W. S. COOPER.

VALVE COCK.

No. 75,376. Patented Mar. 10, 1868.

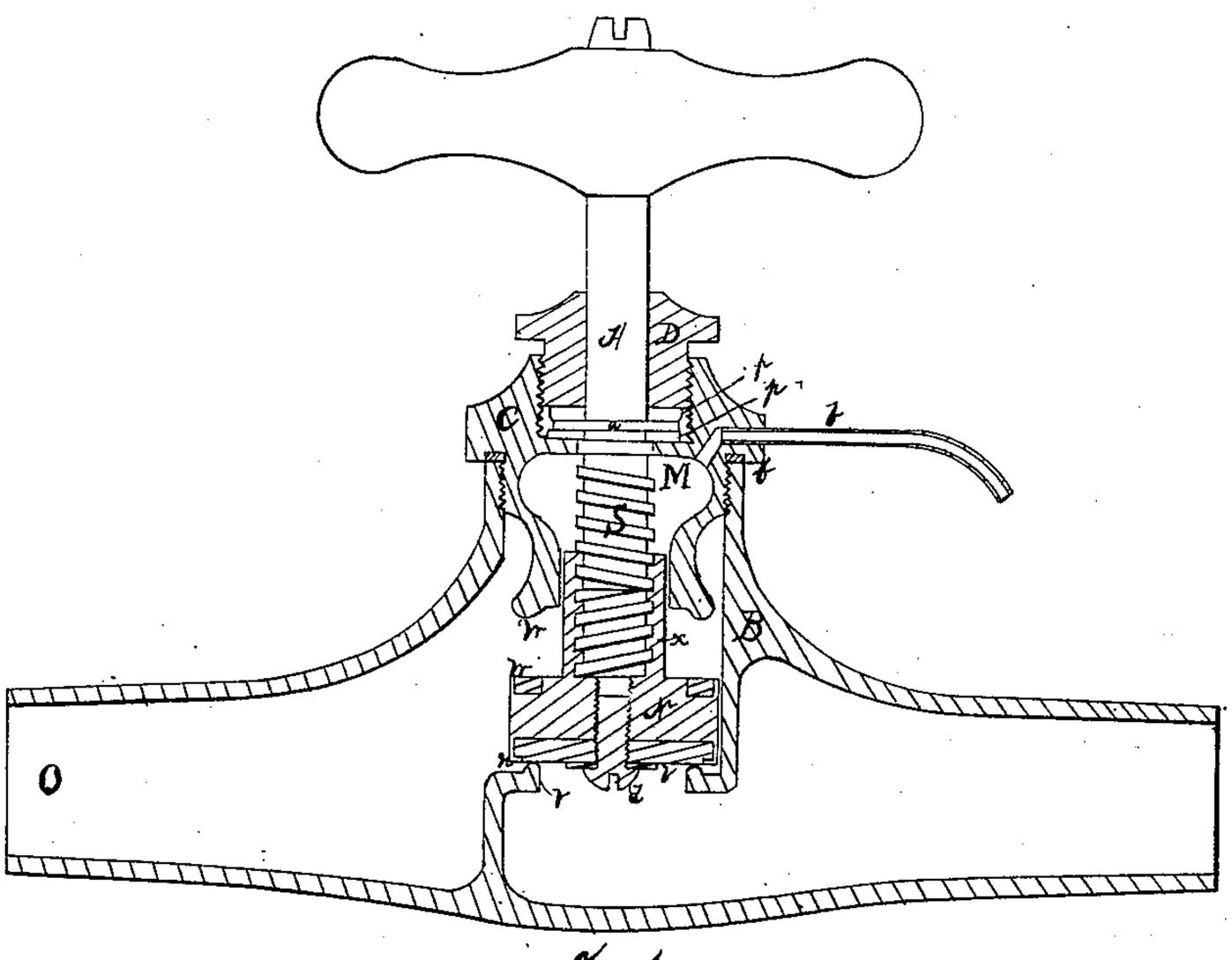


Fig. 1.

Fig. 4.

