

(No Model.)

2 Sheets—Sheet 1.

G. RUSSELL.

EVAPORATOR AND AIR MOISTENER.

No. 341,817.

Patented May 11, 1886.

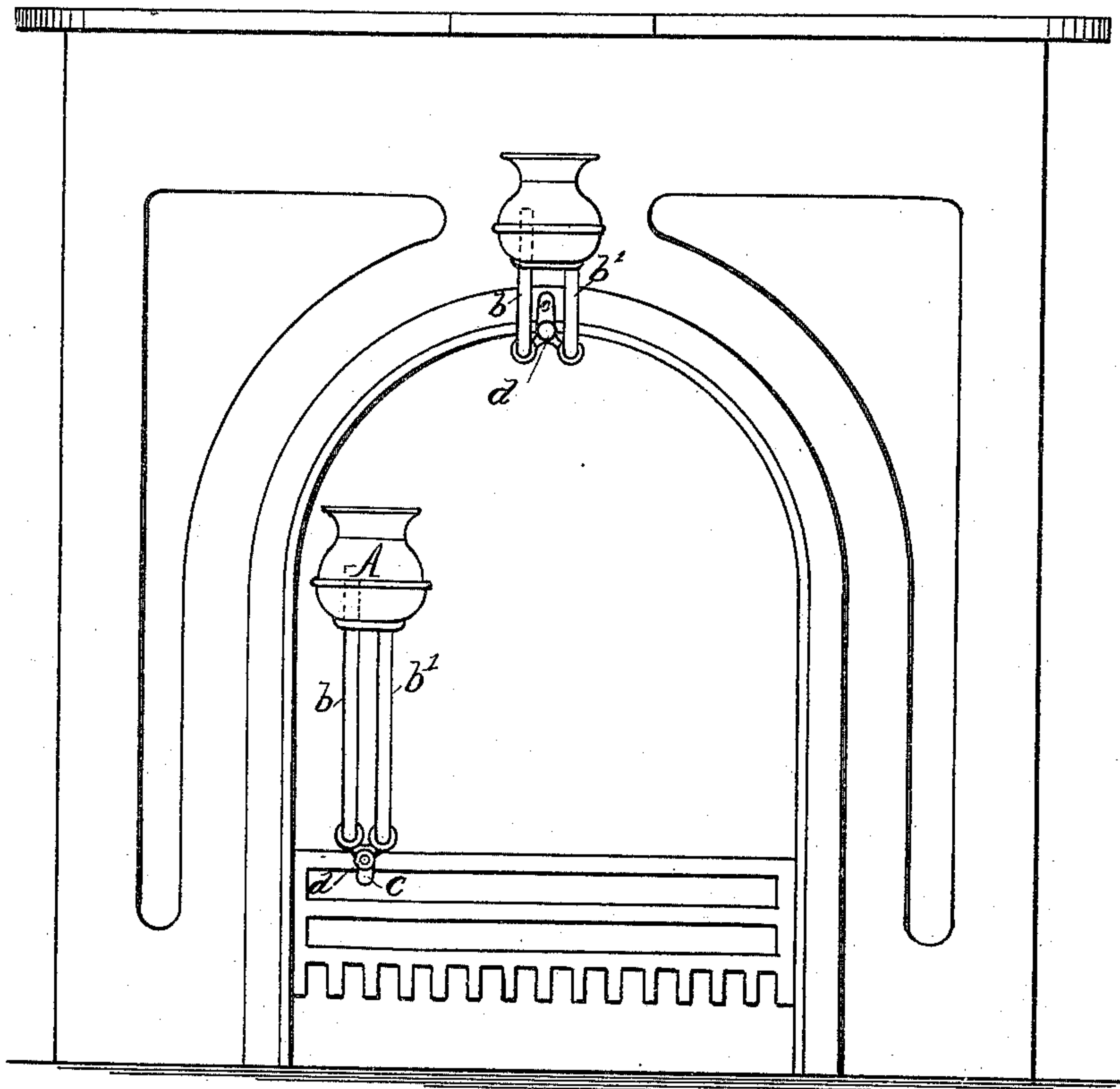


Fig. 1.

