(No Model.) 2 Sheets—Sheet 1.

C. MILLS.

DEVICE FOR HEATING AND VENTILATING ROOMS.

No. 517,759. Patented Apr. 3, 1894.

Fig. 1.

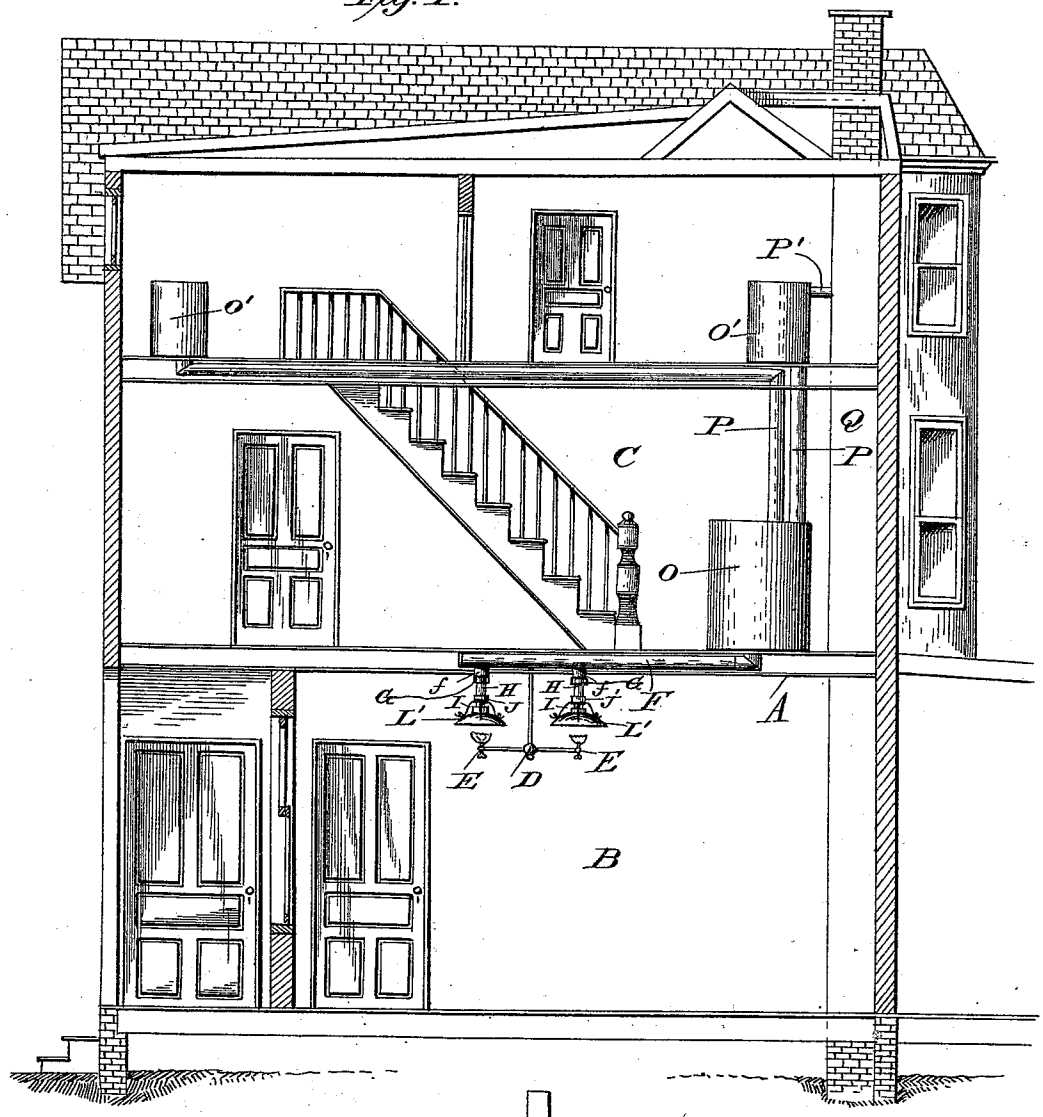
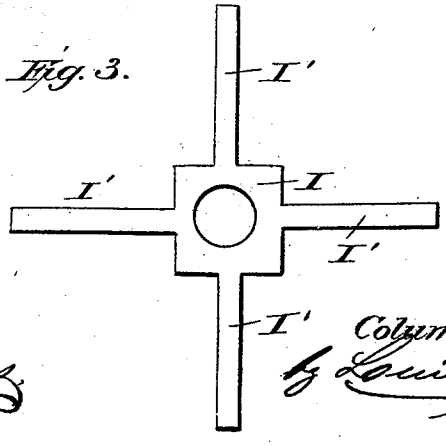