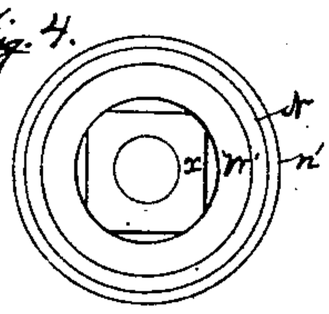
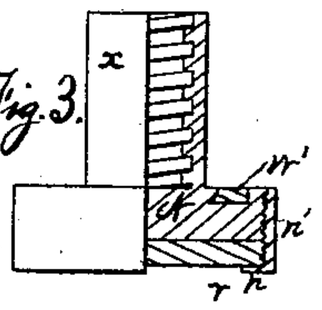


Fig. 3.



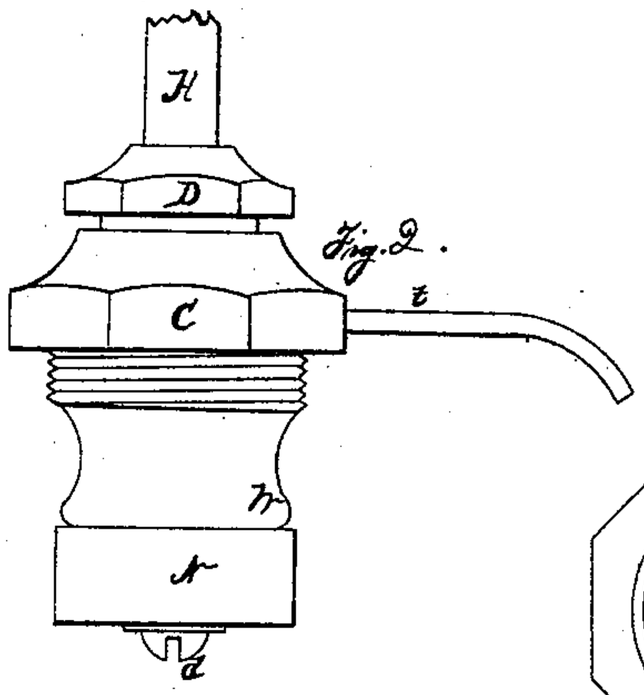
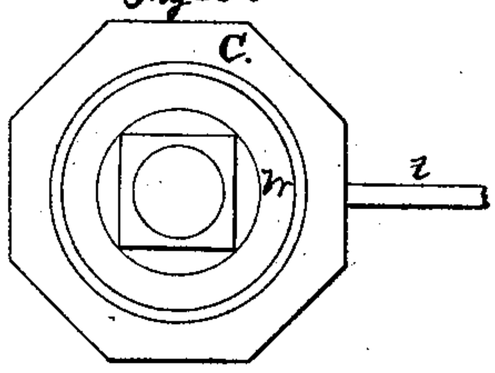


Fig. 2.

Fig. 5.



Witnesses. Owen Jones.

A. B. Beamish.

Inventor.

Wm. S. Cooper.

United States Patent Office.

WILLIAM S. COOPER, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 75,376, *dated March* 10, 1868.

IMPROVEMENT IN VALVE-COCKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, WILLIAM S. COOPER, of Philadelphia, Pennsylvania, have invented an Improvement in Valve-Cocks for Steam or Water; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of these specifications, and to the letters of reference marked thereon.

My invention relates to improvements in that class of valve-cocks in which a valve operated by a screw-spindle is used for controlling the flow of water or steam through the valve-cock; and my improvement consists in the manner in which the valve is guided to its seat, to close the passage-way, and which being done, to waste, if desired, the returning water or steam from the body of the cock and pipe; also in the manner in which I form a water-tight and durable joint between the spindle and the cap through which it passes.

In order to enable others skilled in the art to which this invention relates to make and use my invention, I will now proceed to describe its construction and operation.

In referring to the accompanying drawings, in which similar letters refer to similar parts throughout the several parts—

Figure 1 is a sectional elevation of the valve-cock, showing the arrangement of its internal parts.

Figure 2 is an elevation of the cap, waste-tube, and part of the screw-spindle, with the valve drawn up to its full height, and representing its upper face as closed against its seat, so the cock cannot waste.

