M. J. ATKINSON.

Feed-Pumps and Check-Valves for Steam-Boilers.

No. 156,750. Patented Nov. 10, 1874.

Fig. 1.

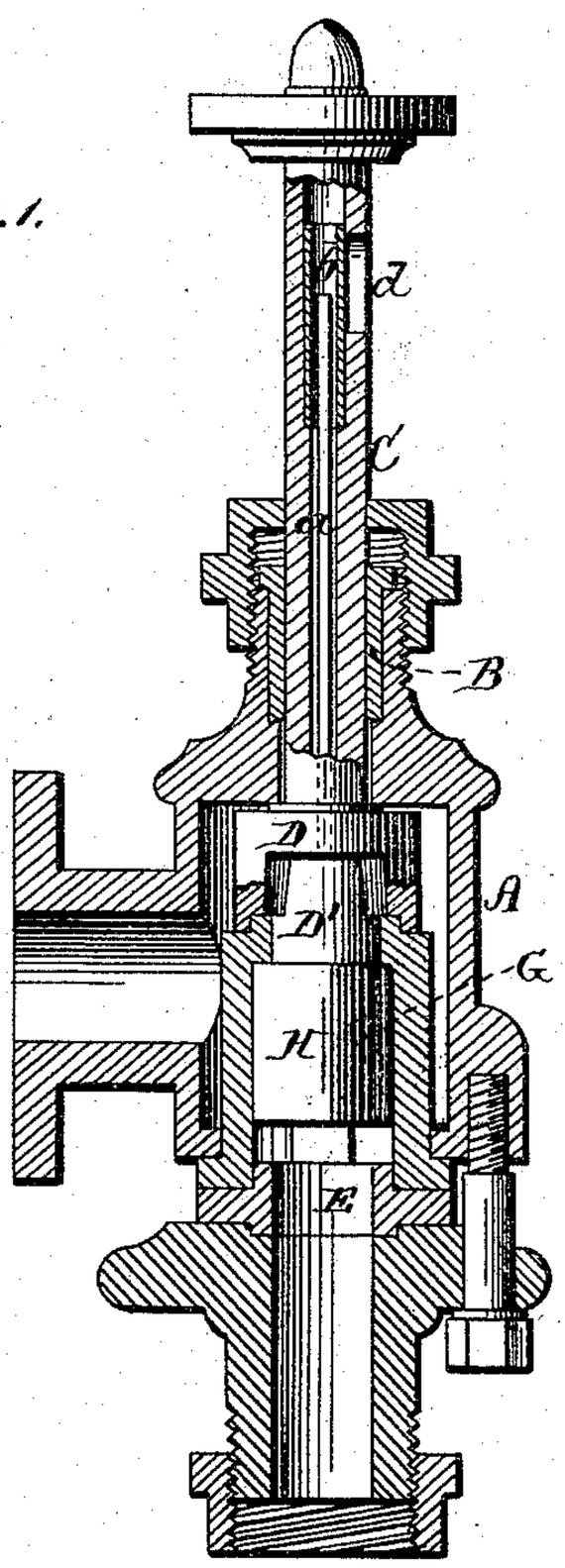
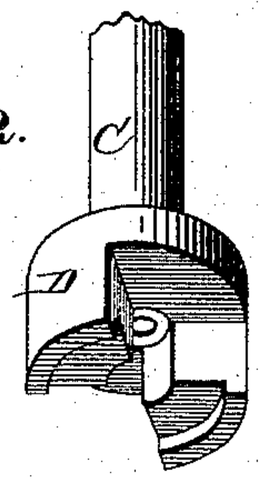


Fig. 2.



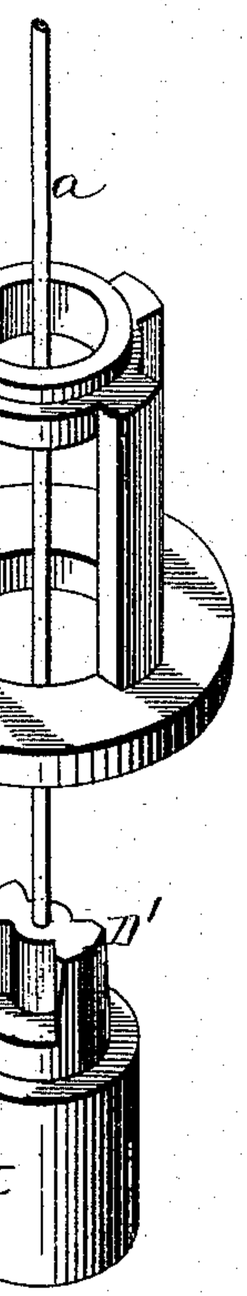


Fig. 3.

Fig. 4.

WITNESSES

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MATHEW JAMES ATKINSON, OF FAYETTEVILLE, NORTH CAROLINA.

IMPROVEMENT IN FEED-PUMPS AND CHECK-VALVES FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **156,750**, dated November 10, 1874; application filed October 12, 1874.

To all whom it may concern:

Be it known that I, MATHEW J. ATKINSON, of Fayetteville, in the county of Cumberland and in the State of North Carolina, have invented certain new and useful Improvements in Feed-Pumps and Check-Valves; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a feed-pump and check for steam-boilers and other uses, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal vertical section of my invention. Figs. 2, 3, and 4 are detached perspective views of the interior parts thereof.

A represents the valve-chamber, provided with a stuffing-box, B, in its upper end. Through this stuffing-box passes a hollow stem, C, into the valve-chamber, and on the inner or lower end of this stem is formed or attached a clutch or wrench, D. E represents the valve-seat at the lower end of the valve-chamber, and above said valve-seat, extending up into the chamber, is the valve cage or guide G. Within this cage or guide is the valve H, provided at its upper end with a clutch or lock, D′, which corresponds in shape with the clutch or wrench D on the lower end of the hollow stem C. From the upper end of the valve H extends a rod or tube, *a*, up through the clutch D, into a glass tube, *b*, inserted in the hollow stem C, and opposite said glass tube, in one side of the hollow stem, is an aperture, *d*, through which the rod *a* can be seen.

By the use of the clutch D′ on the valve H, and the stem C with its clutch D, the successful working of the valve is insured.

Should the valve become foul and stop working, by turning the wrench C D the outer surface of the valve will be scraped clean by passing across the openings in the cage G.

Should shreds of packing work through the pump, and lodge between the valve and seat, it may be ground or cut out by the same operation. By the same process valves may be ground to a true and close bearing.

By thus scraping the foul surface, and cutting out packing or other substances that may lodge between the valve and seat, I do away entirely with the dangerous and injurious practice of striking the checks or pumps—a practice which often fails to shake the valve down upon the seat, and seldom, if ever, removes anything from between them.

In grinding the valve by the above process I obviate the necessity of breaking joints or removing any of the pump-connections, which render the taking out of freeze-plugs always certain.

By means of the aperture *d* in the hollow stem, the glass tube *b*, and rod *a*, the operator can easily see whether the valve is at work or stopped.

Thus, by these improvements, I save both time and labor, detect the stopping of pumps, and provide the means of putting them to work with facility, whereby I leave the operator no excuse for burning boilers, and avoid all danger of explosion for want of water.

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

In combination with the valve-chamber A, stuffing-box B, and valve-seat E, the hollow stem C, having clutch D, the cage G, and the valve H, with lock D′ and stem *a*, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of September, 1874.

MATHEW JAMES ATKINSON.

Witnesses:

D. G. MACRAE,

D. MCRAE O'HANLON,