E. DELÉAMONT.

VAPORIZING DEVICE FOR HEATING APPARATUS.

APPLICATION FILED SEPT. 11, 1920.

1,428,150. Patented Sept. 5, 1922.

Fig. 1.

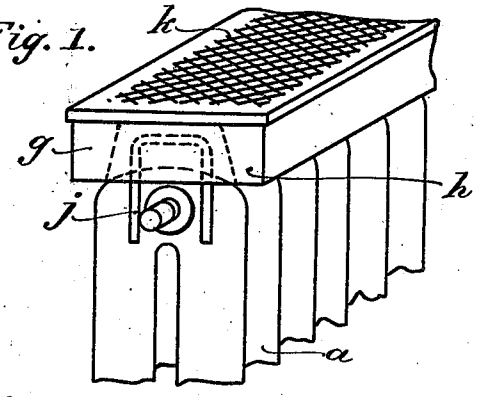


Fig. 2.

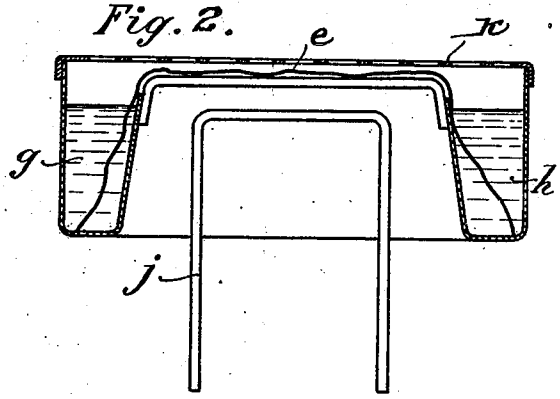


Fig. 4.

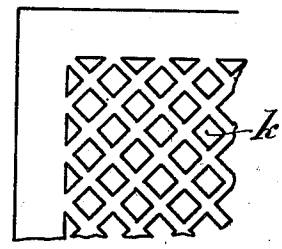
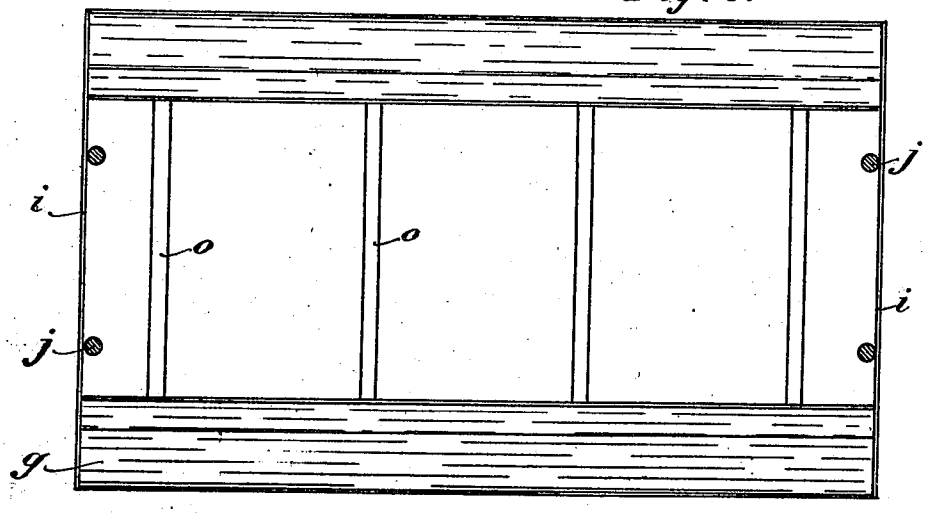


Fig. 3.



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UNITED STATES PATENT OFFICE.

ERNEST DELÈAMONT, OF MARSEILLE, FRANCE.

VAPORIZING DEVICE FOR HEATING APPARATUS.

Application filed September 11, 1920. Serial No. 409,620.

To all whom it may concern:

Be it known that I, ERNEST DELÈAMONT, jeweler, citizen of Switzerland residing at Marseille, in the Republic of France, have invented certain new and useful Improvements in Vaporizing Devices for Heating Apparatus, of which the following is a specification.

The present invention relates to humidifiers; and it aims, briefly, to provide an improved humidifier for use in connection with any desired source of heat, but particularly adapted for hot water or steam radiators.

The principal object of the invention is to insure a uniform evaporation of the liquid at high as well as at low temperatures of the heater, this with a view to render it suitable for use in hospitals, sick rooms and the like; that is to say, in cases where, since medicaments may have to be added to the liquid to be vaporized, it is of the utmost importance that the evaporation take place uniformly regardless of the temperature of the heating source, as an excessively rapid evaporation of a liquid saturated with medicaments might possibly prove a real danger to the health of the occupants of the respective room.