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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DEVICE FOR HEATING AND VENTILATING ROOMS.

No. 517,759. Patented Apr. 3, 1894.

Fig. 2.

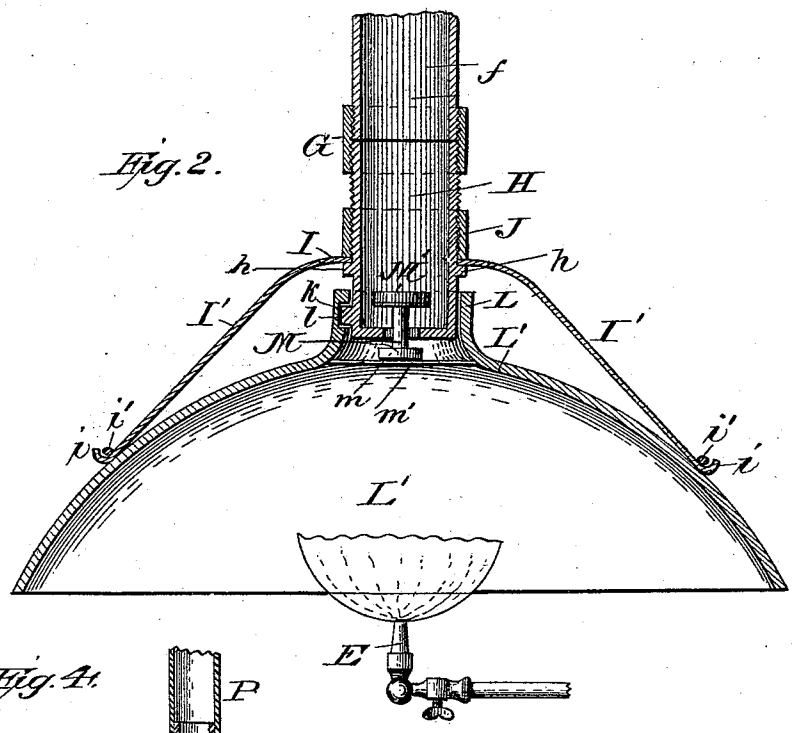
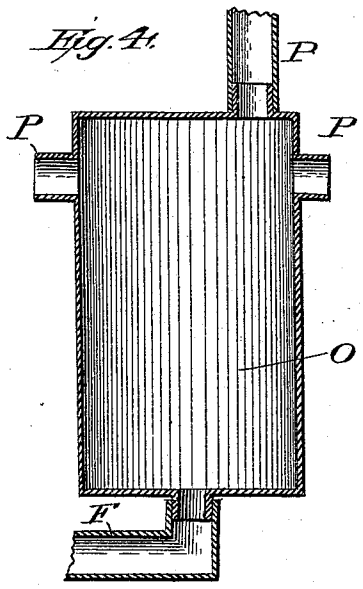
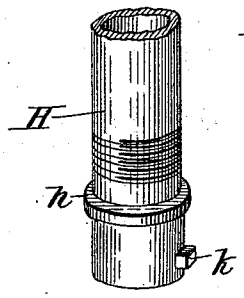


Fig. 4.





