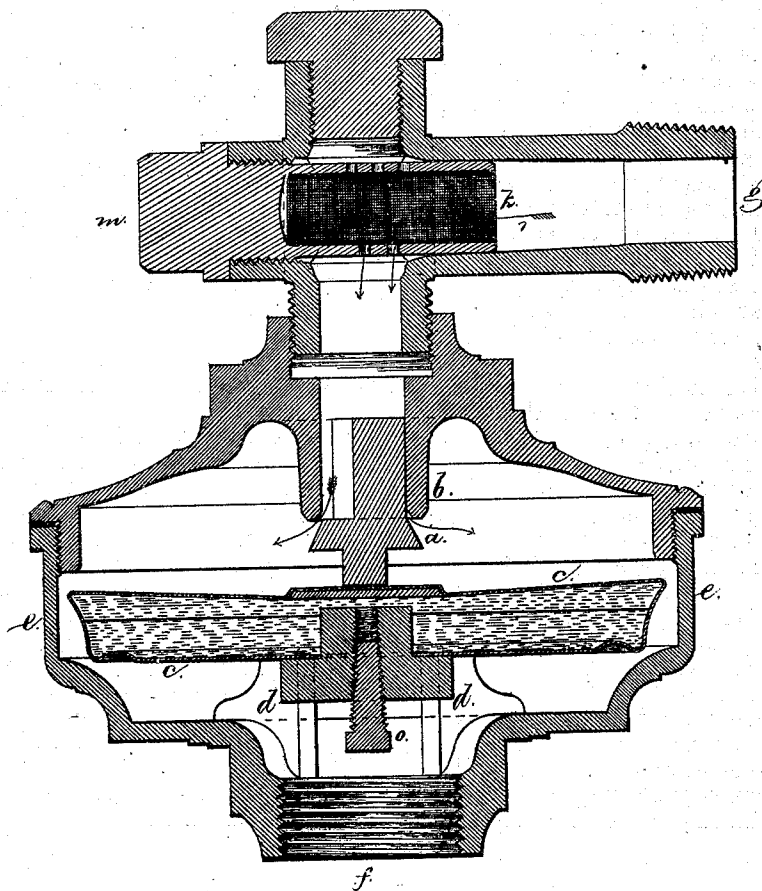


HIRAM S. MAXIM.

Improvement in Steam Traps.

No. 122,272.

Patented Dec. 26, 1871.



Witnesses,

Chas. H. Smith
Geo. F. Pritchney

Hiram S. Maxim
per L. M. Lowell
Atty.

UNITED STATES PATENT OFFICE.

HIRAM S. MAXIM, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STEAM-TRAPS.

Specification forming part of Letters Patent No. 122,272, dated December 26, 1871.

To all whom it may concern:

Be it known that I, HIRAM S. MAXIM, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Steam-Traps; and the following is declared to be a correct description thereof.

The object of this invention is to allow the water of condensation to escape from a steam-heating coil or similar apparatus and to shut the valve when the water has blown out. This I effect by means of an expansion vessel containing alcohol or other easily-evaporated liquid, that is expanded by the contact of the steam-heat and closes the valve and stops the escape until the apparatus cools sufficiently for the expansive vessel to contract and open the valve.

In the drawing a vertical section of the said steam-trap is shown.

a is the check-valve closing against the seat *b*. *c* is the expansive vessel, made of thin sheet metal in a flattened form, supported upon bearers *d* within the case *e*, and this vessel *c* contains alcohol or other easily-vaporized liquid, so that when steam strikes said vessel *c* the expansion of the liquid or the formation of vapor shall produce a pressure to spring the sides of the case and press the valve *a* to its seat *b* and close the steam-passage. When the accumulation of water of condensation allows the parts to cool sufficiently for the vessel *c* to collapse or lessen in thickness by the diminished pressure within it, the valve *a* is allowed to open for the water to run out until the heat again expands the alcohol and its containing-vessel and closes the valve *a*, as before. The screw-plug *o* may be employed to close the orifice through which the alcohol is

introduced, and this should be sealed up by solder or otherwise. The case *e* may be made in two parts, screwed together, as shown, and the necessary sockets *f* and *g* are provided for the couplings or pipes. In order to prevent any foreign substance passing into the apparatus that might obstruct the valve *a*, the strainer or wire-gauze *k* is introduced within the cylindrical perforated plug *m* that is screwed in from outside and acts to retain any foreign substance. This plug can be easily removed for cleaning.

This steam-trap is compact, strong, durable, and reliable. It may be employed to allow water of condensation to escape from the cylinder of a steam-engine, or under other circumstances, whenever available.

I do not claim a vessel in which the expansion of liquid by heat acts on levers and rods to close a valve; nor an air-valve connected with an expansion vessel.

I claim as my invention—

1. The expansible vessel *c*, resting upon the supports *d* within the case *e*, and acting upon the independent valve *a* that has its seat *b* at the end of the pipe, through which water of condensation is delivered into the case *e* to pass away below the vessel *c*, as and for the purposes set forth.

2. The cylindrical removable plug *m* and strainer *k*, in combination with the valve *a* and expansion vessel *c*, as and for the purposes set forth.

In witness whereof I have hereunto set my signature this 22d day of September, A. D. 1871.

HIRAM S. MAXIM.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.

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