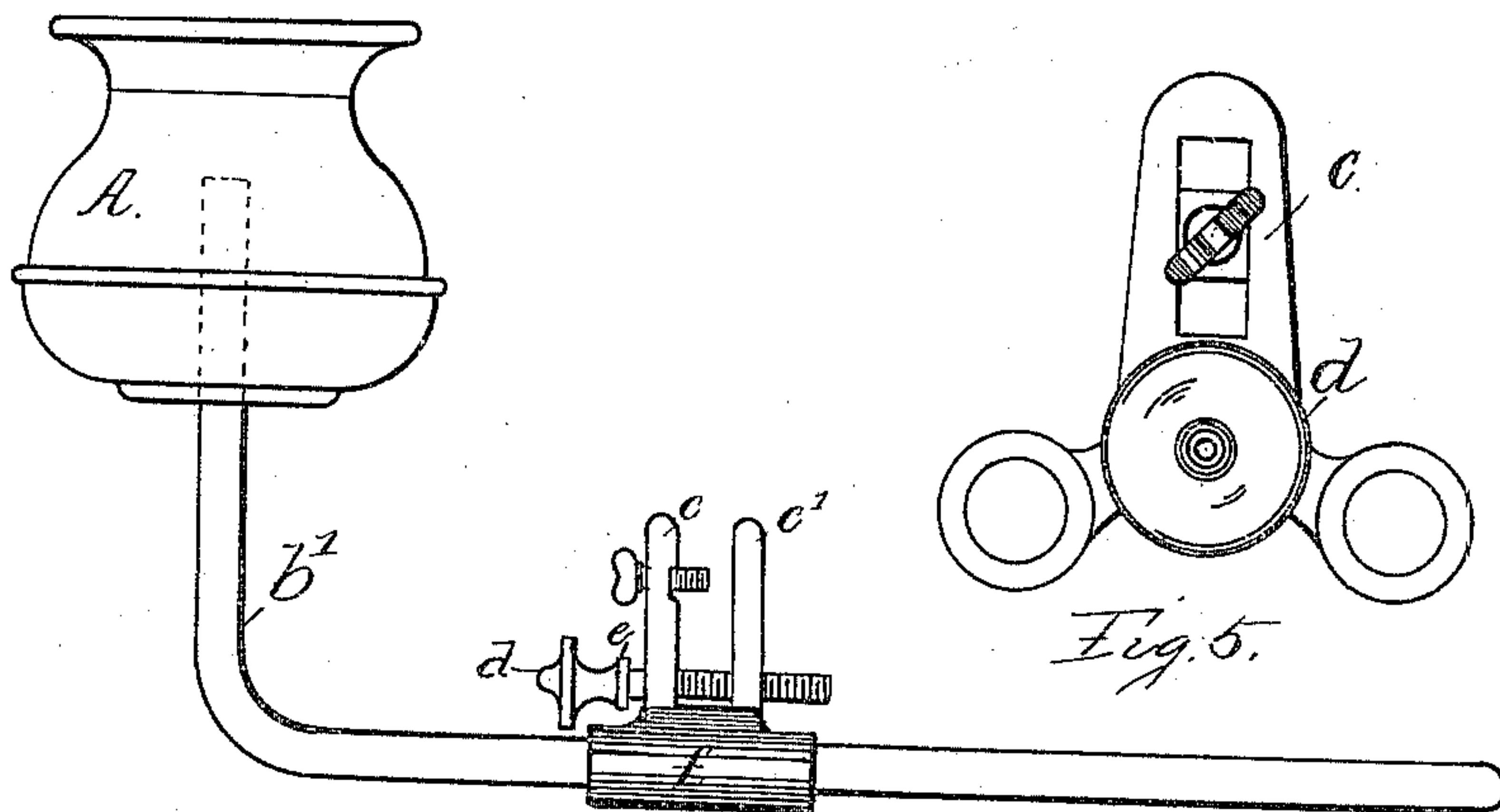


Fig. 5.

