(No Model.)

T. ELCOATE.

WATER GAGE.

No. 513,902. Patented Jan. 30, 1894.

FIG. 1.

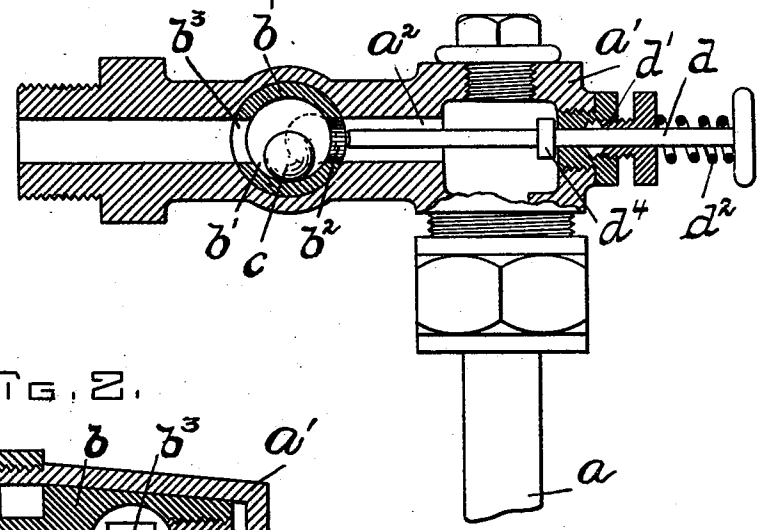
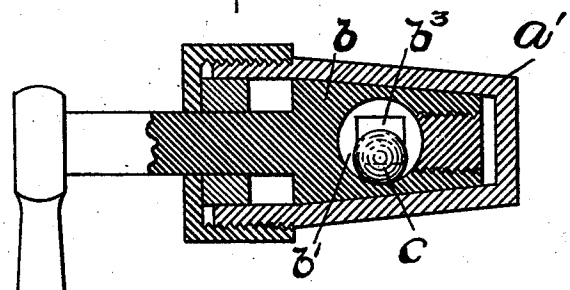
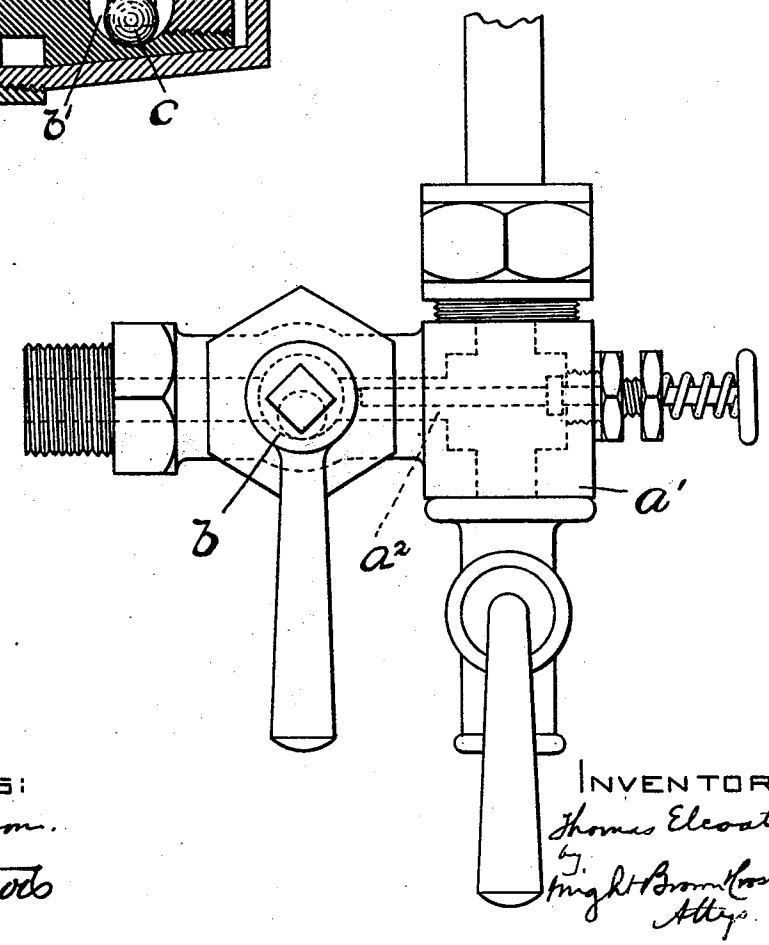


FIG. 2.





