

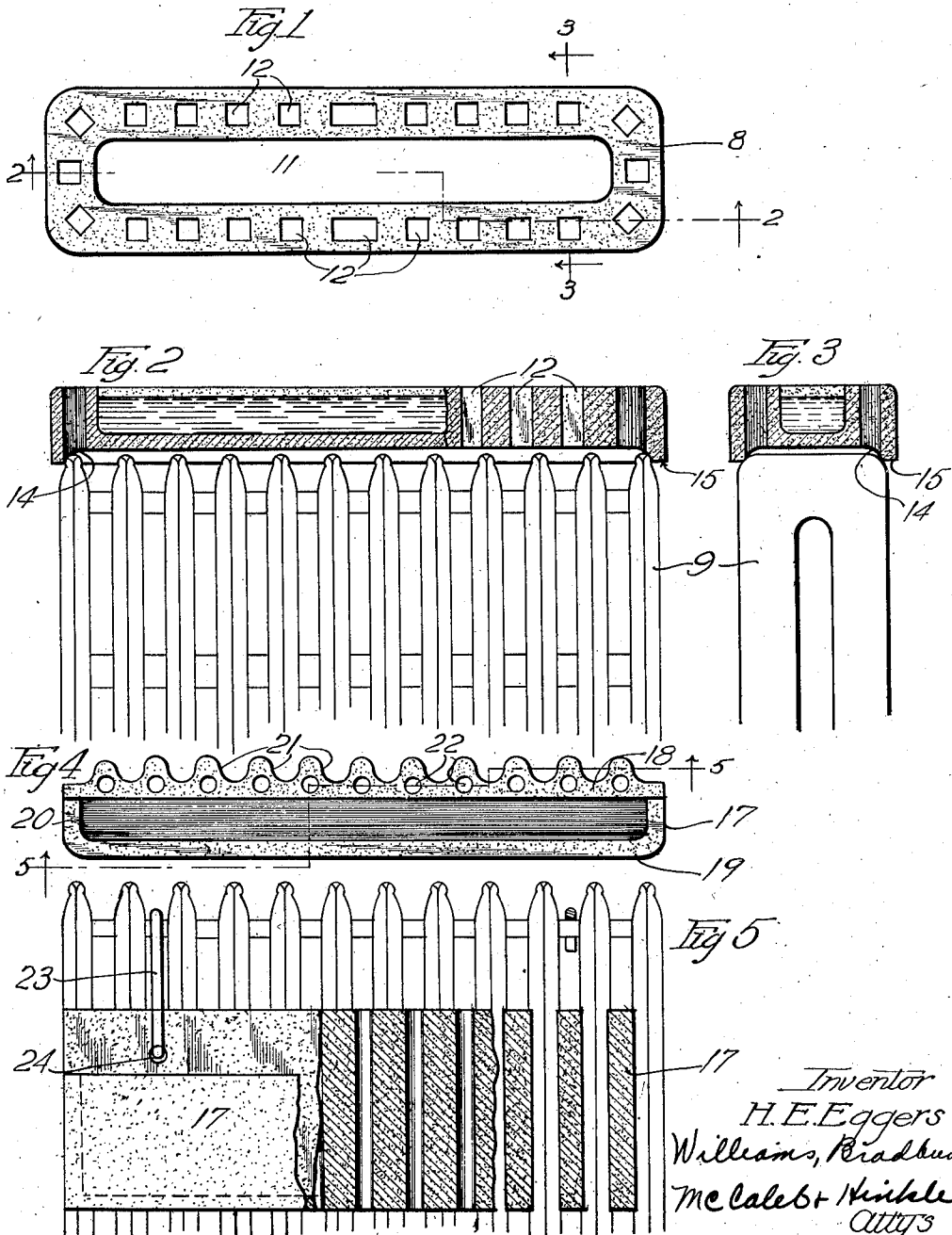
Jan. 12, 1926.

1,569,177

H. E. EGGERS

HUMIDIFIER

Filed Nov. 20, 1924



Inventor
H. E. Eggers
Williams, Bradbury
McCaleb & Hinkle
Attys

UNITED STATES PATENT OFFICE.

HAROLD E. EGGERS, OF OMAHA, NEBRASKA.

HUMIDIFIER.

Application filed November 20, 1924. Serial No. 750,999.

To all whom it may concern:

Be it known that I, HAROLD E. EGGERS, a citizen of the United States, and resident of Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Humidifiers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to humidifiers, adaptable to household, industrial, and other uses.

The fundamental object of the invention is to provide a humidifier in which the effective surface for water evaporation is increased much beyond that obtainable in prior art devices of comparable size. This enables a high rate of water evaporation to be obtained in a humidifier of comparatively small size, which is an important factor in household use where the humidifier is placed upon or behind the radiator, or is otherwise situated where small size and neat appearance may be very desirable. This increased evaporative efficiency also enables a given room space or area to be humidified with a smaller number of humidifiers.

A further object of the invention is to provide a humidifier characterized by the utmost simplicity of structure in which all wick surfaces and any other elements requiring renewal have been eliminated; and in which all conduits, passages or other parts subject to clogging have been eliminated.