WITNESSES:

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Fig. 2.

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ATTORNEYS

(No Model.)

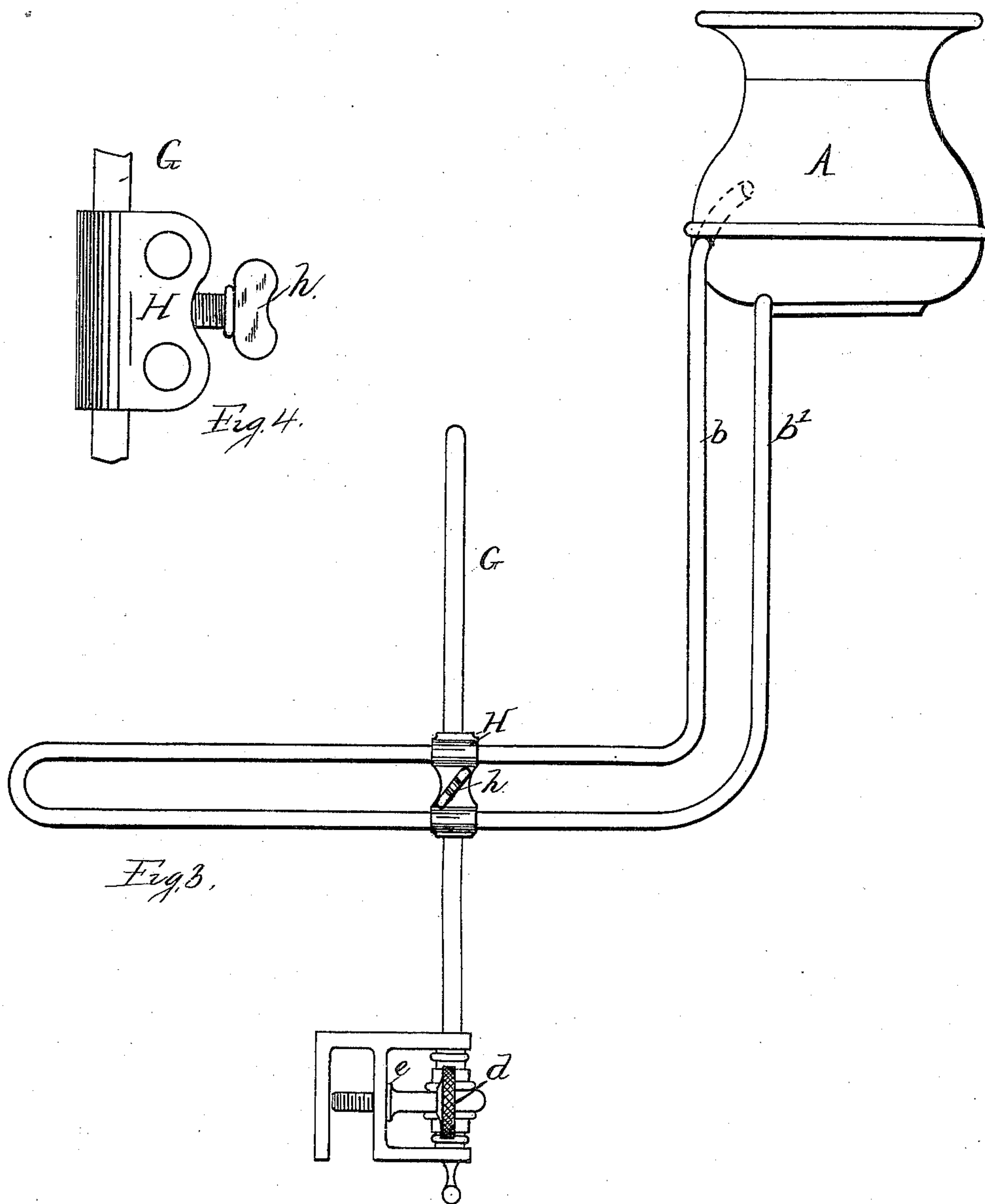
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A. Rawlinson

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UNITED STATES PATENT OFFICE.

