J. C. HOADLEY.

Check-Valves.

No. 134,548. Patented Jan. 7, 1873.

Fig. 1.

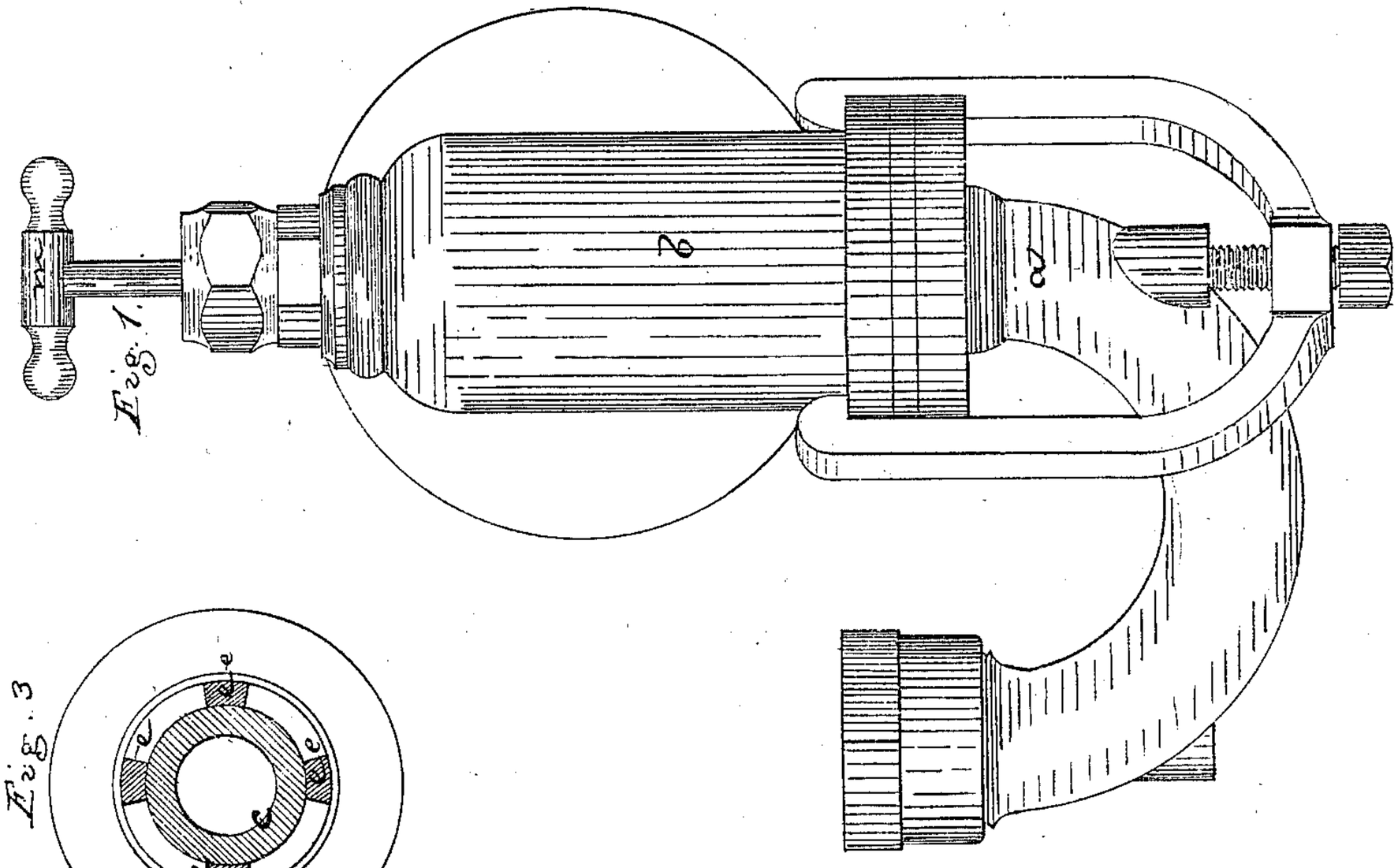
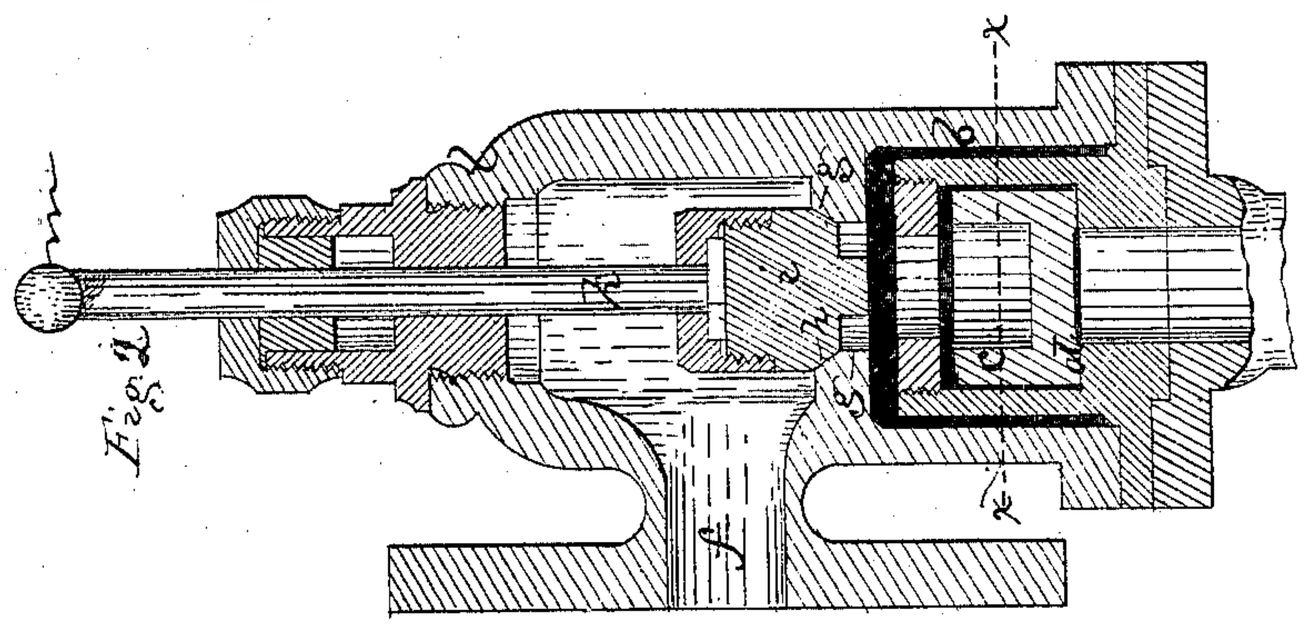


