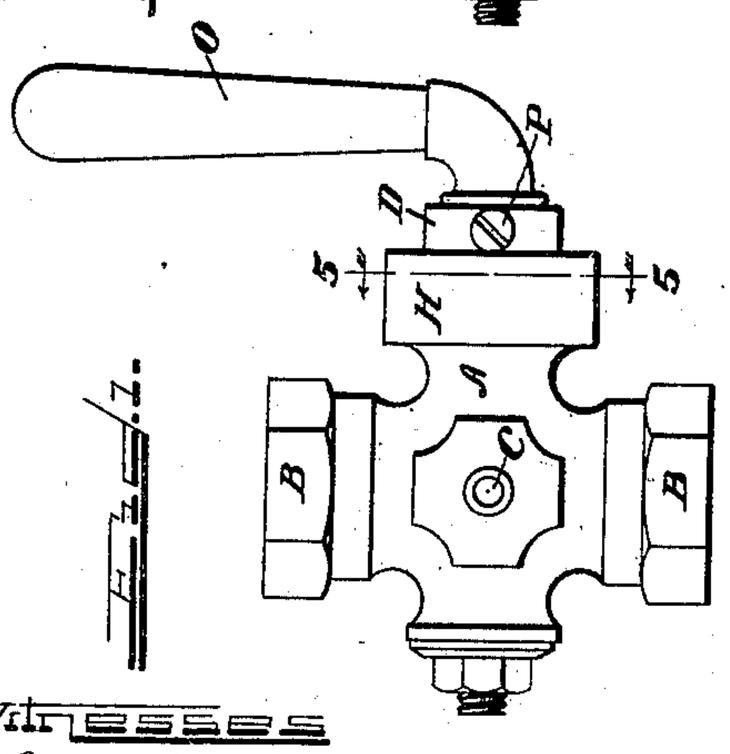
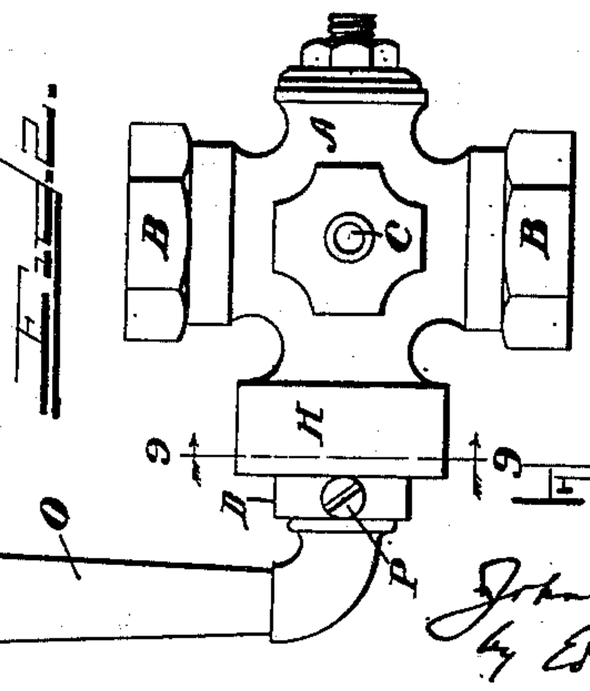


Fig. 8.



Witnesses

Ira D. Perry

J. B. Weir

Inventor

John H. Johnson

by Edward Rector

his Atty.

UNITED STATES PATENT OFFICE.

JOHN H. JOHNSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PECK BROS. COMPANY, OF ILLINOIS.

STOP AND WASTE COCK.

SPECIFICATION forming part of Letters Patent No. 664,354, dated December 18, 1900.

Application filed October 1, 1900. Serial No. 31,601. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. JOHNSON, a citizen of the United States of America, residing at Chicago, in the county of Cook, in the State of Illinois, have invented a certain new and useful Improvement in Stop and Waste Cocks, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification.

My invention has for its object a simple improvement in stop and waste cocks of familiar construction whereby the accurate assembling of the parts, both originally and in changing from a right-hand to a left-hand cock, is facilitated and whereby the valve-seat is more efficiently protected from dirt.

In the accompanying drawings, Figure 1 represents a front elevation of the improved cock with its parts assembled as a right-hand cock; Fig. 2, a corresponding view with the parts assembled as a left-hand cock; Figs. 3 and 4, views corresponding, respectively, to Figs. 1 and 2, with the cap and handle of the cock removed; Fig. 5, an elevation of the right side of the parts as shown in Fig. 1, with the handle removed and the cap in section, the valve being open; and Fig. 6, a cross-section through the waste-holes with the parts in the same position; Fig. 7, a view corresponding to Fig. 5 with the valve closed, and Fig. 8 a view corresponding to Fig. 6 with the valve closed; Fig. 9, a view corresponding to Fig. 5, but looking at the left-hand side of the parts as shown in Fig. 2, the valve being open, and Fig. 10 a corresponding view with the valve closed, and Fig. 11 an inside view of the cap.