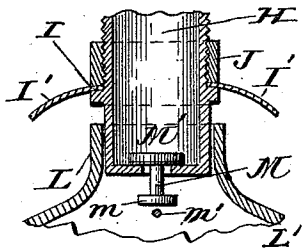
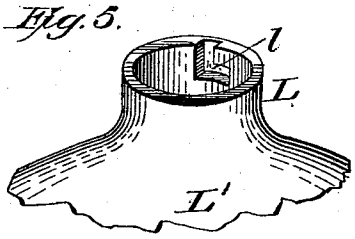


Fig. 6.

Fig. 5.



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UNITED STATES PATENT OFFICE.

COLUMBUS MILLS, OF GAS CITY, INDIANA.

DEVICE FOR HEATING AND VENTILATING ROOMS.

SPECIFICATION forming part of Letters Patent No. 517,759, dated April 3, 1894.

Application filed October 4, 1893. Serial No. 487,170. (No model.)

To all whom it may concern:

Be it known that I, COLUMBUS MILLS, a citizen of the United States, and a resident of Gas City, in the county of Grant and State of Indiana, have invented certain new and useful Improvements in Devices for Heating and Ventilating Rooms; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a diagrammatic view illustrating the carrying out of my invention. Fig. 2 is a detail sectional view of one of the ventilating hoods with its appurtenances, as applied over an ordinary gas jet. Fig. 3 is a plan of the device for fastening the ventilating hood upon the downwardly projecting end of the ventilating pipe, showing the same flat, or before bending its arms to fit over the hood. Fig. 4 is a detail view of the hot-air drum and connections. Fig. 5 is a detail view of the bayonet catch for fastening the ventilating hood, detachably, upon the "holder" at the lower end of the air tube or ventilating pipe; and Fig. 6 is a sectional detail view of the valve and the device for operating it automatically.

Like letters of reference designate corresponding parts in all the figures.

This invention relates to devices for ventilating (and incidentally heating, by hot air) the rooms in a building of several stories by means of a system of air-pipes carried through the ceilings and having openings above jets of flame in the room below; each terminal being provided with a hood, in shape somewhat like an inverted bowl, which conducts the heated air from the immediate vicinity of the jet of flame into the pipe and up into one or more hot-air reservoirs located in the rooms above, from which, after giving off its heat, the air is carried outside of the building, either by terminating the pipe which issues from the hot-air reserveir (or drum) in the chimney, or by carrying it into a separate vertical ventilating-flue built for the purpose.

My improvement consists in the novel and specific construction and combination of parts of the devices appertaining to a combined ventilating and heating system of that type, as will be hereinafter more fully described and claimed.

Referring to the drawings, the letter A denotes the ceiling of one of the lower rooms, B, in a dwelling, and C a room in the story above. Obviously, the dwelling or building may have as many stories as desired; or it may be a one-story structure only.

From the ceiling A is suspended a chandelier D, which I have shown as having two jets or burners, as shown at E E. Within the ceiling A, so as to be out of sight, is located a horizontal pipe F, having an elbow *f* directly above each gas jet. The lower end of this elbow projects downwardly through the plastering of the ceiling, and has an interiorly threaded extension or coupling G screwed upon it, in vertical alignment with the jet E below. Into the coupling G is screwed the tubular "holder" H, which has an annular flange *h*, supporting the central apertured part of a thin metal plate I, which is cut out in the form of a cross (see Fig. 3), with its four arms I′ bent or deflected in a downward direction and terminating, each, in a hook *i*. That part of plate I which encircles the tubular holder H is held rigidly in place by means of a screw-threaded sleeve or collar J, screwed upon the threaded outside of tube H, so as to clamp plate I between it and the annular supporting-flange *h*. Upon the lowermost end of this tube or "holder" H, and on one side thereof, is a laterally projecting lug *k*, adapted to engage an L-shaped slot *l* in the neck L of the hood L′. The latter (made, preferably, of thin sheet-metal) is in the nature of an inverted bowl, having a central aperture at its apex, which is encircled by a tubular neck L fitting over the lower end of holder H. The slotted neck L is spanned diagonally by a thin rod or wire *m*′, adapted to press from the under side against and support the lower end *m* of the valve-stem M, at the upper end of which is a disk-shaped valve M′, adapted to seat itself by gravity upon an annular flange or valve-seat N at the lower inner end of tube H. That is to say: when the hood L′ is removed, by disengaging the bayonet-catch *l k* on the neck L and tube H, valve M′ will drop down upon its annular seat N, and thus close the

