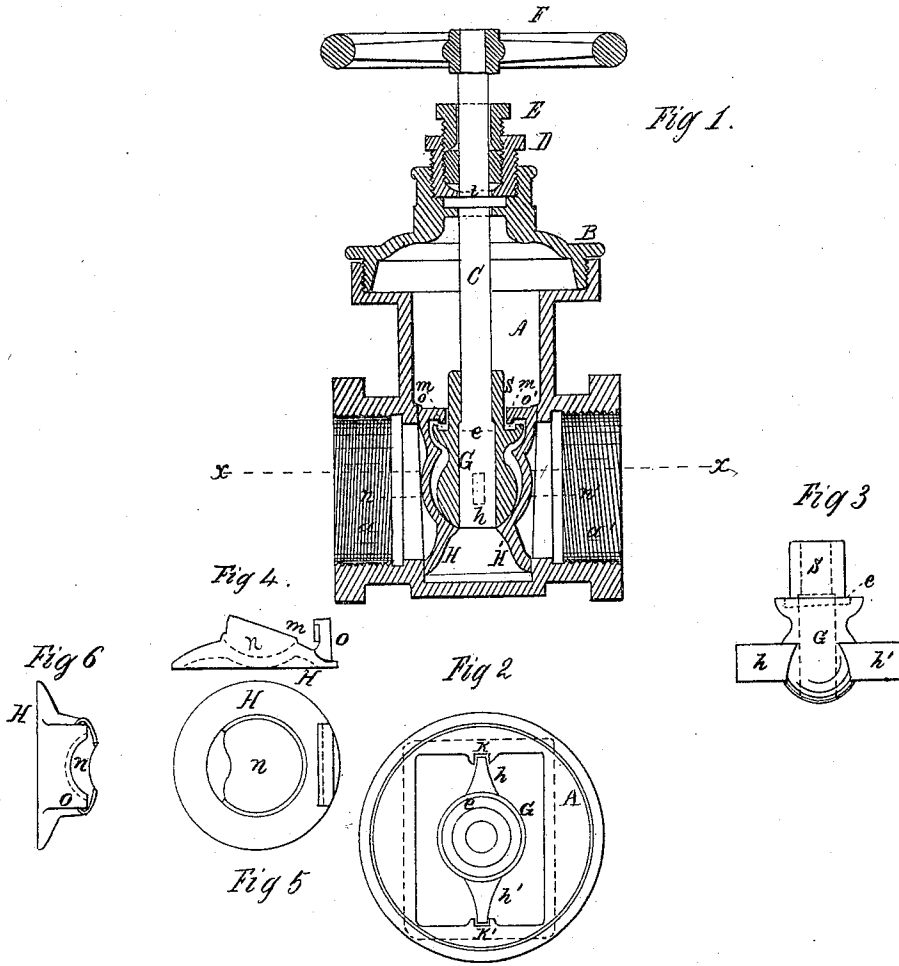


G. W. FISHER.

Stop-Valves.

No. 129,017.

Patented July 16, 1872.



Witnesses

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Inventor.

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att.

# UNITED STATES PATENT OFFICE.

GEORGE W. FISHER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO GERARD B. ALLEN & CO., OF SAME PLACE.

## IMPROVEMENT IN STOP-VALVES.

Specification forming part of Letters Patent No. 129,017, dated July 16, 1872.

*To all whom it may concern:*

Be it known that I, GEORGE W. FISHER, of the city and county of St. Louis and State of Missouri, have invented a new and useful Improvement in Stop-Cocks, of which the following is a full, clear, and exact description, reference being had to the annexed drawing making a part of this specification, in which—

Figure 1 represents a vertical sectional elevation of my invention. Fig. 2 represents a plan view of the ball and its guides. Fig. 3 represents a detached view of the ball. Figs. 4, 5, 6, represent different views of the valve detached.

Similar letters indicate like parts.

My invention relates to the manner of constructing stop-cocks having single or double disk-valves in such manner that the valves shall adjust themselves accurately to their seats without being as nicely fitted as is now necessary, and also during the operation of opening and closing shall cause a minimum amount of abrasion on their seats and faces.

A, Figs. 1, 2, is the box, constructed of any desired form, with inlet and outlet pipes *a a*, as seen, and having an ordinary screw-cap, B, through which passes the valve-spindle C having a shoulder, *b*, resting as seen on the screw-cap B. Above this cap and into it is fitted another screw-cap, D, while into this is fitted screw-cap E, as seen. On the upper end of the spindle is a wheel, F, by which the spindle is actuated. On the lower end of the spindle is cut a thread to engage with a thread cut in the projecting head *s* of the ball G, Figs. 1, 2, 3, which is perforated, as seen, and on the outer periphery of the head is a shallow channel, *e*, as seen clearly in Fig. 1. On the ball, placed centrally, are two arms, *h h'*, Figs. 2, 3, *h*, Fig. 1, which fit and work in guiding-grooves *k k'*, Fig. 2, in the side of the box A. The valves H H', Fig. 1, H, Figs. 4, 5, and 6, are circular, as seen in Fig. 5, which is a plan view, and having a concave face, as seen clearly in Fig. 1. The backs of the valves are also concave to fit around the ball G, the concavities *n n'* being made somewhat deeper at about the line *x x*, Fig. 1. At the upper edge the valves are provided with shoulders *o o'*,

to fit around the spindle, and having on the inner periphery a hooked channel, *m m'*, to engage with the channel *e* in the ball G. When the valves are to be closed the ball is forced down by the wheel F, carrying with it the valves, upon the backs of which it acts like a wedge to force their faces against their seats, these seats being made at an angle sufficient to allow the valves to play around the ball in order to adjust themselves to their seats. Reversing the movement of the wheel raises the ball, which, on account of the greater depth of the concavities at *x x*, as explained, rises freely without raising the valves till the hooked channels *m m'* and *e* engage. When the ball has risen to this point of course the pressure of the fluid on the faces of the valves will force them back from their seats, as the ball no longer keeps them in close contact, thus allowing the valves to rise without abrading their faces or seats. This pressure of the fluid on the faces of the valves, after the support of the ball is removed, as explained, is transferred to the arms *h h'* and guide-grooves *k k'*. Though two disks are shown it is evident that the same effect would be produced, and the beneficial result the same, if only one were used.

I do not claim any novelty in the construction of the caps of the box, or in the manner in which they are united, as the successful working of my device does not depend upon, and is entirely independent of, the peculiar construction of these.

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

1. The combination of the box A with its grooved channels *k k'*, spindle C, ball G with arms *h h'*, and valves H H', all constructed and arranged substantially as and for the purpose shown and specified.

2. The combination of the box A with its grooved channels *k k'*, spindle C, ball G with arms *h h'*, and valve H, all constructed and arranged, substantially as and for the purpose shown and specified.

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C. B. MCKINSTRY.