

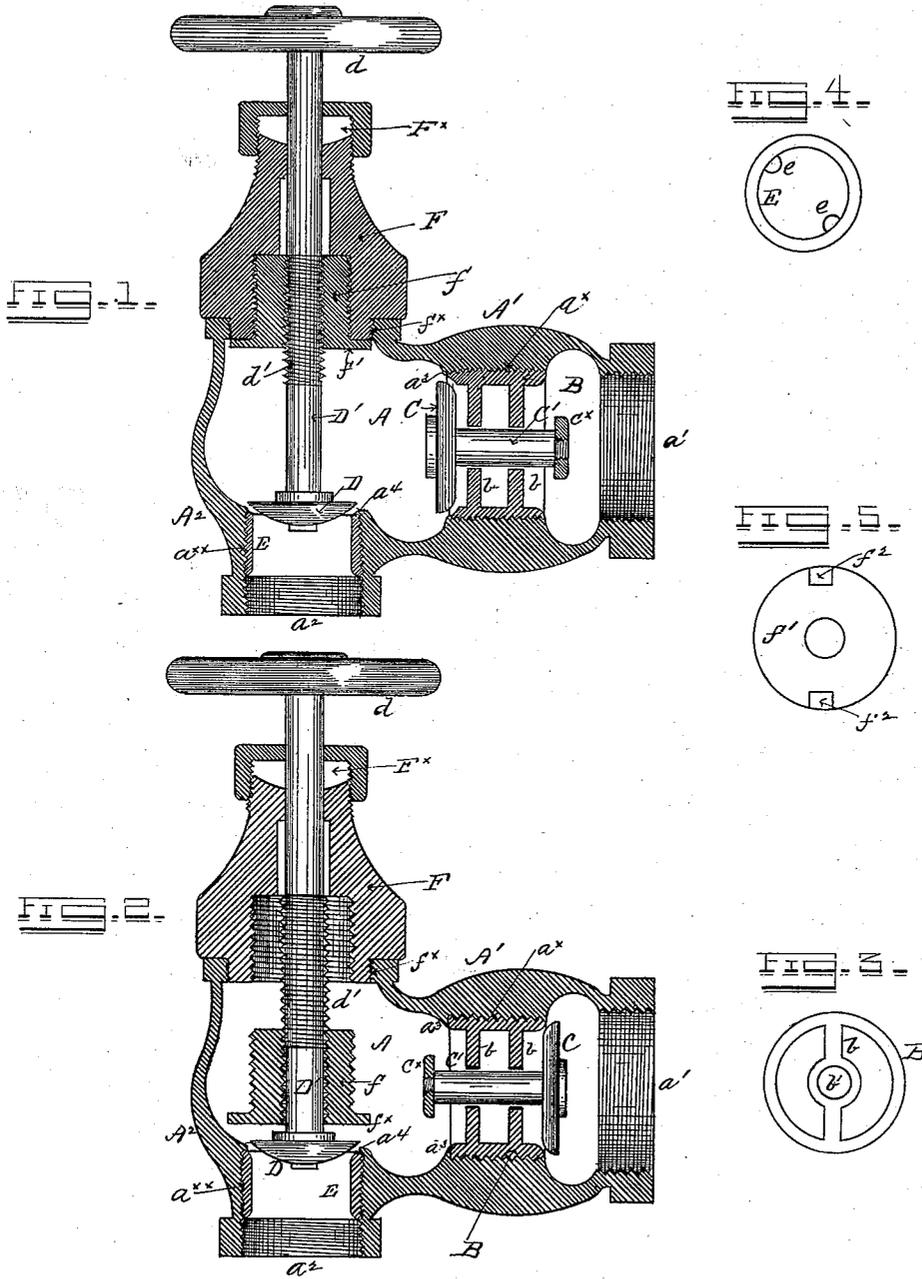
(No Model.)

M. F. KERSEY.

VALVE FOR FEED WATER PIPES FOR STEAM BOILERS.

No. 369,062.

Patented Aug. 30, 1887.



Witnesses

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MATTHEW F. KERSEY, OF ALEXANDRIA, VIRGINIA.

VALVE FOR FEED-WATER PIPES FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 369,062, dated August 30, 1887.

Application filed July 27, 1886. Serial No. 209,199. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW F. KERSEY, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Valves for Feed-Water Pipes for Steam-Boilers; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to valves for use in the feed-pipes of steam-boilers and in other situations where the combined action of a check-valve and a stop-cock is required; and the object of the invention is to combine in a single compact device these two forms of valve, so that the flow of water to the boiler or to any other reservoir may be either arbitrarily cut off, as may be desired, or automatically checked by back-pressure.

In carrying my invention into practice I have so constructed the seats of both check-valve and cock that they may be removed and reversed, thus doubling the life of the seat; and when both ends are worn these seats can be replaced by new ones at very little expense, and the body of the device remain intact. I have also provided means whereby the check-valve can be reversed so as to act in opposite directions, and thus throw the cock either before or in the rear of the check-valve in the flow of the fluid, and this reversal may be effected either by reversing the valve and the seat or by reversing the valve alone, which is held by a stem in ways or a guide in the seat. I also provide a construction of parts whereby the stop-cock, the valve portion of which is preferably made globular, can be readily taken out of the body of the device to be reground or trued as it becomes worn.

