W. MOSES.

LOCK-UP SAFETY VALVE.

No. 98,991. Patented Jan. 18, 1870

Fig. I.

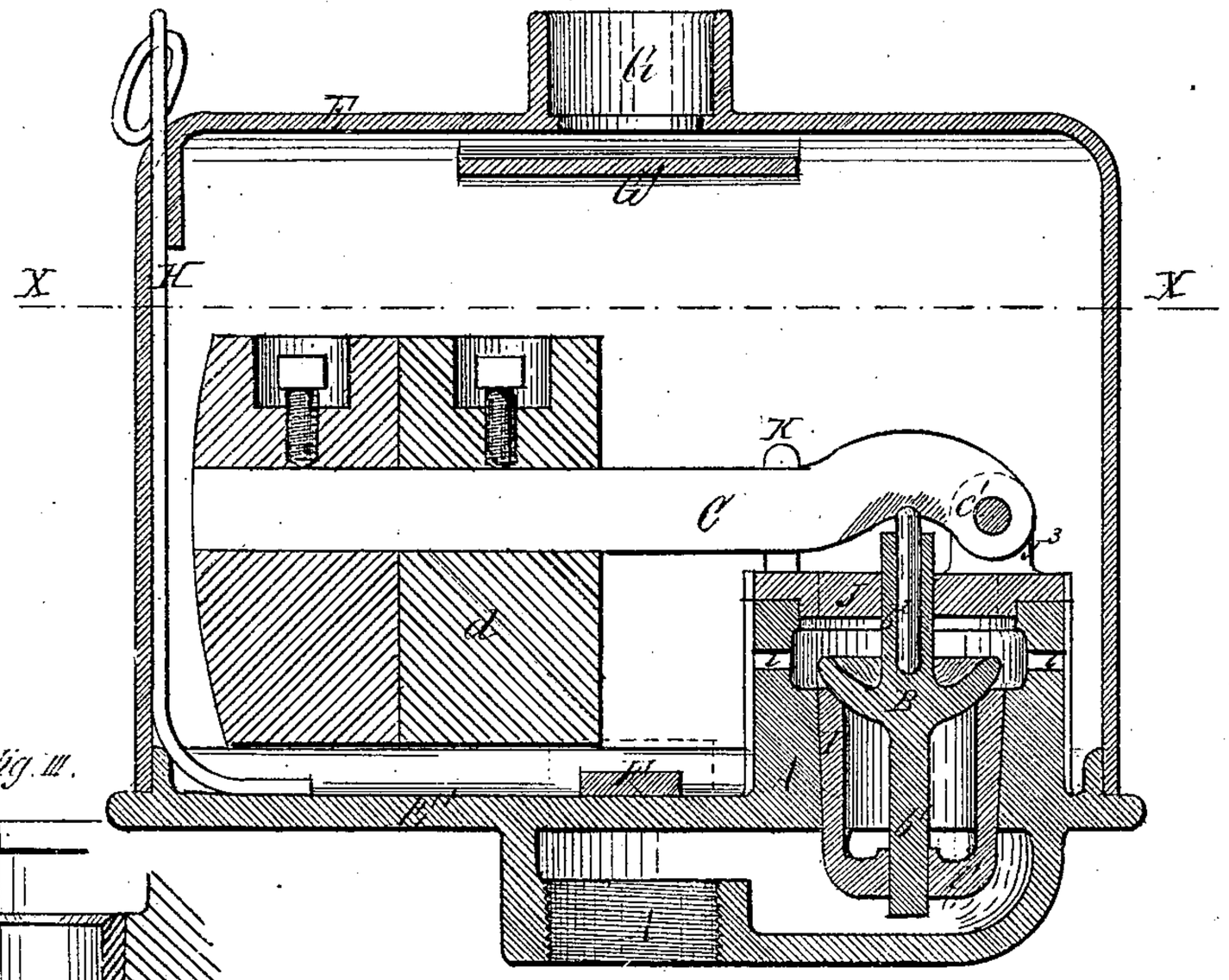

Fig. III.

Fig. II.