Fig. 3.

Fig. 2.



Witnesses.
M. W. Frothingham,
Lt. L. Latimer.

Inventor
John C. Hoadley.
By his Attys.
Crosby & Gould

UNITED STATES PATENT OFFICE.

JOHN C. HOADLEY, OF LAWRENCE, MASSACHUSETTS.

IMPROVEMENT IN CHECK-VALVES.

Specification forming part of Letters Patent No. **134,548**, dated January 7, 1873.

To all whom it may concern:

Be it known that I, JOHN C. HOADLEY, of Lawrence, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Boiler-Feed Apparatus; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

In water-injecting pumps of steam-boilers it is customary, to some extent, to introduce a globe-valve or a plug-valve between the boiler and the check-valve of the pump in order to shut off the boiler from the pump, for access to the pump or dismemberment thereof, for repairs or other purpose. It is found in practice, however, that it is to a high degree objectionable to attach such a valve, as any neglect in reopening it after it has been closed for access to the pump-valves or chamber is sure to lead to an explosion, when the boiler is making steam, from failure of the pump to supply water. In this invention my purpose has been to supply a valve which, if accidentally or negligently left closed in shutting off the pump, will be automatically opened by the pressure of the feed-water.

In carrying out my invention I interpose between the boiler in which the steam pressure is maintained and the force-pump used for feeding such boiler two check-valves, by which the pump and boiler may be connected or disconnected, but when disconnected are so arranged that, by the pressure of water toward the boiler, both will be opened.

The drawing shows an arrangement of valves embodying my invention.

Figure 1 shows the valve-case and water-pipe in elevation. Fig. 2 is a sectional elevation. Fig. 3 is a section on the line *x x*.

a denotes the pump tube or pipe, having a chamber, *b*, in which is a cylindrical check-valve, *c*, resting on a valve-seat, *d*, and raised by the pressure of the water forced up against it by the pump to enable the water to escape by its sides, between the bars *e*, up into and through the passage *f* into the boiler. Between the valve *c* and the passage *f* is a circular passage, *g*, the rim of which forms a seat, *h*, for a cylindrical valve, *i*, attached to a vertical stem, *k*, passing through the neck *l* and a suitable stuffing-box, and raised and depressed by a handle, *m*, this valve fitting to its seat so that when closed the valve is steam-tight, and the pressure of the steam keeps it to its seat.

Normally, the valve *i* is raised and stays up by the friction of the stem in the stuffing-box. The check-valve *c* then rises and falls alternately by the pressure of the water and the back pressure of the steam; but when the boiler is to be disconnected from the pump the stem *k* is pressed down, forcing the valve *i* against its seat *h*, as seen in Fig. 2, where it is held tightly by the pressure of the steam. The pump mechanism is then accessible and may be removed; and when reconnected to the cylinder or case the pressure of the water will force up the valve *i* if, from accident or other reason, it be left closed, it being impossible, with this valve mechanism, that connection between the boiler and pump shall be so closed that the reconnection cannot be again established by the direct pressure of the water without hand-manipulation of the valve-stem.

I claim—

The arrangement within the body *b*, in the manner substantially as described and for the purpose specified, of the two check-valves interposed between a boiler, in which pressure is maintained, and a force-pump for feeding the boiler.

JOHN C. HOADLEY.

Witnesses:

GEO. R. CARTER,

GEO. A. BARNARD.