The accompanying drawings illustrate what I consider the best means for carrying my invention into practice.

Figure 1 is a central section of my device, showing the check-valve set in a position to pass the feed-water through it before it reaches the stop-cock. Fig. 2 is a similar view show-

ing the check-valve reversed, so that the water or other fluid would flow past the stop-cock first, with the sleeve screwed out of the bonnet. Fig. 3 is a detail view of the removable seat and guide for the check-valve. Fig. 4 is an end view of the reversible seat for the stop-cock. Fig. 5 is an end view of the sleeve in which the stop-cock stem is screwed.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the body of the device, which is composed of walls A' for the check-valve and walls A² for the stop-cock, all cast in a single piece. The ends a' and a² are fitted with screw-threads for attachment to pipes or nipples.

The walls A' of the check-valve are provided with a contracted cylindrical portion, a^x, which is screw-threaded internally for the reception of the removable valve-seat B for the check-valve. This valve-seat is formed with screw-threads on its outer circumference and with inclined ends b b, which form the seats proper for reversely-inclined edges of the valve. The seat B is in the form of a hollow cylinder, and has cross braces or arms b' b', which are provided with a central guide or way, b^x, for the valve-stem.

C is the check-valve, which is provided with a valve-stem, C', run through the guides or ways b^x. The stem C' is sufficiently longer than the distance between the guides b^x to permit a sufficient movement of the valve to well open the passage or way through it. The force of the inflowing water will keep the check-valve open until the pressure in the boiler becomes high enough to overcome the force of the water, when the check-valve will be closed.

The seat B, as will be readily seen, can be reversed by unscrewing it from the threaded portion a^x of the wall, and restoring it with the ends reversed. This will also reverse the valve; but the seat may be reversed and the valve continue to act in the same direction by turning or reversing the valve in the reversed seat. This is accomplished by providing a tap or nut, c^x, upon the end of the stem C', which can be removed and the valve and stem taken out and turned in the opposite direction in the seat. By this means, also, the valve may be

reversed without reversing the seat. The cross-braces b' serve as means for unscrewing the seat.

The stop-cock is marked D, and is preferably globular in form on the impinging end, which rests upon the seat. The seat for the stop-cock is marked E, and is also reversible and capable of being turned end for end to present wearing-surfaces for the stop-cock, and thus double the life of the seat, and at the same time provide means whereby the seat can be renewed when worn out without the expense of providing new walls or body for the device. The threaded portion of the walls in which the seat E is screwed is marked a^{\times} , and is preferably a continuation of the threads in the end a' .

D' is the stem of the stop-cock and is screw-threaded for a portion of its length, as shown at d' , and is provided with a hand-wheel or handle, d , by which the cock is operated. The threaded portion d' screws into a sleeve, f , which in turn is screwed by left-hand threads into a bonnet, F, which is secured to the walls A^2 by means of threads, as shown at f^{\times} . The sleeve f is provided with a projection or flange, f' , which covers the joint between the sleeve and bonnet. The flange f' has depressions or holes f^2 in it, as shown in Fig. 5, for receiving a tool by which the sleeve is removed. The stem D' passes through a stuffing-box, F^{\times} , on the outer face or end of the bonnet. The removable seat E also has lugs e , by means of which a tool takes hold of it for removal or insertion. By means of this construction and manner of attaching the bonnet it can be readily removed and the valve D taken out to be trued or reground. By unscrewing the sleeve from the valve-stem the valve can be dropped down upon the enlarged or flanged head of the sleeve, if it is desired.

The seats B and E abut against shoulders a^1 , respectively, which prevent the seats from being pushed too far in, and at the same time render the joints steam-tight and obviate the necessity of making the threads steam-tight.

As already explained, the check-valve can be set to work in either direction and throw

the stop-cock either in front or in the rear of it as regards the flow of the fluid. The position shown in Fig. 1 contemplates the flow of the fluid first through the check-valve, while the position shown in Fig. 2 contemplates a reverse flow.

It will be understood that the combined check-valve and stop-cock can with equally good effect be used in a water-conveying pipe or a steam, gas, or any other passage through which a fluid is to travel.

The reversible seats and removable bonnet may be used upon any valve or stop-cock with equally good effect where the seats may be reached by the proper tool or where it is necessary to regrind the valve.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a valve, the combination of the body or casing having the extension or walls A' for the check-valve and extension or walls A^2 for the stop-cock formed integrally and provided with the threaded portions a^{\times} and $a^{\times\prime}$, respectively, of the removable and reversible valve-seats B and E, the self-acting and independently-reversible valve C, and the stop-cock D, all substantially as and for the purpose set forth.

2. In a valve, the combination of the body or casing having the extension or walls A' for the check-valve and the extension or walls A^2 for the stop-cock formed integrally, a bonnet, F, screwed into walls A^2 , a sleeve, f , screwed into bonnet F, removable valve-seats B and E, screwed into walls A' and A^2 , respectively, self-acting check-valve C, held by and reversible in seat B, and a stop-cock, D, having screw-threaded rod engaged with the threads in sleeve f , all substantially as and for the purpose set forth.

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

MATTHEW F. KERSEY.

Witnesses:

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