(No Model.)

J. B. LITTLE.

SAFETY WATER GAGE.

No. 345,156. Patented July 6, 1886.

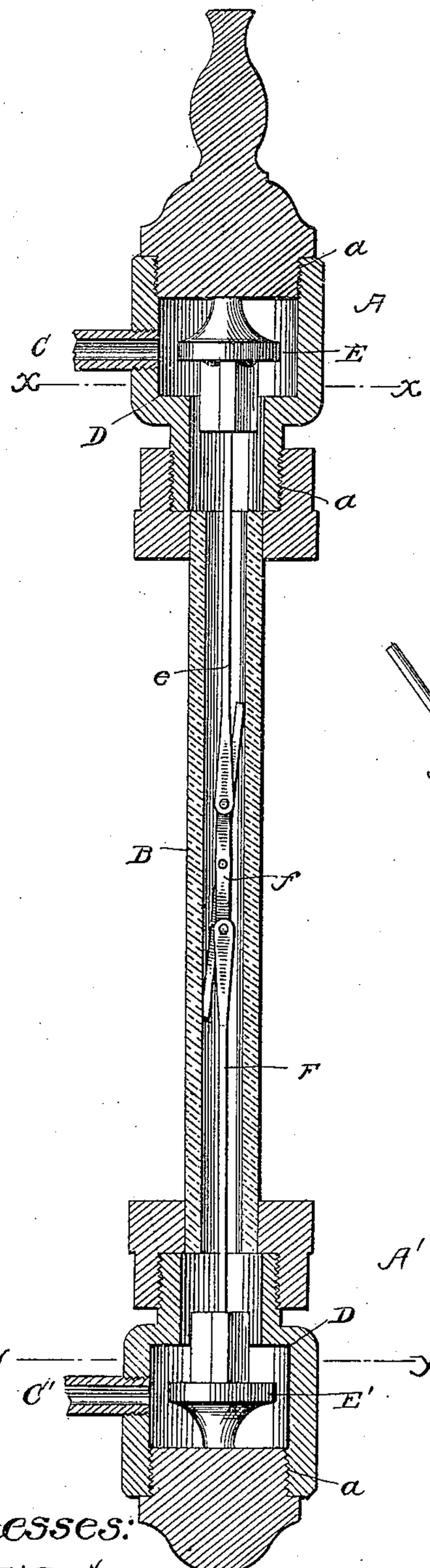


Fig. 1.

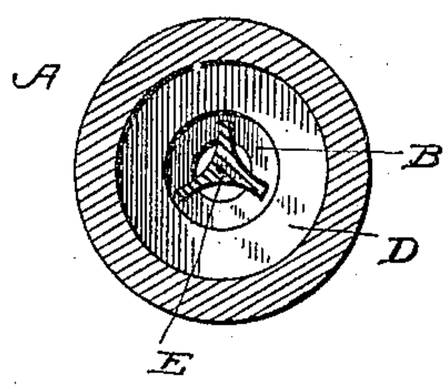


Fig. 2.