The same letters of reference are used to indicate corresponding parts in the several views.

A is the body or casing of the valve, provided with the upper and lower pipe connections B B and with the usual waste-hole C in its side.

D is the tapering plug or valve proper, seated in the transverse tapering bore in the valve-body and confined by a nut and washer at one end, as usual. It is provided with the usual transverse passage E in line with the pipe connections B B and with the waste-hole F, communicating therewith, Figs. 6 and 8.

At its side adjacent the operating-handle the valve-body is provided with a circular flange G, Figs. 3 and 4, over which is adapted to snugly fit the inner edge of the rim of the cap H. Projecting from this flange G is a stop lug or projection I, adapted to coöperate with lugs J J′, formed upon the interior of the cap H, the space between these lugs J J′, into which the stop-lug I projects, being just sufficient to permit a quarter-turn of the cap from the point at which one of the lugs of the cap contacts with the stop to the point at which the other lug comes into contact with it and arrests the movement of the cap.

The cap H is provided upon its interior with a third lug K, located midway between the lugs J J′, but of only about one-half the depth or length of those lugs, so that in the turning of the cap the lug K clears the stop-lug I, projecting from the flange G. The purpose of this lug K is to form between itself and the lugs J J′ two opposite seats or recesses L L′ for the reception of a lug M, projecting radially from the side of the valve D.

The projecting portion of the valve D beyond the lug M is circular in cross-section and accurately ground or turned to form a snug fit in the circular opening in the cap H, and thereby prevent entrance of dirt between the two, while the snug fit of the opposite end of the cap upon the flange G of the valve-body prevents entrance of dirt at that point.

The valve D is provided with a central square recess or socket N to receive the correspondingly-shaped end of the operating-handle O, which latter is secured in position by the usual set-screw P.

In assembling the parts after the valve D has been inserted in the body and secured by the nut and washer upon its smaller end it is turned until the lug M, projecting from its side, is brought into line with the lug I, as shown in Figs. 3 and 4. In this position of the parts the valve is open and adapted for operation as either a right-hand or a left-hand valve, being secured in the position shown in Fig. 3 for a right-hand valve and in the position shown in Fig. 4 for a left-hand valve. To properly set the tapering plug or valve for use as either a right-hand or a left-hand valve, therefore, it is simply necessary to turn it

until the lugs I and M are brought into line. The next step is to apply the cap H in such position that its interior lugs J J′, coöperating with the stop-lug I, will permit the cap to be turned forward to close the valve, it being understood that valves of this character are usually in open position when the operating-handle is turned upward into vertical line with the piping, as in Figs. 1 and 2, and are closed by pulling the handle downward and forward to horizontal position. In applying the cap H the lug M, projecting from the valve-plug, will enter the recess L or L′ between the lug K and the lugs J J′, fitting in the recess L′, as in Fig. 5, if the valve is to be used as a right-hand valve, and in the recess L, as in Fig. 9, if the valve is to be used as a left-hand valve, and thereby locks the cap H to the valve D, so that they turn together. After the cap has been thus properly applied the squared end of the handle is inserted in the socket in the end of the valve and secured in place by the set-screw P, the latter also serving to hold the cap H in place.

If the parts have been assembled for use as a right-hand valve, as in Figs. 1, 3, 5, and 7, when the valve is in open position the lug M upon the valve-plug will be seated in the recess L′ between the lugs K and J′ in the cap H and the extreme inner end of the lug J′ will be in contact with or immediately adjacent the rear side of the stop-lug I upon the valve-body, (hid by the lug M in Fig. 5.) When the operating-handle is then swung forward and downward, the parts will be turned in the direction of the arrow until the lug J comes in contact with the forward side of the stop-lug I, as in Fig. 7, which will serve to arrest the parts. This quarter-turn of the valve in the body will have carried it from the position shown in Fig. 6 to that shown in Fig. 8, cutting off communication with the lower pipe and permitting the upper pipe to drain through the waste-holes F and C and the transverse opening E through the valve, as usual.

If the parts have been assembled for use as a left-hand valve, as in Figs. 2, 9, and 10, the lug M upon the valve-plug will be seated in the recess L between the lug K and the lug J upon the interior of the cap H, and the extreme inner end of the lug J will be in contact with or adjacent the rear side of the stop-lug I, (hid by the lug M in Fig. 9,) and upon giving the parts a quarter-turn to close the valve and drain the upper pipe the lug J′ will be brought into contact with the forward side of the stop-lug I and arrest the parts at the end of such movement, as in Fig. 10.