Figure 3 is an elevation of the valve, part being in section, to show the arrangement of the elastic valve-faces, and one way they may be held in place.

Figure 4 is a plan of the valve, showing at x the square shank of the same.

Figure 5 is an under view of the cap, showing the square socket which receives the square shank x of the valve, to prevent the rotation of the latter.

As regards the external shape of the valve-cock, it may be as represented, when it is suitable for the purpose of a stop and waste, or a different form may be used to fit it for a different purpose.

Construction.

Referring to fig. 1, it is shown that B is the body of the cock, with its inlet I, and outlet O, and having screwed into it the cap C, the joint between them being made tight by the metallic packing l, which fits into a recess in the cap C made to receive it. The cap C is constructed with a screwed chamber in its upper part, outside of the body B, and through the bottom of this chamber is a small hole, and below this hole, and in the part of the cap which is inside the body B, is another chamber, M, the lower part of which is made with a square socket, as shown in fig. 5, to receive the square shank x of the valve N, the object of this being to prevent the rotation of said valve. On the lower face of the said cap is a raised seat, W. The spindle H is made on the top to receive a suitable handle, and is threaded at its lower end to fit the screw inside the square shank x of the valve N. Above this screw S is a collar, a, on either side of which are placed suitable packings, p and p', as shown, which collar and packings fit neatly into the upper screwed chamber of the cap C, and are pressed to its bottom, and compressed by means of the packing-nut D sufficiently to make the joint water-tight. A hollow bent tube, t, is fixed in some suitable manner in a passage, t', in the cap C, communicating with its chamber M, as shown in fig. 1. The valve N is constructed with its two faces V and W′. Its lower face has a flanged recess, n, into which is forced the elastic rubber face V; this recess, with its flange n, protecting the edges of the rubber from being frayed or rolled over. The rubber-valve face is held in position by the said recessed flange n, and the screw d or its equivalent. On the upper side of the valve is another recess, with a flange formed at its inner edge, the outside edge being plain and straight, and into this recess is forced the elastic packing W′. Its square shank x, as seen in fig. 4, fits into the square socket of the cap C, and is threaded on the inside to receive the screw S of the spindle H.

Operation.

When it is desired that water or steam shall pass to pipes or reservoirs connected with the outlet O, the spindle H is rotated, and, by means of its screw, the valve N, with its elastic face V, is raised from its seat V′, and until its face W′ is pressed to its seat W at the bottom of the cap C, as shown in fig. 2, thus giving a full

passage for water or steam through the body of the cock, and shutting off all communication with the chamber M of the cap C, and thus with the waste-tube *t* or passage *t'*.

It is evident that when the valve-face V is returned to its seat V', the upper valve-face W' will be withdrawn from its seat W, as shown in fig. 1, and a free passage will exist between the shank *x* of the valve N, and the square socket of the cap C into the chamber M, so that any water or steam contained in pipes or reservoirs connected with the outlet O may flow freely through said passage to the said chamber M of the cap C, and escape thence through the waste-tube *t*.

I do not propose to confine myself to the method of holding the elastic valve-packing V in place, as indicated in fig. 1, but may employ a flanged sleeve, *n'*, screwing on the periphery of the valve N, as indicated in fig. 3. Nor do I propose to confine myself to the use of the soft-rubber valve-face V, but may employ, when thought desirable, a metallic valve, as when steam of a high pressure is to be passed.

I am well aware that valve-cocks have been made in which various valve-packings have been used, with or without a packing-nut; and I also know that waste-tubes have been attached to stop-cocks, to conduct the fluid away from above the cock; and, moreover, I know that valve-cocks have been made in which a raised seat is used in connection with a soft valve-face, but I know of no other arrangement like the one here described and represented.

I therefore claim as my invention, and desire to secure by Letters Patent—

The combination of the valve *n*, spindle H, with its screw S, the cap C with its chamber M and waste-passage *t'*, substantially as specified, and for the purpose described.

WM. S. COOPER.

Witnesses:

A. B. BEAMISH,

OWEN JONES.