Witnesses

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WILLIAM MOSES, OF BUFFALO, NEW YORK.

Letters Patent No. 98,991, *dated January* 18, 1870.

LOCK-UP SAFETY-VALVE.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM MOSES, of the city of Buffalo, in the county of Erie, and State of New York, have invented an Improved Lock-Up Safety-Valve for Steam-Boilers, of which the following is a specification.

My invention has for its object the guiding of the movements of the valve and valve-lever, in a manner to prevent all undue binding and friction, and insure their uniform and reliable operation, and at the same time to secure a construction at once cheap, simple, and durable.

The invention consists in the combination of three devices, by the conjoined action of which the above objects are accomplished:

First, a disk-valve, having a stem projecting both above and below the disk.

Second, a valve-seat and lower guide for valve-stem, cast together in one piece.

Third, an upper guide-plate, provided with lugs for fulcrum-pin, and guide-jaws for valve-lever, and apertures for the escape of steam.

In the accompanying drawings, which form part of this specification—

Figure I is a vertical longitudinal section of my improved safety-valve;

Figure II is a horizontal section of same on line *x x*, Fig. I; and

Figure III, a cross-section of valve-seat on line *y y*, Fig. II.

Like letters refer to like parts in each of the figures.

A represents the escape-steam pipe, connecting with the boiler, and B the valve, for closing the orifice thereof.

C represents the valve-lever, and *d* the weight by which the valve is retained in its seat.

The valve-lever and weight are enclosed in a box, E E′, said box being made in two parts, the division-line being in the plane of the bottom E′, which is cast with the pipe A.

The upper or covering-part E of the box, is secured to the bottom by a locking-pin, F, passing through the eye-lugs f^1 on the bottom plate, and corresponding lugs f^2 on the side plates of the cover. The pin F has a head at one end and an eye at the other, for the reception of a padlock, or other sealing-lock, so that the box may be securely locked, and the internal parts rendered inaccessible to other than the proper authorities.

A steam-escape, G, is made in the top of the case, and a covering-plate, G′, to prevent access to the parts through this aperture, this being a common construction in this class of safety-valves.

A lifting-rod, H, is also provided, to enable the engineer to relieve the valve when required. This is also a common device.

I represents the valve-seat, cast of composition, and inserted in the end of pipe A, which is bored to receive it.

This seat-casting is provided with a cross-bar, *i′*, cast with it, and forming a guide for the lower projection *b′* of the valve-stem, the hole for the valve-stem being bored at the same time the seat is turned, so as to insure its concentricity therewith.

J represents the upper guide-plate, secured, by bolts j^1, to the end of steam-pipe A.

This plate has apertures, j^2, for the passage of the escaping steam through it, and also a concentric hole, for the passage and guidance of the upper projection b^2 of the valve-stem. The valve B, being thus guided above and below, its accurate seating is insured, and all liability to stick or become displaced is obviated.

Lugs j^3 are cast with the plate at one side, to which the valve-lever C is hinged by the fulcrum-pin *c′*.

A guide-jaw, K, is cast at the other side of the plate, to prevent any lateral motion, and consequent binding of the valve-lever. The valve-lever acts on the valve through the intervention of a steel bearing-point, inserted in the upper projection b^2 of the valve-stem, and forming part thereof, and that portion of the valve-lever, between its fulcrum and the guide-jaw, is curved upwardly, so that this bearing-point may be in a straight line passing through the fulcrum and the centre of the weight, or nearly so, thus reducing the slip on the bearing-point to the minimum.

In addition to the apertures j^2 in plate J, lateral openings, *l*, are cut in the pipe A, just above the valve, to insure the free escape of the steam into the enclosing-case.

Having thus fully described my invention,

What I claim, and desired to secure by Letters Patent, is—

The upper guide-plate J, having steam-apertures j^2, fulcrum-lugs J^3, and guide-jaw K, when combined with double-stem steam-valve B, valve-seat I *i′*, valve-lever C, and steam-escape pipe A, and the whole constructed and arranged as hereinbefore set forth.

Witnesses: WILLIAM MOSES.

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