(No Model.)

F. H. LINCOLN.

WATER GAGE.

No. 278,345. Patented May 29, 1883.

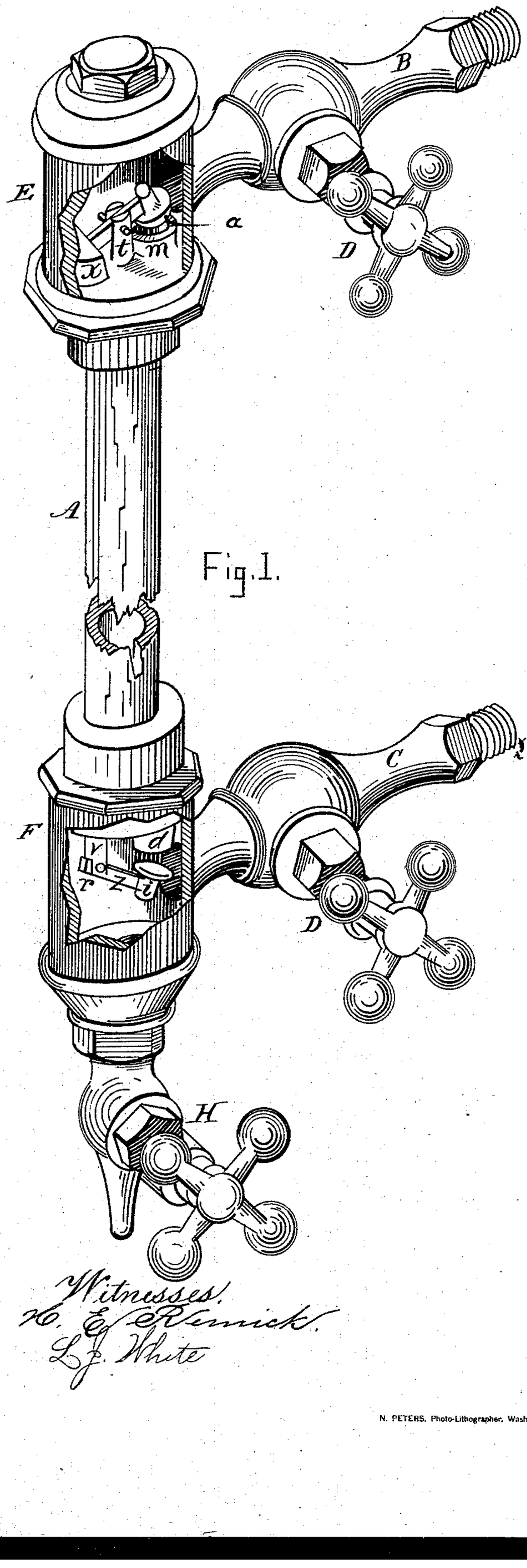

Fig. 1.

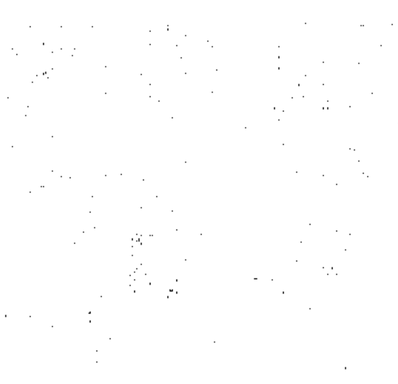

Fig. 2.

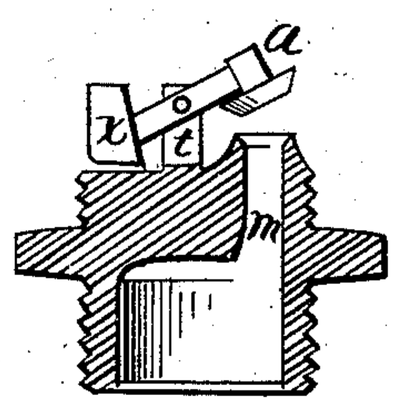

Fig. 3.

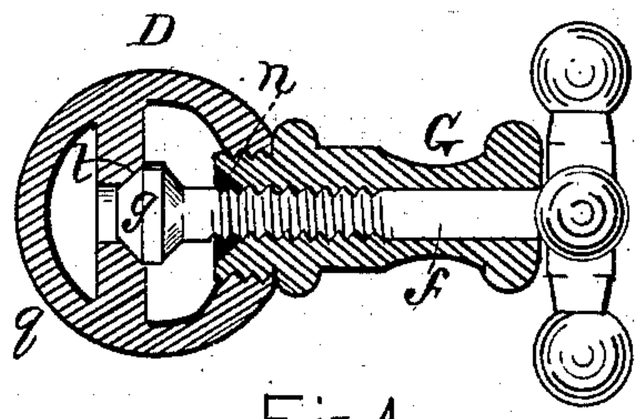

Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANCIS H. LINCOLN, OF CHELSEA, MASSACHUSETTS.

WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 278,345, dated May 29, 1883.

Application filed February 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. LINCOLN, of Chelsea, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Gage-Tube Fittings for Steam-Boilers, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view, showing my improvement, a part of the fittings being represented in section; Fig. 2, a vertical transverse section of the lower valve; Fig. 3, a like view of the upper valve, and Fig. 4 a vertical longitudinal section of one of the stop-cocks.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to means for closing the fittings automatically when the gage-tube is accidentally broken, thereby preventing steam or hot water from being ejected through the gage-tube openings; and it consists in providing the fittings with valves constructed and arranged to operate as hereinafter more fully set forth and claimed, by which a more effective device of this character is produced than is now in ordinary use.

It is well known that when the ordinary glass gage-tubes of steam-boilers are accidentally broken much damage frequently occurs by the emission of steam and hot water before the stop-cocks in the fittings can be closed, more especially when the breakage occurs in the absence of the engineer or fireman. My improvement is designed to obviate this objection, and to that end I make use of appliances which will be readily understood by all conversant with such matters from the following explanation, their extreme simplicity rendering an elaborate description unnecessary.

In the drawings, A represents the gage-tube, and B the upper and C the lower pipe leading to the boiler. The pipes are respectively provided with stop-cocks D, and open at their outer ends into the cylindrical chambers E F. The upper end of the gage-tube is inserted in the bottom of the chamber E and its lower end in the top of the chamber F, being packed in the ordinary manner. A port, *m*, opening downwardly, connects the chamber E with the upper end of the tube, and a like port, *d*, opening upwardly, connects the chamber F with its lower end. Disposed in the upper chamber, E, there is a valve, *a*, provided with the weighted lever *x*, pivoted in the standard *t*, and adapted to close the port *m*. The lower chamber, F, is provided with a petcock or "blow-off," H, and with a gravitating valve, *i*, having the lever *z* pivoted by its outer end at *r* in the hanger *v*, said valve being adapted to close the port *d*. The stop-cock D has its valve-stem *f* provided with a double-faced valve, *g*, its front or inner face being adapted to fit the seat *l*, and its rear or outer face the seat *n*, as shown in Fig. 4, in which it is represented as closed, or the valve turned down upon its seat *l*. In ordinary stop-cocks of this character it is necessary to pack the valve-stem carefully to prevent leakage around the stem when the valve is open; but in my improved stop-cock, as shown in Fig. 4, the valve-stem *f* is exteriorly threaded to fit a female screw in the stem holder or shank G, the shank being screwed into the globe *q*, and the seat *n* formed directly in the inner end of the shank, thereby avoiding the necessity of using packing for the stem, greatly simplifying the parts and reducing the cost of construction, it being understood that when the valve is opened or raised from the seat *l* the stem is to be turned out until the valve rests in the seat *n*.

In the use of my improvement, the stop-cocks D D being open, if now the tube A is removed or broken, the usual back-pressure on the valve *i* will be withdrawn, and the water, forced by the pressure in the boiler, will rush through the pipe C into the chamber F, and, seeking egress through the port *d*, will act upon the valve *i* to close the port. In like manner, the back-pressure being removed from the valve *a*, the steam will enter the chamber E, shut the valve *a*, and close the port *m*, thereby preventing either water or steam from escaping from the boiler through the gage-tube fittings in a manner which will be readily obvious without a more explicit description.

As I propose to make the stop-cock described,

and as shown in Fig. 4, the subject-matter of other Letters Patent, I do not claim the same in this specification; but,

Having thus explained my invention, what I claim is—

A water-gage for steam-boilers, having the pipes B C, stop-cocks D D, chambers E F, and glass tube A, connecting said chambers, the chamber E being provided with the downwardly-opening port *m* and lever *x*, said lever being centrally pivoted in the standard *t*, and provided with the valve *a*, adapted for closing said port, and the chamber F provided with the upwardly-opening port *d* and lever *z*, said lever being pivoted at one end to the hanger *v*, and provided at its opposite end with the valve *i*, adapted to close said port, substantially as set forth.

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Witnesses:
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