I achieve the foregoing objects by providing a humidifier in which all of the exposed surfaces of the humidifier serve as one large evaporating area. This is attained by making the humidifier of a porous or capillary material which absorbs and conducts the water to all of the exposed surfaces of the device in securing evaporation over a very large area.

Referring to the accompanying drawing illustrating my device:

Figure 1 is a plan view of one embodiment adapted for placing upon the top of the radiator;

Figure 2 is a longitudinal sectional view through this form, being taken on the two planes indicated by the line 2—2 of Fig. 1;

Figure 3 is a transverse sectional view of this embodiment taken on the plane indicated by the line 3—3 of Fig. 1;

Figure 4 is a plan view of another embodiment adapted for suspending behind or on the side of the radiator, and

Figure 5 is a side view, partly in section, of the above form.

In the embodiment shown in Figs. 1, 2 and 3, the humidifier is constructed in the form of a long, narrow trough or pan 8 of any desired proportions for placing upon the standard radiator 9. The central part of this trough or pan is formed with an open water receptacle 11 extending substantially the length of the device, the side and end walls being preferably formed comparatively thick to accommodate a series of vertical holes 12. These holes form vertical flue areas which increase the evaporating surface of the unit. Any desired arrangement of projections or scalloped sides may also be employed, with or without these holes 12, for increasing the effective surface of the humidifier.

The under side of the pan may be formed flat for resting flat on the tops of the coils of the radiator; or, as shown in Fig. 3, this under side may be formed with a recessed area 14, leaving side and end flanges 15 for resting on the tops of the coils. The purpose of such recessed area 14 is to trap a considerable portion of the heated air rising from the central portion of the radiator and compel it to pass up through the numerous evaporating holes 12. The air rising from the outer sides of the radiator will pass in evaporating proximity to the outer side walls of the humidifier.

The pan is constructed of a composition including a fossiliferous or highly absorbent earth such as kieselguhr, or some other like material, having the necessary porosity or capillarity for the absorption and conduction of water to all of the exposed surfaces of the device. If the porous or capillary substance employed has sufficient rigidity, and strength against fracture, it alone is used in the molding of the pan. I preferably employ kieselguhr, and where such substance is used, it is preferable to add a strengthening binder in the form of cement or some similar substance. As illustrative of the proportions which will give ample absorptive properties and the requisite strength, equal amounts of Portland cement and kieselguhr may be used in the composition from which the pan is molded. As another binding material,

brick clay or ceramic clay may be used, in which case baking of the mixture is required after the molding of it. In this case, the optimum proportion of kieselguhr or absorbent earth to clay will vary with the nature of the clay used.

It will be apparent that the above properties of the material used in molding the pan will result in the water placed in the reservoir 11 seeping through the porous or capillary structure of the device to every outer surface of the humidifier. This seepage or conduction of water to these surfaces will continue as long as water remains in the reservoir and substantially as fast as it is evaporated from these surfaces.

In Figs. 4 and 5, the humidifier is constructed in the form of a long, narrow pan 17 which is adapted for suspension behind the radiator. This form comprises a rear wall 18 and front and end walls 19 and 20 for forming a pan of any desired depth. The rear wall 18, which is adapted to contact with the radiator coils, may be formed with a scalloped or grooved outer surface, as indicated at 21, for increasing the evaporative surface in immediate proximity to the radiator. The projecting scallops or ridges 21 may be spaced for engagement between the coils of the radiator. This rear wall 18 may have a plurality of vertical openings 22 extending therethrough for circulating heated air up through evaporating flues. Hanger hooks 23 engage at their lower ends in holes 24 in the rear wall of the humidifier and are adapted for hooking over the upper tie connection joining the radiator coils.

It will be obvious that each of the foregoing forms of my invention may be provided with any desired ornamentation, which ornamentation can be readily molded as a part of the structure and thereby serve the useful purpose of increasing the evaporative surface of the humidifier.

It will be apparent that, within the spirit and scope of the present teaching, my in-

vention may be embodied in humidifiers for direct association with heating furnaces, and in numerous other situations where air, either heated or cold, is to be humidified.

Having thus described my invention, what I claim, is:

1. A humidifier comprising a vessel composed entirely of porous material, the sides of said vessel having vents formed therein.

2. An evaporator comprising a fluid containing vessel, the walls thereof being formed of porous material and having air passages of relatively large cross section in said walls.

3. A humidifier adapted to be associated with a standard radiator comprising a porous vessel having openings in the sides thereof, said openings being disposed at the places of greatest normal air circulation.

4. A humidifier comprising a porous vessel adapted to rest on the top of a standard radiator, the sides of said vessel being provided with air passages, and the base thereof being hollowed so as to provide a relatively small area adapted to contact with the radiator.

5. A humidifier comprising a porous vessel adapted to rest on the top of a standard radiator, the base of said vessel being provided with a peripheral flange adapted to contact with said radiator.

6. A humidifier comprising a pan one wall of which is composed of porous or capillary material, said wall having cylindrical air passageways therein.

7. A humidifier comprising a pan one wall of which is composed of porous or capillary material, said wall having air passageways formed therein.

8. A humidifier comprising a pan having its several lateral walls composed of porous or capillary material having air passages formed therein.

In witness whereof, I hereunto subscribe my name this 15th day of November, 1924.

HAROLD E. EGGERS.