GEORGE RUSSELL, OF McKEESPORT, PENNSYLVANIA.

EVAPORATOR AND AIR-MOISTENER.

SPECIFICATION forming part of Letters Patent No. 341,817, dated May 11, 1886.

Application filed March 9, 1886. Serial No. 194,595. (No model.)

To all whom it may concern:

Be it known that I, GEORGE RUSSELL, a citizen of the United States, residing at McKeesport, in the State of Pennsylvania, have invented certain new and useful Evaporators and Air-Moisteners; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

This invention has relation to air moisteners or purifiers, and has for its object to provide a means whereby the air in rooms which has become dry from heat may be charged with moisture, thus returning to it the natural oxygen which has been withdrawn from it during the process of heating.

This invention is particularly applicable and adapted for use in apartments which are heated by the combustion of natural gas in open fire-places, as it is well known that the air in apartments heated in this manner is exceedingly unhealthy unless it be moistened.

This invention therefore consists in the provision of means whereby the air will be moistened by the diffusence of a sufficient quantity of steam.

This invention further consists in the provision of a receptacle for water to be converted to steam, so constructed and arranged that it will not alone serve as a steam or moisture generator, but it will also prove an ornament to the fire-place and room in which it is used.

This invention further consists in the provision of a steam-generator so constructed and arranged that it will be adapted to be adjusted in its distance to or from the fire-place or source of heat, in order that the amount of water vaporized can be readily regulated.

This invention further consists in the construction, combination, and arrangement of parts more fully described hereinafter, and specifically claimed.

It has been demonstrated that in apartments heated by natural gas the dryness of the atmosphere caused by the combustion of the gas, particularly when burned in open grates, causes persons occupying the apartments a great amount of discomfort, and in many cases produces throat disease. Efforts have been made to overcome this dryness of

the atmosphere by placing water in open vessels about the apartment, and allowing it to evaporate by the heat of the air. While this method will to a certain extent improve the atmosphere it cannot entirely overcome the objections noted, as the water does not evaporate in sufficient quantities to add the desired moisture to the air. Another plan, often practiced, is to place a vessel of water directly upon the fire and allow the steam generated therefrom to moisten the air. This plan is objectionable, for the reason that the greater part of the steam is carried up the chimney, instead of escaping into the apartment.

By my invention I utilize the heat of the fire to produce steam in sufficient quantities to correctly moisten the atmosphere, and by the peculiar construction of the apparatus I cause all of the steam so generated to escape into the room.

Referring to the accompanying drawings, Figure 1 is a view of a fire-place and grate with two of the moisteners in position. Fig. 2 is a side view of the moistener, showing the means by which it is attached to a grate, and also showing the heating-tubes by which the water in the vessel is vaporized. Fig. 3 is a side view of a modified form of my invention, and Fig. 4 a detailed view of the same.

A represents the water-receptacle, which is made of metal, and may be of the form shown in the drawings, or of any other desired shape, having an open top, which should, by preference, be somewhat larger in diameter than the body of the vessel, in order to admit of free egress of the generated steam. A pipe, bent double, so as to form the two heaters *b b'*, has its ends passed through the bottom of this vessel, one of the ends, *b*, extending for a short distance into the vessel, and the other end, *b'*, stopping close to the bottom. These pipes *b b'* extend in a straight line for some distance from the bottom of the vessel A, and then run at right angles, in order that when the vessel is placed in position in front of the grate or fire the bent or doubled ends of the pipes will extend into or over the fire.