WITNESSES:
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UNITED STATES PATENT OFFICE.

THOMAS ELCOATE, OF STOCKTON-ON-TEES, ENGLAND.

WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 513,902, dated January 30, 1894.

Application filed June 23, 1893. Serial No. 478,587. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ELCOATE, of Stockton-on-Tees, England, have invented certain new and useful Improvements in Water-Gages, of which the following is a specification.

This invention relates to glass gages, such as commonly employed in connection with steam generators to indicate the water-level, and the object of the present invention is to provide means which will act automatically in the case of a breakage of the gage-glass to prevent the escape of steam and water from the generator.

To this end, the invention consists in the novel features of construction and combinations of parts hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, of which—

Figure 1 shows a side elevation and part sectional view of a gage having my improvements. Fig. 2 shows a longitudinal section of the stop-cock or plug.

The same letters of reference indicate the same parts in both the figures.

In the drawings: The letter a designates the glass of the gage, and a' heads which support said glass and form casings for passages a^2, by which communication is established between the generator and the gage-glass, one of said passages being for water and the other for steam, as in the ordinary construction. A stop-cock or plug b is fitted transversely in each of the passages a^2, and incloses a spherical chamber b', having oppositely-located ports b^2 and b^3 adapted to communicate with the passage a^2. A ball c is inserted in the chamber b', and is adapted to seat over the port b^2 which is circular. This ball normally rests at the lower portion of the chamber b', and stands partly in the line of the passage a^2. Should the gage-glass a break, the pressure of the steam or water, as the case may be, throws the ball c over the port b^2, and thus the steam or water is prevented from escaping. The stop-cock or plug may then be turned to cut off the communication between the generator and gage-glass, and a new glass may be inserted, and the stop-cock then restored to position where its ports register with the passage. To unseat the ball, a sliding push-rod d is fitted through the casing a', and extends longitudinally of the passage a^2, and in such position that, when it is pushed inward, it will unseat the ball. Where this push-rod extends through the casing, a stuffing-box d' surrounds it, so as to form a steam-tight joint. The push-rod is retracted by a spring d^2, which bears at one end against a handle on the end of the rod, and at the other end against the stuffing-box. A collar d^4 on the rod limits the action of the spring d^2. When the rod is pushed in and the ball unseated, the steam passes the same, and the pressure is equalized on each side of it, so that said ball maintains its normal position.

The port b^3 in the plug is made square, so that the ball cannot close it in case it should move to a position over said port, and there is always a free passage for steam or water by this port. This square port may also be employed as a means for restoring the gage to its proper adjustment, after a breakage of the glass. This is accomplished by turning the stop-cock so as to reverse the ports, and allowing the pressure to equalize on each side of the ball while the stop-cock remains in this adjustment, and then turning the stop-cock back to the position shown in the drawings.

The construction is the same at both ends of the gage, so that both the water and steam are prevented from escaping.

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

A water-level gage for steam generators, comprising in its construction a stop-cock in a passage between the generator and gage-glass and formed with a spherical chamber having oppositely-located ports by which it communicates with said passage, one of said ports being circular and adapted to be closed by a ball-valve, and the other being of a form which prevents a ball-valve from closing it; and a loose ball in said chamber.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of May, A. D. 1893.

THOMAS ELCOATE.

Witnesses:
ANNA M. CORNISH,
HAVELOCK CORNISH.