According to the present invention, it is proposed to construct the humidifier in such a way as to prevent the heated air from circulating through the absorbent materal impregnated with the liquid to be vaporized but, on the contrary, to retain and keep it in intimate contact with said material so that the latter, even at low temperatures is enabled to absorb the greatest possible amount of heat. This material, which is non-perforated and in the form of a sheet or sheets is stretched like a roof across the space directly above the heating chamber so that a real heating source is thereby produced by means of which the evaporation of the liquid with which the absorbent material is saturated is effected as soon as the temperature of the heating chamber exceeds that of the surrounding air by 10° F. The absorbing power of the material used does prevent the latter from becoming sufficiently saturated if the temperature is rather high. As a consequence of the rapid evaporation caused by the sudden rise of temperature within the heating chamber, a variable drying effect is produced upon the middle portion of the absorbent material, whereby the efficiency of the humidifier is automatically regulated; the circulation of air humidified by the absorbent material being produced by the flow of heated air rising from the four sides of the humidifier, causing an agitation of the air.

In the accompanying drawings,

Figure 1 is a perspective view of a radiator fitted with a humidifier constructed in accordance with the invention;

Fig. 2 is an enlarged cross-section of Fig. 1;

Fig. 3 is a plan view, of the humidifier shown in Fig. 1, with the cover omitted;

Fig. 4 is a fragmental plan view of the cover of said humidifier.

The improved device, as shown, comprises two trough-shaped receptacles *g*, *h* of trapezodial section, which are kept apart by means of cross stays *o* and the end plates *i* of sheet metal; straps *j* being attached to said end plates and the whole covered by a plate *k* of perforated sheet iron.

The device is mounted astride the radiator, with the two troughs *g* and *h* resting on top thereof and the straps *j* engaging the end radiator sections to hold the device against endwise movement.

When the troughs are filled, the sheets *e* of filter paper are spread over the stays *o* with their opposite side edges immersed in the liquid in the troughs, and with their middle portions stretched tautly; the latter portions forming the roof of a heating chamber, of which the inner side walls of the troughs form the sides, while the end plates *i* form the ends. The cover is then put on, and the vertically rising vapors are caught within the space enclosed by the said sheets *e* and the inner walls of the troughs. Here rapid vaporization will take place; and even after the radiator has cooled down, for instance at night when the temperature has dropped to 25° C., vaporizing still takes place due to this enclosed space. It is of advantage to use two superposed sheets of absorbent material, for experiments have demonstrated that the amount of liquid evaporated is greatly increased in such case, due to the fact that the two superposed sheets cause considerable additional capillary action to be exerted and maintain between them a layer of liquid of about .1 millimeter in depth, at least when the sheets are arranged horizontally.

The two side parts of the cover *k* which are above the troughs *g*, *h* may be left un-

perforated for a width corresponding to that of the troughs, in order to prevent impurities from falling into the liquid. The middle part of the perforated cover may be raise slightly above the sheets *e* and also at the sides in order to facilitate the heated air coming into contact with the sheets from the outside.

By filling the receptacles or troughs with an antiseptic liquid instead of with water, the room to be heated may be filled with antiseptic vapors, which is particularly useful in hospitals and sickrooms. Even by using ordinary clean water, the vapors produced will adhere to the particles of dust suspended in the air and cause the same to sink down owing to their increased weight.

The humidifying of the air in dwelling rooms etc. with water-vapors is also of considerable importance in that it prevents the excessive drying out of varnishes, woodwork, plaster-casts, ceilings, inlaid floors, furniture, and tapestry which, due to the dry and warm air, often become cracked and even seriously damaged.

I claim as my invention:

1. A humidifier, comprising a pair of liquid-containing troughs arranged in spaced relation and connected together at their opposite ends, said troughs adapted to straddle a source of heat so as to be disposed at opposite sides thereof, the inner side walls of the troughs and the connections between said troughs conjointly defining a heating chamber which is closed at its ends but open at top and bottom; and imperforate liquid-absorbing material extending across the top of said chamber so as to form a roof for confining and retaining the heat in the chamber and having the opposite side portions thereof immersed in the liquid in said troughs.

2. A humidifier, comprising a pair of liquid-containing troughs connected together in spaced, relation and adapted to straddle a source of heat so as to be disposed at opposite sides thereof, the inner side walls of the troughs and the connections between said troughs conjointly defining a heating chamber which is open at top and bottom; imperforate liquid-absorbing material extending across the top of said chamber to form a roof for confining and retaining the heat in the chamber and having the opposite side portions thereof immersed in the liquid in said troughs; and a cover embodying imperforate side portions immediately overlying said troughs and a perforated central portion immediately overlying said roof.

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

ERNEST DELÈAMONT.

Witnesses:
W. HUER,
EDW. EMMANUEL.