No. 765,143. PATENTED JULY 12, 1904.

W. R. KLOEB.

FLOOR FURNACE.

APPLICATION FILED NOV. 23, 1903.

NO MODEL.

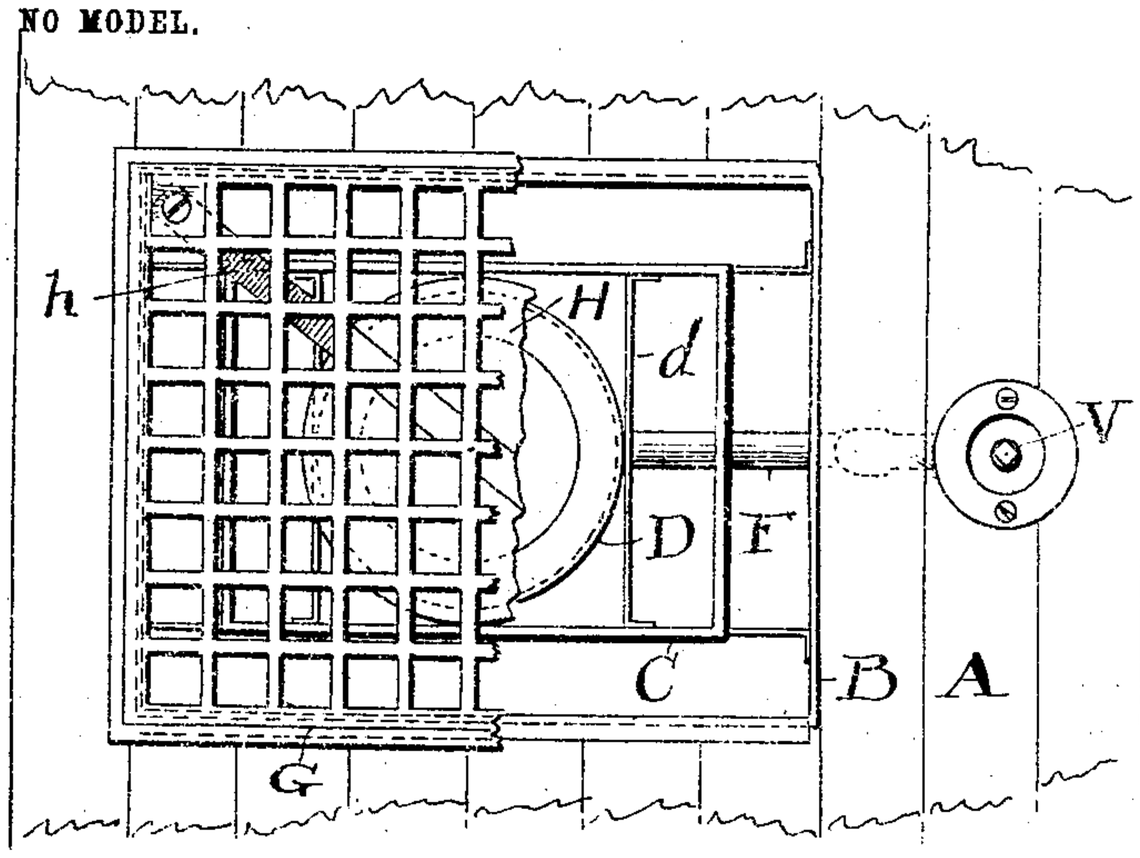


FIG. 1.

FIG. 2.

