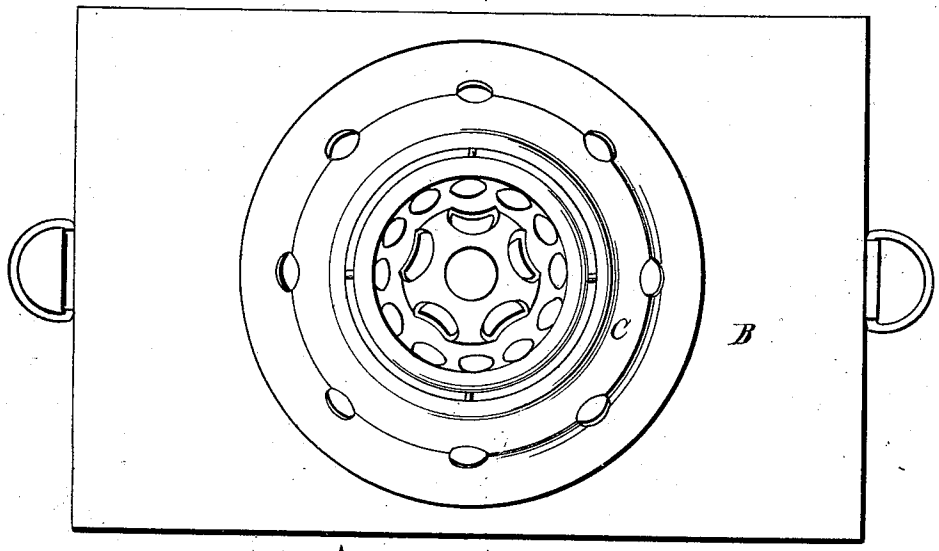
G. F. J. COLBURN.

EVAPORATOR FOR HOT AIR PIPES.

No. 31,152. Patented Jan. 22, 1861.

Fig. 1.



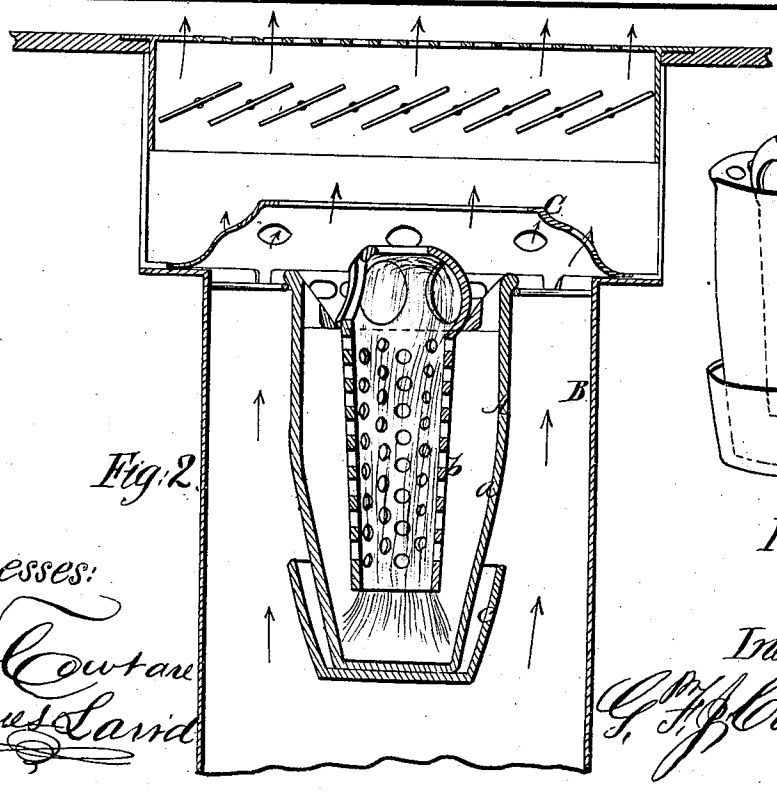


Fig. 2.

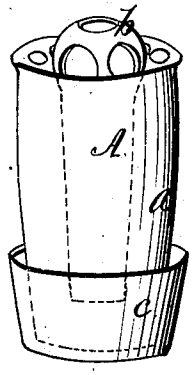


Fig. 3.

Witnesses:

C. W. Courtenay

James Laird

Inventor:

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UNITED STATES PATENT OFFICE.

G. F. J. COLBURN, OF NEWARK, NEW JERSEY.

EVAPORATOR FOR HOT-AIR PIPES.

