(No Model.)

T. J. RICHARDS.

SELF ACTING DRAIN FOR STEAM OR WATER MAINS AND PIPES.

No. 369,032. Patented Aug. 30, 1887.

Fig. 1.

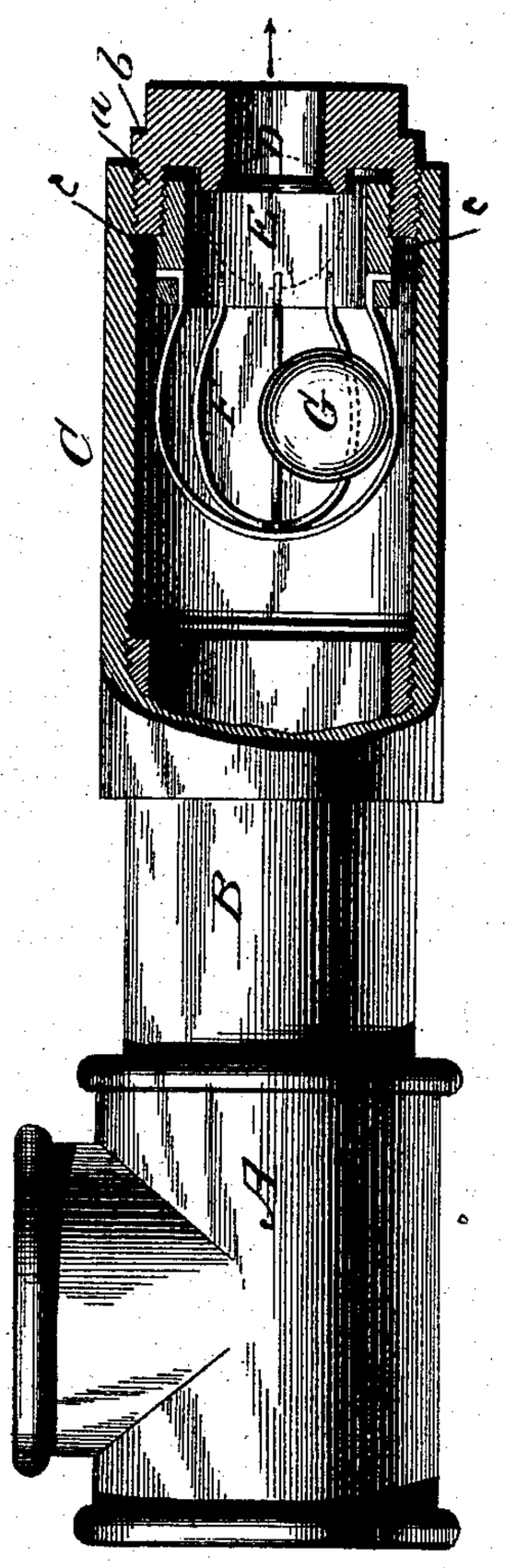
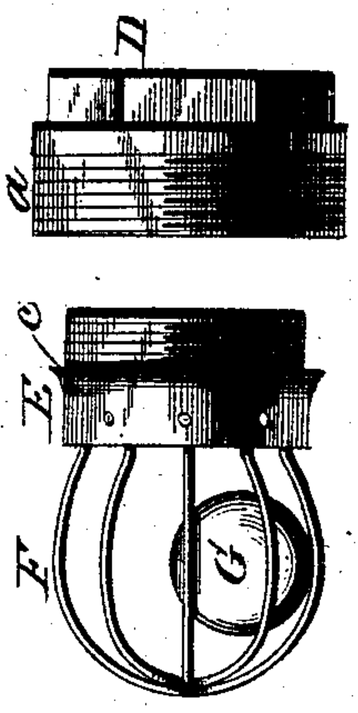


Fig. 2.



Witnesses:
Chas. J. Williamson.
L. L. Miller

Inventor:
Thomas J. Richards.
per Chas. A. Fowler.
Attorney

UNITED STATES PATENT OFFICE.

THOMAS J. RICHARDS, OF PITTSVILLE, PENNSYLVANIA.

SELF-ACTING DRAIN FOR STEAM OR WATER MAINS AND PIPES.

SPECIFICATION forming part of Letters Patent No. 369,032, dated August 30, 1887.

Application filed January 3, 1887. Serial No. 223,185. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. RICHARDS, a citizen of the United States, residing at Pittsville, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Self-Acting Drains for Steam or Water Mains and Pipes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a detail view of a portion of a line of steam-pipe, with the valve end thereof in section; and Fig. 2, a detail view of the valve and its connections.

The present invention is to provide a self-acting drain for steam or water mains; and it consists in the peculiar combinations and the novel construction, arrangement, and adaptation of parts, substantially as shown in the drawings, and hereinafter described and claimed.

In the accompanying drawings, A represents the usual coupling for connecting the several sections of pipe together; and B C represent two sections of pipe connected together and to the coupling by screw-threads in the usual manner.

The outer extremity of the pipe-section C is provided with interior screw-threads for attaching thereto a valve-seat, D, said seat having an inwardly-projecting flange, *a*, formed upon its exterior and interior with suitable screw-threads for connecting it to the pipe-section C, and also providing means for attaching to the flange an exterior screw-threaded sleeve, E, the valve-seat also having an annular stop, *b*, which abuts against the edge of the pipe-section; or, if preferred, this stop may be dispensed with. The sleeve E is provided with an inwardly-projecting cage, F, in which is located a valve, G, and the sleeve is also provided with an annular shoulder, *c*, which abuts against the interior edge of the flange *a*, these stops preventing the valve-seat and sleeve from being screwed too far into their respective couplings. As will be seen, the valve and its connection are arranged horizontally on a line with the main, and before steam is turned on the ball-valve rests in the basket, as shown. When the steam is turned on, the pressure thereof will force the ball against the seat D and shut off the steam to prevent it from escaping. When through using the line or main, the steam is shut off and that remaining therein will condense, thereby removing the pressure from the ball-valve, which will fall back into position, as indicated in the drawings, and allowing the water or condensed steam to escape through the valve-opening, thus automatically draining itself. When used in connection with a condensed-water discharger, the operation is similar, only the valve and its attachments are connected to the main at the far end thereof, near the engine, in order to keep the water from passing into and through the cylinder. In winter, when the pipes are cold and the steam is turned on, there will be a considerable condensation and consequent water ahead of the steam by the time it gets to the engine. This water will discharge itself through the valve-opening without moving the ball-valve, as it travels so much faster, after which the pressure of the steam against the valve will force it to its seat and the steam again shut off.

I do not seek to cover, broadly, an automatically-operating valve in this connection, as I am aware that such has heretofore been used.

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

1. The combination, with the pipe-section, of the valve-seat D, attached thereto and formed with screw-threaded annular flange, and the sleeve E, provided with threads engaging the threads of the seat, the inwardly-projecting cage F, secured to said sleeve, and the ball-valve G within said cage, substantially as and for the purpose specified.

2. The combination, with the pipe-section C, provided with interior threads, and the valve-seat D, formed with inwardly-projecting flange *a*, exteriorly and interiorly threaded and screwed to said pipe-section, and also formed with stop *b*, of the sleeve E, having

exterior threads engaging the interior threads of the seat, and formed with annular shoulder *c*, the wire cage projecting inwardly from said sleeve, and the ball-valve G, loosely arranged within said cage, all substantially as shown and described, and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOMAS J. RICHARDS.

Witnesses:

TOM HAURATTY,

FRANK BATTIN.