J. C. STEAD.

Combined Check and Slide-Valve.

No. 203,565. Patented May 14, 1878.

Figure 1.

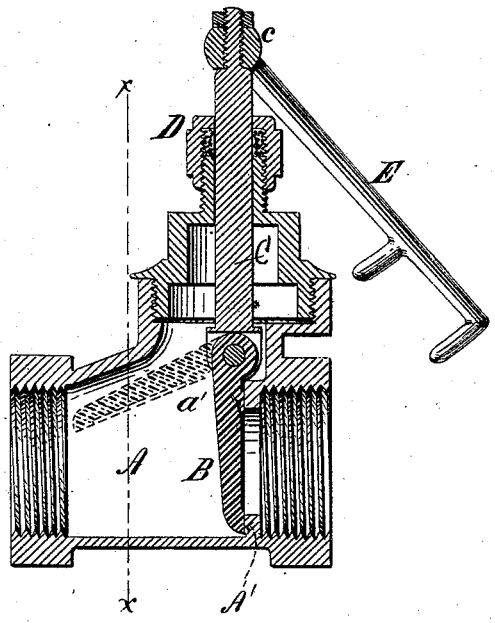


Figure 2.

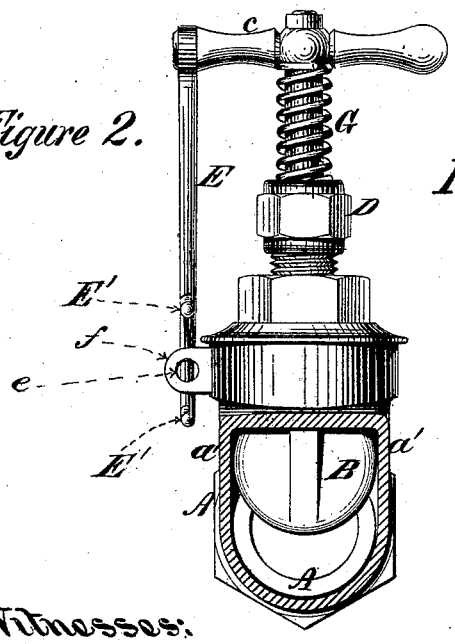
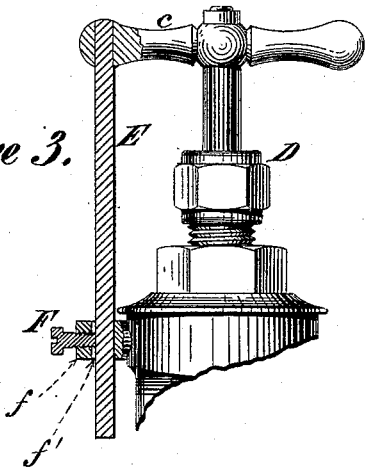


Figure 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES C. STEAD, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN COMBINED CHECK AND SLIDE VALVE.

Specification forming part of Letters Patent No. **203,565**, dated May 14, 1878; application filed March 29, 1878.

To all whom it may concern:

Be it known that I, JAMES C. STEAD, of Brooklyn, New York, have invented certain Improvements in Combined Check and Slide Valve, of which the following is a specification:

My invention consists in hinging a check-valve to the end of a sliding valve-stem, whereby at the will of the operator the check-valve may be opened to allow the passage of a fluid theretofore prevented from flowing through the chamber by the ordinary action of the valve as a check.

My invention includes a device for securing the valve-stem at prescribed points, whereby the valve, while freely yielding to pressure in one direction, may be used to limit the flow in the opposite direction.

My invention is of peculiar value for use in combination with a feed-water heater and supplementary steam-generator, because, in addition to performing the ordinary function of a check-valve in preventing the feed-water from entering directly into the boiler, and directing it into the feed-water coil, my valve is capable of being opened, so that, if desired, the feed-water may be pumped directly into the boiler. The necessity for pumping the feed-water immediately into the boiler may arise from the burning out of a portion of the feed-water coil. In this connection, therefore, it becomes very important to have a check-valve which is capable of operation like a hand-valve.

The accompanying drawings, illustrating my improvements, are as follows:

Figure 1 is a central longitudinal section through the valve-chamber and valve-stem. Fig. 2 is a transverse section through the line *x x* on Fig. 1. Fig. 3 is a view of the upper portion of the valve-stem and valve-chamber, showing the check-bar and the set-screw for fastening it in section.

The drawings represent a valve, the chamber A of which is provided with an annular shoulder, A′, at one end, for engaging the edge of the valve B, which is hinged to the lower edge of the sliding valve-stem C. The upper portions of the side walls *a′ a′* of the valve-chamber are parallel, and space is thus afforded for the swinging of the valve upward into the position shown by the dotted lines in Fig. 1. The valve-chamber has such depth that the valve, by means of the valve-stem, may be pulled bodily away from its seat, like a slide-valve.

The valve-stem, which is suitably packed in the cap D of the valve-chamber, is preferably cylindrical, so that it may turn freely upon its longitudinal axis, and permit the valve, when in position, to act as a check to make a close engagement with all parts of the annular shoulder upon which it is intended to bear.

The valve-stem is provided at its upper end with the cross-piece *c*, to one end of which is pivoted the check-bar E. This check-bar may be secured at any desired point by means of a binding-screw, F, in the end of the perforated lug *f*, through which the check-bar slides, as shown in Fig. 3.

The projecting lug *f* is cast on the outer wall of the valve-chamber, and may be provided with a vertical perforation, *f′*, to receive the check-bar, which slides through it; and it may also be provided with the horizontal perforation *e*, to receive the tongues E′ projecting laterally from the side of the check-bar E.

If desired, two lugs may be cast, respectively, on opposite sides of the valve-chamber, and two check-bars may be provided, one of which is straight, and slides in a vertical perforation, *f′*, in the lug provided with the binding-screw F, while the other check-bar, on the opposite end of the cross-piece *c*, may be provided with the lateral tongues E′ for entering the horizontal perforation in the lug on the opposite side of the valve-chamber.

If desired, an expanding spiral spring, G, may be placed upon the upper portion of the valve-stem C, so that the instant the check-bar is detached from the lug the valve-stem will slide upward and open the valve.

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

1. A check-valve hinged upon the end of a sliding valve-stem, and hence, while tending to act as a check in one direction, adapted to be operated as a slide-valve for allowing the passage of fluid through the valve-chamber in the opposite direction.

2. A valve-chamber formed substantially

as shown, and a valve hinged to a sliding stem adapted to move in the plane of the valve-seat, in combination with a checking device adapted to hold the valve-stem in variable positions, substantially as and for the purpose set forth.

3. The valve-stem C, cross-bar *c*, and the check-bar E, in combination with the perforated lug *f*, provided with the binding-screw F, substantially as and for the purpose described.

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Witnesses:
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