(No Model.)

C. H. HUMBERT.

VAPORIZER FOR FIRE PLACES.

No. 344,315 Patented June 22, 1886.

Fig. 1.

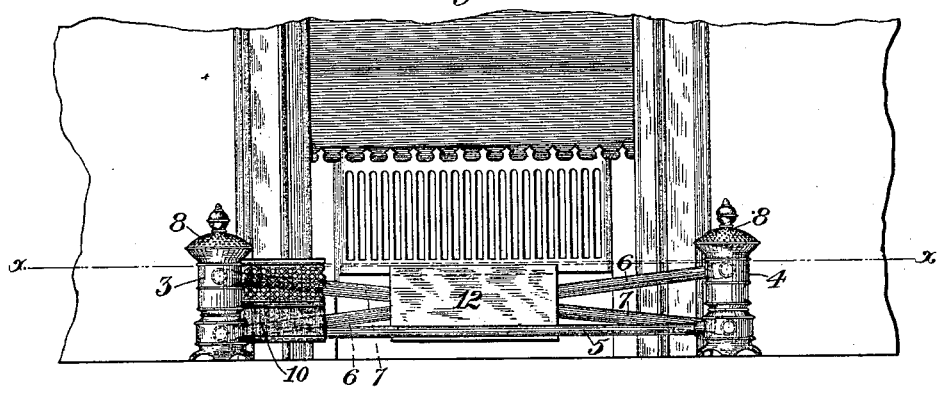


Fig. 2.

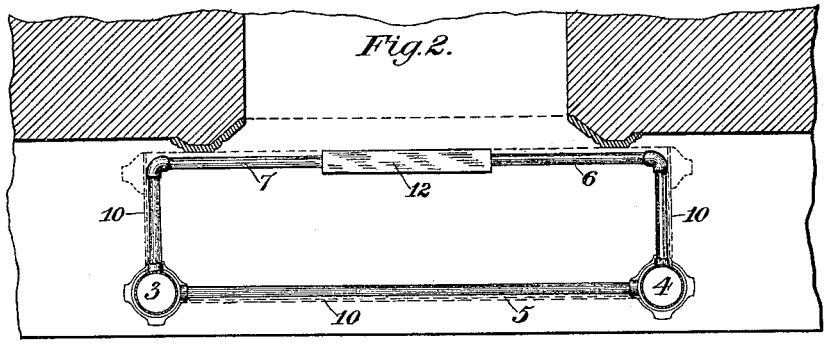
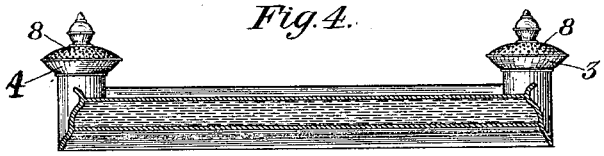


Fig. 3.

Fig. 4.



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CHARLES H. HUMBERT, OF PITTSBURG, PENNSYLVANIA.

VAPORIZER FOR FIRE-PLACES.

SPECIFICATION forming part of Letters Patent No. 344,315, dated June 22, 1886.

Application filed January 12, 1886. Serial No. 188,311. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HUMBERT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Vaporizers for Fire-Places; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a front elevation of my improved vaporizer set before a fire-place of usual construction. Fig. 2 is a horizontal section on the line *x x* of Fig. 1. Fig. 3 is a front view of a modification. Fig. 4 is a vertical longitudinal section of a further modification.

Like symbols of reference indicate like parts in each.

In the employment of natural gas for heating purposes in dwelling-houses and other buildings one of the evils which have become apparent is the poor facilities for ventilation which its use permits. When rooms are heated by open fire-places, using coal as fuel, the draft of the chimney has been a most efficient means for ventilation, and the houses fitted with such fire-places have been notable for their freedom from malarial diseases and other illnesses caused by close rooms and poor ventilation.

In the use of natural gas for fire-places economy of fuel demands that the flues should be reduced in diameter, so that the draft may not be great enough to carry much of the heat up the chimney, instead of allowing it to radiate into the room, and it has been usual to effect this by placing a damper in the throat of the flue, whereby its draft may be properly lessened. The consequence of this is, that the ventilation of the apartment is impeded, and as there is but little incoming draft of moist air the atmosphere of the room becomes dry and unhealthy. The dryness is so apparent that it cracks and warps the furniture, and often occasions serious damage by the destruction of valuable pianos and other costly articles. The air may be properly moistened and the other evils of bad ventilation partially overcome by vaporizing the water in the room; but the usual appliances for that purpose have been particularly unsightly and inconvenient.

