(No Model.)

M. ALLEY.

DEVICE FOR SUPPLYING SUPERHEATED STEAM TO FURNACES.

No. 418,104. Patented Dec. 24, 1889.

Fig. 1.

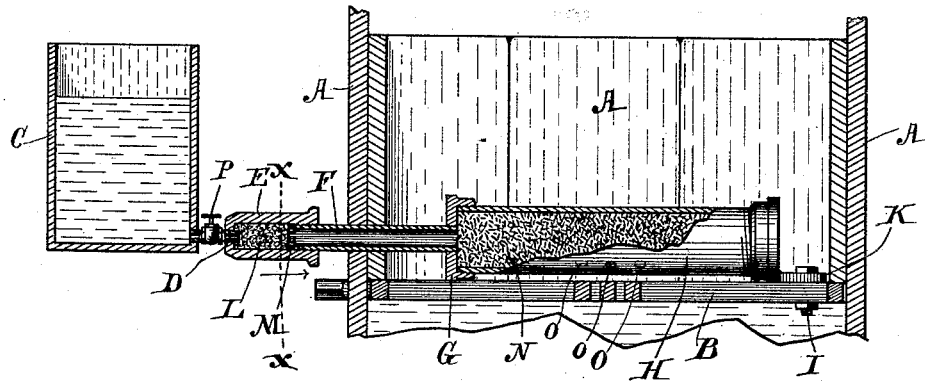


Fig. 2.

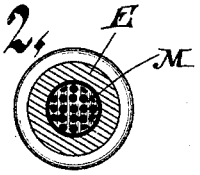
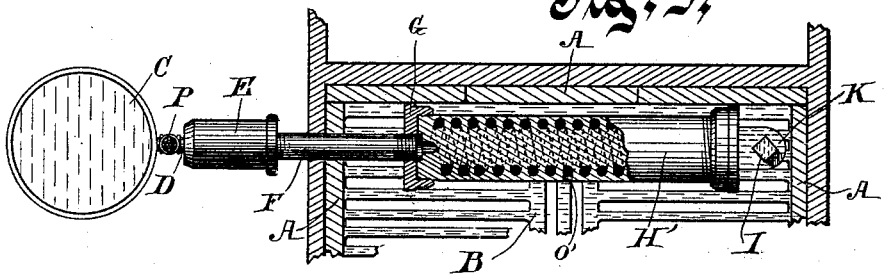


Fig. 3.



Witnesses.

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DEVICE FOR SUPPLYING SUPERHEATED STEAM TO FURNACES.

SPECIFICATION forming part of Letters Patent No. 418,104, dated December 24, 1889.

Application filed April 13, 1889. Serial No. 307,118. (No model.)

To all whom it may concern:

Be it known that I, MOSES ALLEY, of Phillips, in the county of Price and State of Wisconsin, have invented a new and useful Device for Supplying Superheated Steam to the Fire in Stoves or Furnaces; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a device whereby water may be converted into anhydrous steam and discharged into the wood or coal fire in a stove or furnace, producing an oxyhydrogen blaze with intense heat.

In the drawings, Figure 1 is a vertical section of the fire-box of a stove with my device, partly in section, connected therewith. Fig. 2 is a vertical transverse section of the device shown in Fig. 1, on line X X thereof, looking in the direction of the arrow. Fig. 3 is a plan view of the same device shown in Fig. 1, but with a modified form of drum.

The same letters refer to like parts in all the views.

In the drawings, A A are the walls, and B is the grate, of the fire-box of a stove. A tank C, located outside but near to the stove, is adapted to contain a supply of water. A small pipe D leads from near the bottom of the tank into the horizontal cylinder E. Another pipe F, screw-threaded at both ends, turns at one end into the cylinder E, and, passing through the wall of the fire-pot, turns into the cap G of the drum H, which drum H is located in the fire-pot, preferably near the rear part of it, and is made fast thereto conveniently by a bolt I, passing through a lug K, rigid to the drum H, which bolt also passes through the grate B, and is secured thereto by a nut turning thereon. The drum H may be secured to the fire-pot in any other convenient manner. The cylinder E is furnished with a supply of felt or asbestus L, which is retained in the cylinder by means of a perforated head or plate M over the end of the pipe F, and the asbestus may be forced into compact form by turning the pipe F by its screw-thread farther into the cylinder E. The drum H is preferably made hollow and filled with metal scraps N N, as seen in Fig. 1. This drum is provided with one or more orifices O, preferably on its side toward the front of the stove, or that part of the fire-box through which the air enters supplying the draft to the combustion in the fire-pot. This orifice O is also preferably located near the bottom of the drum, so that the steam discharged therefrom will be beneath or near the lower part of the fire.

A modified form of drum H′ is shown in Fig. 3, in which a solid cylinder is provided with a spiral aperture therethrough for the passage of the steam and with an orifice O′ for its discharge therefrom. The large amount of metal contained in the drums H and H′ is desirable to facilitate the superheating of the steam for the purpose intended. A stop-cock P is inserted in the pipe D for shutting off the supply of water when desired.

The operation of this device is as follows: When a fire of coal or wood is burning in the fire-pot, water, being admitted through the pipe D into the cylinder E, percolates through the asbestus therein, and, being there heated and reduced to saturated steam by the heat communicated thereto by radiation from the fire-pot and transmitted through the pipe F, passes through the perforated plate M and through the pipe F into the drum H, wherein it is so heated as to become anhydrous, and is then discharged through the orifice O into the fire existing by the combustion of the wood or coal, and mingling with and adding to that combustion produces an oxyhydrogen blaze yielding an intense heat.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the fire-pot of a stove or furnace, a tank adapted to holding water, a pipe leading therefrom into a cylinder containing a porous material, and a pipe leading therefrom to a drum in the fire-pot, which drum is provided with a discharging-orifice, substantially as described.

2. The combination of a fire-pot of a stove with a tank C, cylinder E, connected with tank C and provided with a porous filling, drum H, located in the fire-pot and connected to the cylinder E by a pipe F and provided with an orifice O, and a stop-cock P, substantially as described.

3. In a device for supplying steam to the

fire in a stove, the combination of a tank C and a drum H, located in the stove, with a cylinder E, connected to the tank C, and a pipe F, turning by a screw-thread in the cap of the drum H and in the end of the cylinder E against a perforated plate M, movable therein, substantially as described.

4. In a device for supplying steam to the fire in a stove, a drum H, located in the fire-pot, and metal scraps therein, the drum being provided with a discharge-orifice O therefrom, in combination with a cylinder E, provided with a porous filling, and a pipe F, connecting the cylinder E with the drum H and turning by a screw-thread into both cylinder and drum, substantially as described.

5. In a device for supplying steam to a fire, a mass of asbestus or other fibrous material in a chamber, a pipe leading from a water-reservoir into said chamber, whereby a supply of water is furnished to said fibrous material, and a pipe leading from said chamber to the fire-grate, whereby steam is conducted from the fibrous material to the fire, substantially as described.

6. In a device for supplying steam to a fire, a quantity of asbestus L, packed in a cylinder E, in combination with a water-supply pipe D, leading into the cylinder E, and a steam-pipe F, leading from the cylinder E to a steam-drum located at the fire-grate, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MOSES ALLEY.

Witnesses:
J. F. HAND,
WILLIS HAND.