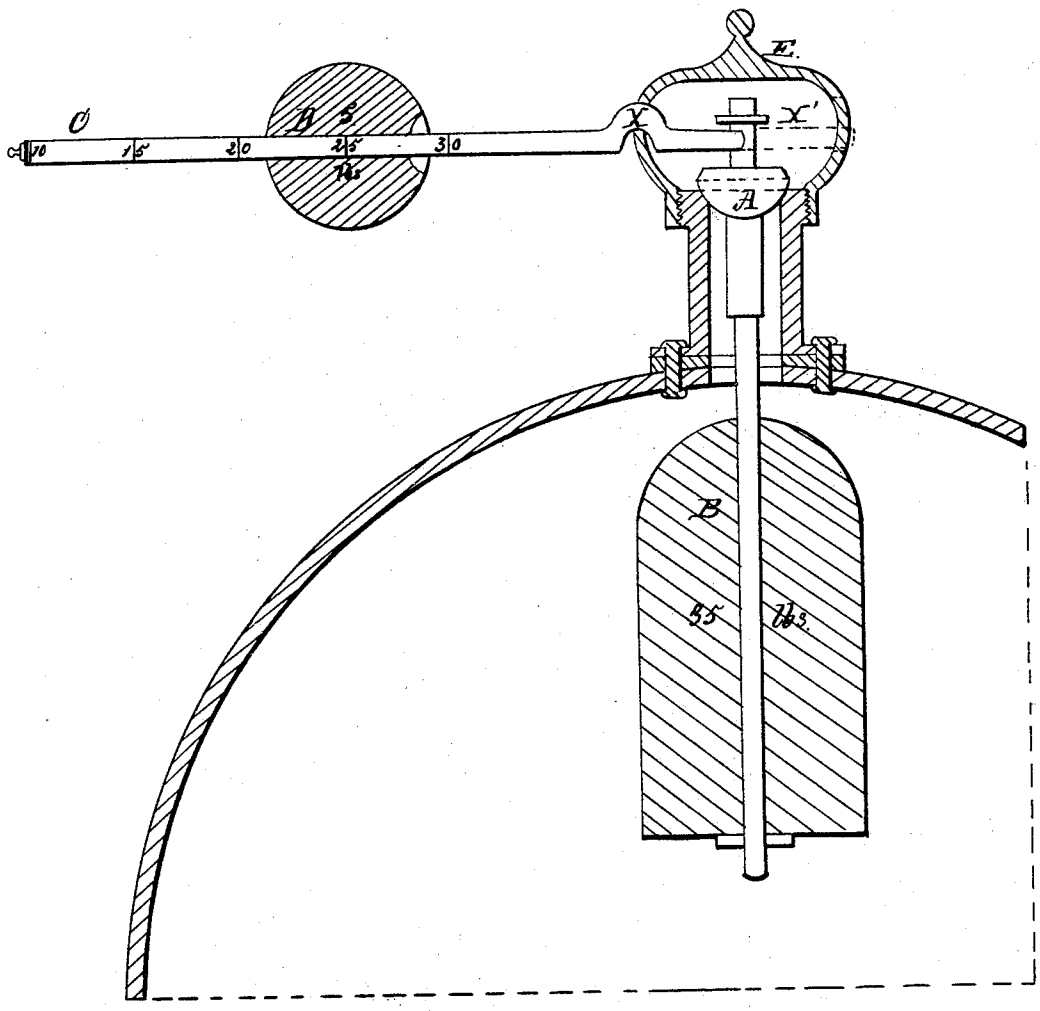
W. M. Storm,

Steam Safety Valve.

No. 28,111. Patented May 1, 1860.



Witnesses:
A. E. Spurrier
Frank A. Farnsworth

Inventor:
Wm. Mould Storm

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

WM. MONT. STORM, OF NEW YORK, N. Y.

SAFETY-VALVE FOR STEAM-BOILERS.

Specification of Letters Patent No. 28,111, dated May 1, 1860.

To all whom it may concern:

Be it known that I, WILLIAM MONT. STORM, of the city and State of New York, have invented certain new and useful Improvements in Safety-Valves for Steam-Boilers, of which the following specification embraces a full and clear description.

The nature of my invention is substantially as follows. I place the weight that holds the safety valve closed inside the boiler, and suspended from its whether directly or through a lever properly arranged, also inside the boiler (and of such metal, that corrosion will not take place to derange its proper action,) so that a given weight may confine when so applied any given desired pressure as a maximum, per square inch, of the steam within the boiler. It would be preferable perhaps, when space, &c., within the boiler will permit, to attach a weight directly dependent from the valve, that taking the area of the latter, and the maximum pressure permitted to be carried into consideration, will be sufficient to hold the valve closed, and no more; but as before remarked the weight may be arranged to act through a leverage, where deemed expedient.

For more special explanation I will now have reference to the drawing accompanying this specification and constituting a part of the same.

The drawing represents a safety valve on my plan in vertical section.

A, is the valve: dependent from its lower stem is the weight B, holding it closed. Suppose the area of the valve, exposed to the pressure of the steam to be one square inch for example and B to weigh thirty five pounds avoirdupois—the maximum pressure of steam per square inch, that can accumulate inside the boiler, would of course be thirty five pounds, before raising the valve, and no more. To "gage" any lesser pressure, as the "working," pressure would in each case be, I place substantially as seen, an exterior lever C, bearing a counter weight as D. This lever whose fulcrum is at X is bifurcated or crotched at its shorter end and spanning the upper stem of the valve bears upward against a button (X′,) thereon, so that the weight or "counterpoise" D assists the steam in opening the valve (A), and the further D is moved out on its lever, and the greater the weight imposed upon the latter, the lower will be the pressure at which the steam may escape or "blow off." It will be observed also by examination of the plan that the valve can lift freely independent of the lever even if the latter, be willfully fastened in its position. By prolonging the short end of C through an aperture in the side of the bonnet E opposite the fulcrum of C as illustrated by the red lines, the latter could not be even propped or fastened up, so as to bear upon the valve and press it down. The bonnet affords additional security, against any tampering with the valve thus arranged, to overload it by the placing of any weight lever, or fastening directly upon it; further the bonnet may be so fixed, that it cannot be removed without the use of instruments &c.

In form I make the valve itself a section of a sphere and its seat to correspond, so that its pendent weight, being left free to oscillate to some little extent (from the various causes constantly tending to make it do so) shall work it slightly in its seat, and thus prevent its ever becoming fast therein, as sometimes occurs, with safety-valves of more usual form, while at the same time its movement thus shall not cause an opening for the escape of steam.

Having now fully described my invention, what I claim therein and desire to secure by Letters Patent is as follows:

1. I claim the valve suspending the weight from and below itself and within the boiler (or a chamber opening to the same) together with an adjustable counterpoise on a lever outside:—the valve also to rise independently of such lever, and to be covered by a bonnet or its equivalent;—the whole being constructed arranged and operating substantially as described.

2. I also claim in combination as above the valve and its seat, at or near the zone of their contact spherical, so that its pendent weight may slightly oscillate it, without causing escape of steam, while thus preventing its becoming fast in its seat.

WM. MONT. STORM.

Witnesses:
R. E. SPURRING,
F. A. FARNSWORTH.