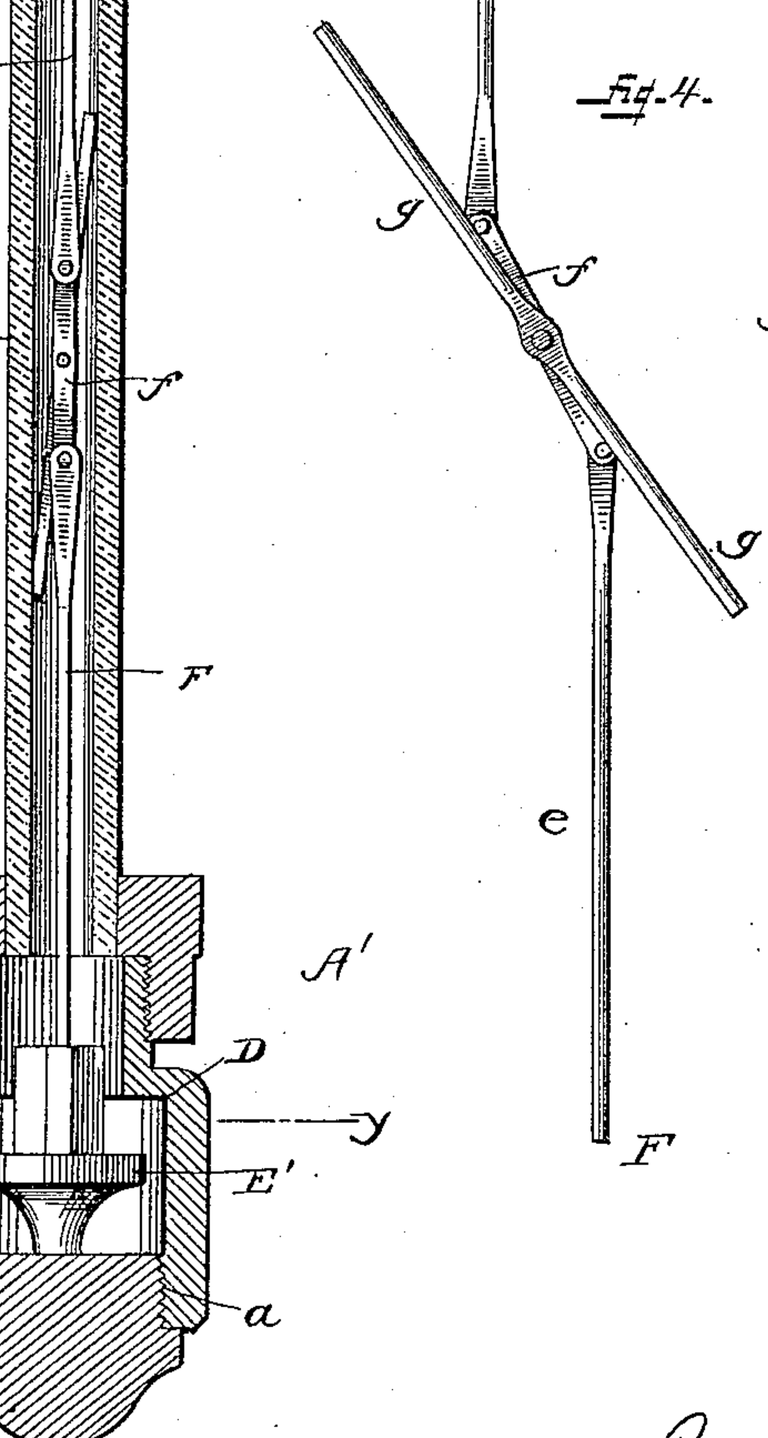


Fig. 4.

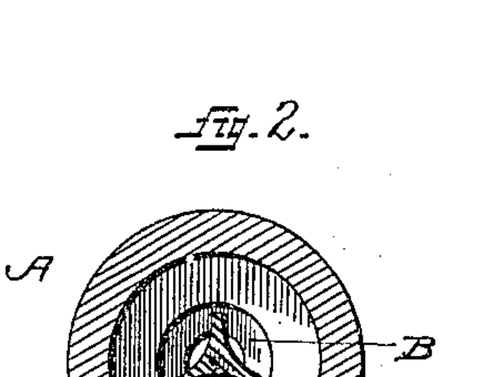
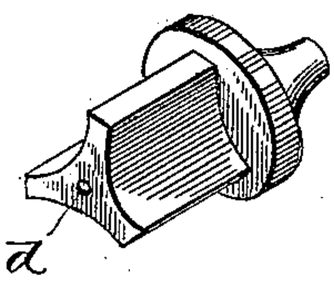


Fig. 3

Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH BULL LITTLE, OF WINNIPEG, MANITOBA, CANADA.

SAFETY WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 345,156, dated July 6, 1886.

Application filed February 18, 1886. Serial No. 192,356. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BULL LITTLE, a subject of the Queen of Great Britain, residing at Winnipeg, in the Province of Manitoba and Dominion of Canada, have invented certain new and useful Improvements in Gages or Indicators for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to gages or indicators for steam-boilers; and the object of the invention is to provide an improved arrangement of valves and means for holding the same open, and closing or allowing them to be automatically closed in the event of the glass sight-tube being broken.

A further object of the invention is to improve the details of construction of devices of this class, and to provide a device which will be thoroughly positive and effective in its operation.

With these ends in view the invention consists in the combination, with a glass tube and its mountings, of valves located in said mountings and a jointed rod connected with the valves.

The invention further consists in the details of construction and combinations of parts hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a vertical section of the same. Fig. 2 is a detail cross-section on the line *x x*, Fig. 2. Fig. 3 is a detail cross-section on the line *y y*, Fig. 2. Fig. 4 is a detail view of the rod for holding the valves from their seats when the glass sight-tube is intact, and for allowing the valves to engage the seats when the glass tube is broken. Fig. 5 is a detail view of one of the valves.

Corresponding parts in the several figures are denoted by the same letters of reference.

Referring to the drawings, A A′ represent the mountings for receiving the upper and lower ends of the glass gage-tube B, said mountings being provided with water-tight joints *a*.

C C′ represent the inlet and outlet tubes, which are each preferably provided with a stop-cock. (Not shown.)

D represents valve-seats which are formed in the mountings A A′, and which are adapted to be closed, when the sight-tube is broken, by valves E E′, which valves are held normally from contact with the seats, thus allowing a free circulation through the sight-tube.

In the inner ends of the valves E E′ are formed openings or seats *d*, which are adapted to receive the ends of a rod, F, for supporting the valves from contact with the valve-seats. This rod or support consists of two long rods, *e*, connected pivotally at their inner ends by a short rod, *f*, upon the side of which, midway its ends, is pivoted a cross-rod, *g*, which normally is in contact with the sides of the glass tube to hold the jointed rod rigid and hold the valves from contact with the valve-seats. Should the glass gage-tube be broken, the force of the water will move the valves to their seats, the jointed rod collapsing or shortening. This action is accomplished, since the two long rods are pivotally connected, thus allowing them sufficient lateral movement to enable the valves to fit tightly upon the valve-seats. The cross-rod plays an important part, since it holds the jointed rod rigid, and thus holds the valves from their seats, said cross-rod occupying an oblique position within the sight-tube, and bearing against the inner sides thereof.

Having thus described my invention, I claim—

1. The combination, with a glass tube and its mountings, said mountings having valve-seats, of valves to close said seats and means located within the glass tube for supporting the valves from their seats, as set forth.

2. The combination, with a glass tube and its mountings having valve-seats and valves to close the same, of a jointed rod located within the glass tube and connected with the valves, as set forth.

3. The combination, with a glass tube and its mountings, said mountings having valve-seats and valves, of a jointed rod located in the tube and connected with the valves and a cross-rod pivoted to one of the sections of the jointed rod, as set forth.

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

JOSEPH BULL LITTLE.

Witnesses:

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