Specification forming part of Letters Patent No. 31,152, dated January 22, 1861; Reissued April 2, 1861, No. 1,170.

To all whom it may concern:

Be it known that I, G. F. J. COLBURN, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Evaporator for Hot-Air Pipes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, represents a plan or top view of my invention. Fig. 2, is a vertical central section of the same. Fig. 3, is a perspective view of the evaporator detached.

Similar letters of reference in the three figures indicate corresponding parts.

The air which emanates from hot air pipes, has an injurious influence on the health because it is capable of absorbing some moisture, which it takes from those bodies with which it is brought in contact. Furthermore, when the register is closed, the woodwork in the neighborhood of the hot air pipes is liable to become overheated, which is the cause of a great many conflagrations. Besides this difficulty a large quantity of dust and ashes find their way up through the hot air pipes and through the register into the apartment, which is to be heated by the air. To overcome the first of these difficulties it has been proposed to place a vessel containing water between the jambs of the register itself, so that the air is saturated with moisture before it is allowed to pass into the room. This arrangement however has been found insufficient, because the surface of the evaporating vessel is not sufficiently exposed to the current of hot air, to effect the evaporation quick enough to be of any account; and if the register is closed the evaporation stops, and the effect of the heated air on the woodwork surrounding the hot air pipes is not at all counteracted. For these reasons I have placed my evaporating vessel in the mouth of the hot air pipe, where it is completely surrounded by the current of hot air, and where, when the register is closed, the moisture evaporating from said vessel comes in contact with the surrounding woodwork, and prevents conflagrations. Besides this I have added a reflector over the evaporating vessel, which has the double purpose of throwing the heat down upon the evaporating surface thereby facilitating the evaporation, and of throwing the dust and ashes, which rise in the hot air pipe, back into the furnace or on the evaporating vessel itself, from which it can easily be removed, whenever it is found necessary. I have also arranged the evaporating vessel with porous sides and with an inner perforated vessel containing a lamp wick or other piece of fibrous or textile material in such a manner, that by the percolation of the water through the porous sides of the vessel itself, the outside of said vessel is kept moist, and rendered capable of retaining much of the dust which rises in the hot air pipe, and that by the moisture brought on the outside of the vessel and the capillary attraction of the fibrous material, which cause the moisture to rise constantly to the surface, the evaporation is considerably facilitated.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The evaporating vessel A, is placed in the mouth of the hot air pipe B, and near to the register, which is shown in red outline in Fig. 2. The moisture which arises from this vessel, finds its way through the jambs of the register into the apartment, when the register is open, but when the register is closed, it comes in contact with the woodwork surrounding the hot air pipe and the register and prevents those parts becoming overheated.

A reflector C, is placed over the vessel A, partly for the purpose of facilitating the evaporation, and partly for the purpose of preventing the dust which rises with the current of hot air, from finding its way into the apartment. In striking the reflector the dust is thrown back into the hot air pipes.

The vessel A, which I use, is composed of two parts *a*, and *b*. The outer part or shell *a*, is made of some porous material such as earth unglazed, which allows the percolation of the water contained in the vessel, and it sits in a cup *c*, of glazed earth or some other material capable of holding water. The object of this cup is to catch the water, which would otherwise be liable to drip down into the furnace.

The inner part *b*, of the evaporating vessel A, consists of a perforated tube with a globe shaped open head, and it serves to receive a lampwick or other piece of fibrous or textile material capable of raising the

moisture by capillary attraction. The water contained in the vessel A, is thus brought constantly up to the surface where it is exposed to the heat thrown down by the reflector and at the same time by the porous sides of said vessel the evaporation is also considerably facilitated, so that the current of air is furnished with the requisite quantity of moisture to render it unobjectionable to the health. The moist sides of the vessel A, are also capable of retaining a large portion of the dust rising in the hot air pipe, thus serving the double purpose of facilitating the evaporation and of purifying the air. All these qualities of my evaporator combined, render the same of considerable value for the insurance companies because many conflagrations are thereby prevented, and for the inmates of the house because it provides for a healthy and pure air.

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

1. The arrangement of the reflector C, in combination with the evaporating vessel A, and hot air pipe B, as described, for the purpose of facilitating the evaporation, and to prevent the dust rising into the apartment.

2. Constructing the vessel A, of two parts *a*, and *b*, the part *a*, to be made of porous material, and the part *b*, to contain a lamp-wick or its equivalent substantially as and for the purpose set forth.

G. F. J. COLBURN.

Witnesses:
C. W. COWTAN,
JAMES LAIRD.