It is the object of my invention to provide a vaporizer which will not only be serviceable for the purpose of moistening the air of rooms, but will also be an ornamental, convenient, and otherwise useful article of household furniture.

Referring now to Figs. 1 and 2 of the drawings, 2 represents an open fire-place and grate of the form usual in the combustion of natural gas. One of the forms of my improved vaporizer, which is shown standing before the fire-place, consists of two upright cylinders or urns, 3 and 4, standing at the corners of the grate and connected by pipes 5, 6, and 7, of which 5 connects the bases of the cylinders, and 6 and 7 are arranged to cross each other diagonally and to connect the upper parts and the bases of the cylinders, respectively. The posts 3 and 4 are made of suitably-ornamental configuration, and are fitted at their tops with removable perforated caps or balls 8. The cylinders 3 and 4 are filled with water, which will immediately flow into and fill the crossed pipes 6 and 7 and the horizontal pipe 5. The latter are situate directly in front of the fire-place, and by radiation from the fire become heated and raise the temperature of their contained water, and this will induce a continuous circulation of the water through the pipes and through the cylinders until the contents of all become heated to a degree at which they will vaporize. The vapor will accumulate in the upper parts of the cylinders, and will thence escape through the perforated caps 8 into the room. The caps or discharge-outlets for the vapor should be set sufficiently to the side or away from the fire-place that the vapor may not be uselessly drawn by the draft into the chimney-flue. The cylinders 3 and 4 form the end pieces of a fender constituted by a metallic screen or frame, 10, of ornamental configuration, which serves to conceal the water-circulating pipes from view. The latter, especially the pipes 6 and 7, may conveniently be reflexed, so as to lie in contact with the grate-bars of the fire-place, as shown in Fig. 2, or they may be arranged to pass through or under the grate, so as to be directly subjected to the heat, in which case the vaporizing of

the water will be effected more rapidly. Instead of crossing the pipes 6 and 7 at the rear of the fender, they may conveniently be connected by a hollow vertical box or shield, 12, into which they open. This, having a large heating-surface exposed to the fire, expedites the vaporizing of the water.

Thus constructed, it will be apparent that my improvement may be readily applied to almost any of the common varieties of fenders simply by the attachment thereto of a water cylinder or vessel, and the arrangement of a system of piping leading therefrom and exposed to the heat of the fire. I do not, therefore, desire to limit myself to the precise forms of my improvement shown in the drawings, but intend to claim a water-vaporizer attached to or made capable of use as a fender.

Instead of employing two of the water-cylinders, there may be but one, with a proper system of exposed water-passages leading thence in such a way as to secure circulation of water therethrough out of and returning into the cylinder.

A modification of my improvement constructed in such a way that the vaporizer itself is capable of use as a fender is shown in Fig. 3. Here the two cylinders 3 and 4 are connected by straight pipes 5, 6, and 7. It will be understood that in this modification the connecting-pipes lead directly from one cylinder into the other, instead of being reflexed, as in Fig. 1, forming a neat and ornamental fender, and that for this reason there is no need for the auxiliary covering-screen 10. This form may be further modified by crossing the connecting-pipes 5 and 6, or by the employment of only a single water-cylinder, as indicated above. If the vaporizer be in any of these last-named forms, with brass cylinders and piping, it may be made highly ornamental and very serviceable as a fender.

Fig. 4 represents a further modification of my improvement, consisting of an ordinary flat fender, whose top is made double and adapted to be filled with water. When this is set in front of the fire-place, the contained water will be heated, and will discharge as vapor through the outlet urn or urns 3 and 4 at the end or ends of the fender. The double top may in this case be substituted by a coil or coils of pipes arranged in connection with the fender and exposed to the heat.

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

1. A vaporizer for fire-places, which consists of a fender provided with a hollow chamber or vessel for containing water, and a vapor-outlet leading therefrom and discharging into the air, substantially as and for the purposes described.

2. A vaporizer for fire-places, which consists of a fender having a water-vessel, a hollow water pipe or passage projecting therefrom, and a vapor-discharge outlet, substantially as and for the purposes described.

3. The combination of water-vessels 3 and 4, water-pipes connecting said vessels, and a vapor-outlet, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 1st day of December, A. D. 1885.

CHARLES H. HUMBERT.

Witnesses:

THOMAS W. BAKEWELL,

W. B. CORWIN.