

A. L. IDE.

Improvement in Steam-Heaters.

No. 114,440.

Patented May 2, 1871.

Fig. 1.

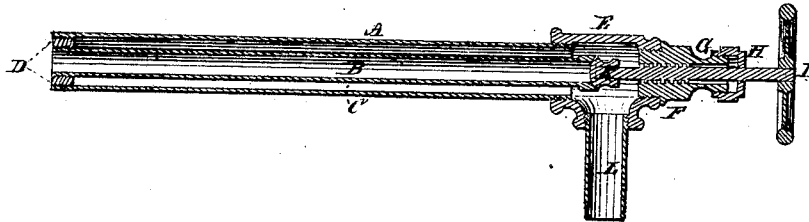


Fig. 2.



Witnesses.

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# United States Patent Office.

ALBERT L. IDE, OF SPRINGFIELD, ILLINOIS.

Letters Patent No. 114,440, dated May 2, 1871.

## IMPROVEMENT IN STEAM-HEATERS.

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

*To all whom it may concern :*

Be it known that I, ALBERT L. IDE, of Springfield, in the county of Sangamon and in the State of Illinois, have invented a certain improved Heating Apparatus; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification; in which—

Figure 1 is a central longitudinal section of my improved device, and

Figure 2 a cross-section of the same.

Letters of like name and kind refer to like parts in each of the figures.

In the use of steam-heating apparatus in which a low pressure is employed much inconvenience arises from an accumulation of water within the pipes whenever the pressure of steam is sufficiently reduced to allow condensation of the same, which water having a low temperature is liable to freeze and burst the pipes.

To obviate these objections and provide an automatic means whereby condensed steam may pass out from the heating-pipes whenever formed is the object of my invention, which consists in surrounding the discharge-pipe with a casing attached at its inner end to or upon the same, and containing within its outer end the spindle of a valve for closing the outer end of said pipe, so that the unequal expansion and contraction of said parts shall open said valve whenever an accumulation of water takes place within the heating-pipes, and close the same as soon as said water has escaped, substantially as is hereinafter shown and described.

In the annexed drawing—

A represents a short section of ordinary steam-pipe, within which is placed a second pipe, B, having a slightly greater length but a considerably lesser diameter than the former, so as to leave between them an annular chamber, C.

Said pipes are secured together at one end by means of a metal ring, D, which fits inside of the outer pipe and outside of the inner pipe, so as to close at that end the opening or chamber C.

Secured to or upon the outer end of the pipe A is one end of an ordinary "three-way" fitting or coupling, E, the opposite end of which is closed by means of a screw-nut, F, stuffing-box G, and gland H, used for the reception and passage of the spindle I of an

ordinary screw-valve, K, which valve corresponds with and fits into a concave seat formed within the end of the inner pipe B, and when screwed firmly against the same closes the end of said pipe.

A waste-pipe, L, secured within and passing vertically downward from the third opening within the coupling completes the device, which, being attached at its inner end to the lower pipe of a steam-coil or other part of the apparatus, is operated as follows:

Steam being admitted to the coil and the same heated to the desired temperature, the valve K is screwed against its seat with sufficient firmness to prevent the escape of steam from the inner pipe B.

If, now, water is formed within any portion of the coil, it will pass downward into the trap, and, filling the pipe B, will cause it to decrease in temperature and contract in length, so as to withdraw its outer end from contact with the valve and permit the escape therefrom of said water and the entrance therinto of steam, after which the action of said steam will again expand said pipe until its outer end is closed by being pressed against said valve.

The exterior pipe A, being separated by an air-space from the pipe B, is but slightly affected by the changes of temperature, and, consequently, retains a uniform length, so as to hold the valve in position regardless of the contraction or expansion of said inner pipe.

The discharge of water being thus rendered automatic the heating apparatus requires much less attention and is far more efficient than would be possible were an ordinary discharge-valve employed.

Having thus fully set forth the nature and merits of my invention,

What I claim as new is—

The hereinbefore-described waste-water trap, consisting of the discharge-pipe B, connected with and surrounded by the casing A, and closed at its outer end by means of a valve, K, supported by or within the outer end of said casing, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of January, 1871.

ALBERT L. IDE.

Witnesses:

GEO. O. MARCY,  
JAS. CARLISLE.