The evaporator or air-moistener is attached to or in front of the grate by means of a clamp or vise, as shown in Figs. 2 and 4. This clamp or vise is formed of the two metallic jaws *c c'*,

connected together by means of the screw *d*, passing through the jaw *c*, and working in the female screw in the jaw *c'*, the shoulder *e* on the head of the screw *d* bearing against the jaw *c*, and thus drawing together and holding the two parts of the vise. This vise is attached to the vessel by means of lugs or shoulders *f* *f'*, having orifices through which the pipes *b* *b'* pass. The orifices through which the pipes *b* *b'* are passed are of such a size as to allow the pipes to be drawn backward or forward with ease.

The moistener or evaporator is attached either to the grate or fire-front by grasping the top bar of the grate or the edge of the fire-front in the jaws, and holding it in that position by tightening the screw *d*.

In either of the above-mentioned methods of attaching the evaporator or moistener the pipes *b* *b'* extend over the fire, while the water-receptacle is held in such a position that the escaping steam will be diffused throughout the apartment, and will not be carried up the chimney. When placed in this position, the vessel is partially filled with water, and the pipes, being in open connection therewith, will be at the same time filled. As the water in the pipes becomes heated, it will circulate through the vessel, and cause the entire body of water therein to evaporate. If the evaporation be too great, the pipes *b* *b'* are drawn outward, and thus, a smaller surface of them being exposed to the direct heat of the fire, the evaporation will be less. To increase the evaporation, a greater amount of the pipe is exposed to the direct heat of the fire by sliding the pipes farther through the clamps.

It will be seen that the quantity of evaporation can be very easily regulated.

In the modification shown in Fig. 3 of the drawings the evaporator can be adjusted vertically as well as horizontally. In this modified form, instead of passing the pipes *b* *b'* directly through lugs on the vise, I attach a vertical rod, *G*, to the clamp or vise and pass the pipes through a sliding block on this rod, the sliding block *H* being fitted with a thumb-screw, *h*, whereby it can be held in any desired position upon the rod.

In Fig. 3 I have also illustrated a modified form of clamp or vise, in which both the jaws are rigid and the clamping is accomplished by means of a hand-screw passing through one of the jaws, its end bearing against the grate-bar or other part to which the clamp or vise is applied.

Fig. 5 shows one of the jaws of the vise fitted with a sliding block carrying a thumb-screw,

to facilitate in clamping the evaporator to a fire-front.

Having described my invention, what I claim is—

1. In an evaporator or air-moistener, the combination, with an open-mouthed water-vessel having pipes in connection with the body of said vessel, of means, substantially as described, for attaching said vessel to a grate or fire-front, as set forth.

2. In an evaporator or air-moistener, the combination, with a water-vessel and its connected heating-pipes, of means, substantially as described, for attaching said vessel to a fire-front or grate, whereby the heating-pipes will extend over or into the fire-place, and the water-vessel be retained in position before said grate or fire-front, as set forth.

3. In an evaporator or air-moistener, the combination, with the water-receptacle and its connected heating devices, of a clamp or vise attached to said heating devices by a sliding connection, whereby when said clamp or vise is fastened to a grate or fire-front the heating devices and water-receptacle are adapted to be moved to or from the fire, substantially as described.

4. In an evaporator or air-moistener, the combination, with a water-receptacle and its connected heating-pipe, of a clamp or vise attached to said heating-pipe by a sliding connection, said clamp consisting of a pair of jaws having lugs or shoulders, through which the heating-pipe passes, and openings adapted to receive a screw, whereby the clamp or vise is operated, substantially as described.

5. In an evaporator or air-moistener, the combination, with a water-receptacle and its connected heating devices, of means, substantially as described, whereby said water-receptacle may be adjusted both vertically and horizontally, as set forth.

6. In an air-moistener or evaporator, the combination, with a water-receptacle and its connected heating device, of a clamp or vise adapted to be attached to a grate or fire-front, said clamp having attached thereto a vertical rod carrying a sliding block, to which are attached by sliding connections the heating devices and water-receptacle, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of March, 1886.

GEORGE RUSSELL.

Witnesses:

A. A. CONNOLLY,
A. A. MOORE.