inlet to the ventilating pipe F through the tube H, coupling G and elbow *f*. On the other hand, when the hood L′ is attached to its holder H, the cross-wire *m′* will press upon the button *m* at the lower end of the valve, and thus lift valve M′ off its seat, thereby opening the inlet for the heated and vitiated air, which rises from the jet of flame and the hood L′ above it, into the ventilating hot-air pipe F.

The object of plate I with its deflected and diverging arms I′ is to form an additional support (when needed) for the hood L′. For example, when the hood is made large enough to cover a number of gas-jets disposed in circular form, so as to form one or more concentric rings of burners (as in the lighting-apparatus of theaters, churches, and other public buildings, where many burners are placed close together), then a hood large enough to cover them all, in order to converge the streams of heated air from all the burners, would require some additional support; and this I provide by the plate I with its arms, the bent lower ends of which have hooks or fastenings, *i*, adapted to be hooked into or engage bails or staples *i′* on the outside of the convex hood; thus firmly holding the same in its proper position above the gas jets.

All the holders H, with their appropriate couplings and elbows, are connected to the pipe F; and, where there are several of these pipes, they all terminate in a hot-air main which carries the heated air into a drum or receiver O, located on one of the upper floors. From this main hot-air reservoir, other pipes, P P, may be carried to smaller drums, O′ O′, located in the different rooms on upper floors to be heated; and from each of these, a branch-pipe P′ is carried either into the nearest chimney, Q, or into a vertical air-flue made for the purpose in buildings where there are no chimneys. By this construction and arrangement, all unpleasant drafts are avoided; and when the hoods L′ are placed in position over the jets of flame, the opening into the ventilating-flue is then established automatically by the act of fastening the hood above the burner or burners. There are no cocks or valves to be opened or regulated by the fingers; and the moment the hood is again removed, communication with the ventilating-flue is simultaneously cut off. This is important where the device is used as a heater, because it prevents cold air from entering pipe F and, through it, the heating-drum O, where the ingress of cold air would materially affect the operation of the device as a heater by cooling the hot air therein, supplied by the hoods and branch-pipes appertaining to burning jets. In other words, by this arrangement, only hot air can be supplied to the main heating-drum and be by it distributed to the smaller heaters located in different rooms.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination with the air-flue F having tubular depending extensions or "holders" H, constructed as described and provided with the gravity-valve M′, of the detachable hood L′ having neck L adapted to be attached to the holder and provided with the cross-wire *m′*; substantially as and for the purpose shown and set forth.

2. The combination with the air-flue F having tubular depending extensions or "holders" H provided with an exterior circumferential flange *h*, of the plate I having hooked arms I′, screw-threaded sleeve J, and removable hood L′ having staples *i′* for the attachment of the hooked arms I′; substantially as and for the purpose shown and set forth.

3. The combination of the air-flue F having depending branches G H, hot-air drum or receiver O having branch-pipes P P, removable hoods L′ located over jets of flame, and gravity valves M′ operated automatically by the hood; substantially as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

COLUMBUS MILLS.

Witnesses:
W. M. AMSDEN,
WILLIAM L. FREEMAN.