As before explained, the valve-plug is turned to bring the lug M into line with the stop-lug I, Figs. 3 and 4, before the cap H is applied, the bringing of the parts to this position serving to set the valve-plug properly for use in either right or left hand position, and to insure the valve-plug being thus properly set before the cap H is applied I provide means for preventing the application of the cap except when said lugs are either in line with or within a quarter-turn of each other, so that the cap can be applied only when the valve-plug is either turned to open position or closed position or is intermediate those positions and cannot be applied when it is turned beyond either of these positions. This means consists of a rib Q, formed upon the inner surface of the cap H, Fig. 11, and connecting the lugs J J′ at the opposite side of the cap from the open space between said lugs into which the lugs I and M project. It follows that the cap H can be applied only when the lugs M and I are in such relation to each other that both can enter at once between the lugs J and J′, which they cannot do if the latter are more than a quarter-turn apart.

It follows from the foregoing description that if the valve-plug is turned so as to bring the lugs M and I into line before applying the cap H or so as to bring them within a quarter-turn of each other it is not possible to apply the cap in such a way that the valve will not be operative either as a right-hand valve or as a left-hand valve, (one or the other,) while to insure its operating as the one desired it its simply necessary to apply the cap so that it may be turned in the proper direction.

I am of course aware that valves of this general character employing a cap fitting over the valve-plug and a flange upon the valve-body and turning with the valve-plug and provided upon its interior with lugs coöperating with a stop similar to the stop-lug I upon the valve-body are old and well known, as shown, for instance, in the Mueller patent, No. 513,272, and my present invention therefore consists simply in an improvement upon such prior valves. In the valve shown in the Mueller patent, for instance, the cap can be applied regardless of the position of the valve-plug in the body, and unless care be therefore taken to properly set the valve-plug in the body before applying the cap the latter is liable to be inadvertently applied in such a way that the valve will not operate either as a right-hand or a left-hand valve. In respect to facility for assemblage of the parts, therefore, my valve is an improvement upon this one for the reasons which have been pointed out. Again, in the practical manufacture of the Mueller valve it has been found necessary to provide a projecting boss upon one corner of the square outer end of the valve-plug for the reception of the threaded hole into which the set-screw is screwed in order to afford a sufficient bearing for said screw, with the result that it has been necessary to provide the cap with recesses at two of its adjacent corners to permit the passage of the cap over this projecting boss in assembling the parts, and when the cap is applied to the valve one or the other of said recesses not fitting over the boss necessarily leaves an opening for the free passage of dirt into the interior of the cap, thus defeating one of the

objects for which the cap is employed. In my improved valve the cap is provided with a round hole, which snugly fits the truly-circular valve-plug and effectually prevents the entrance of dirt.

Having thus fully described my invention, I claim—

1. In a stop and waste cock such as described, the combination of the valve-body having the flange G and stop-lug I, the plug-valve D provided with the lug M, and the cap H fitting over the end of the valve D and around the flange G and provided upon its interior with the lugs J J′ and K, the lugs J J′ coöperating with the stop-lug I to arrest the turning movement of the cap and valve, and the lug K forming between itself and the lugs J J′ two recesses L L′ for the reception of the lug M upon the valve D, substantially as and for the purpose specified.

2. In a stop and waste cock of the character described, the combination of the valve-body having the flange G and stop-lug I, the plug-valve D provided with the projecting lug M, and the cap H fitting over the projecting end of the valve D and surrounding the flange G, and provided upon its interior with the lugs J J′ connected by the rib Q, and the lug K intermediate the lugs J J′, the lugs J J′ coöperating with the stop-lug I to arrest the turning movement of the cap and valve and the rib Q serving to prevent the application of the cap except when the valve D is in proper position, and the lug K serving to form between itself and the lugs J J′ two recesses L L′ for the reception of the lug M upon the valve D, substantially as and for the purpose specified.

3. In a stop and waste cock such as described, the combination of the valve-body having the flange G and stop-lug I, the plug-valve D having the projecting lug M and circular outer end projecting beyond said lug; the cap H adapted to fit at its inner end over the flange G and provided at its outer end with the circular hole snugly fitting the circular valve D and provided upon its interior with the lugs J J′ and K, the lugs J J′ coöperating with the stop-lug I to arrest the turning movement of the cap and valve, and the lug K forming between itself and the lugs J J′ two recesses L L′ for the reception of the lug M upon the valve D, substantially as and for the purpose specified.

4. In a stop and waste cock such as described, the combination of the valve-body provided with the flange G and stop-lug I, the valve D provided with the lug M and circular outer end projecting beyond said lug, the cap H fitting at its inner end around the flange G and provided at its outer end with a circular hole snugly fitting the circular end of the valve D, and provided upon its interior with the lugs J J′ connected by the rib Q, and with the lug K, the lugs J J′ coöperating with the stop-lug I to arrest the turning movement of the cap and valve and the rib Q serving to prevent application of the cap except when the valve D is in proper position, and the lug K forming between itself and the lugs J J′ two recesses L L′ to receive the lug M upon the valve D, substantially as and for the purpose specified.

JOHN H. JOHNSON.

Witnesses:
E. G. WATROUS,
STANLEY G. MARTIN.