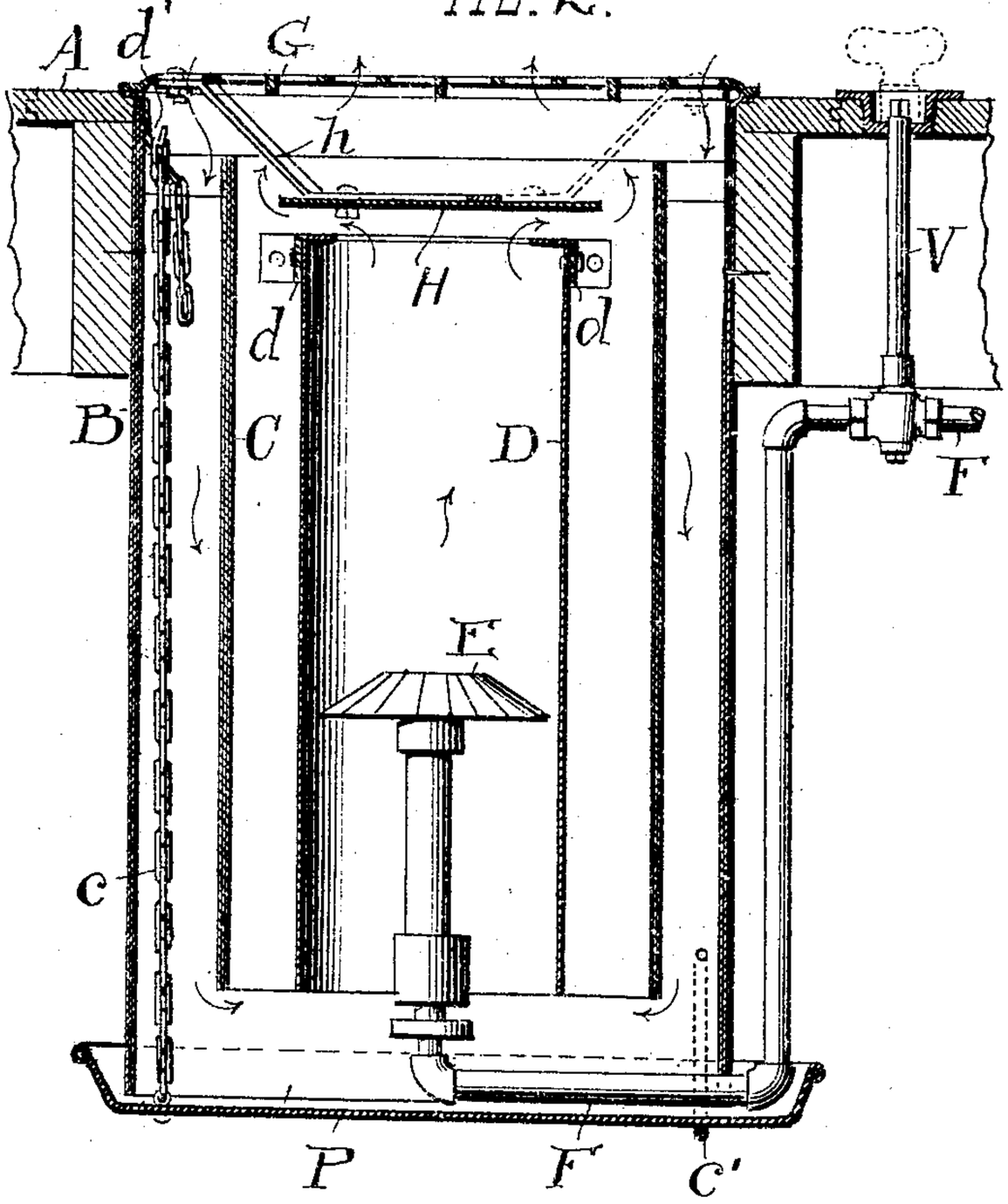
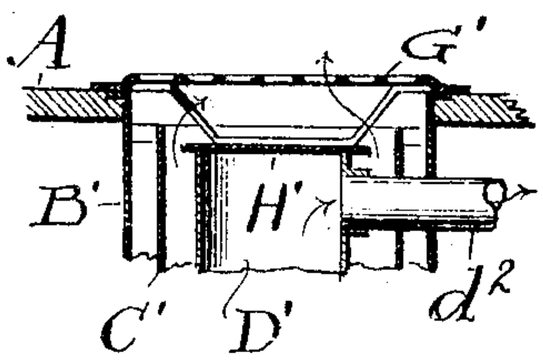


FIG. 3.



WITNESSES:

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No. 765,143. Patented July 12, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM R. KLOEB, OF CLEVELAND, OHIO.

FLOOR-FURNACE.

SPECIFICATION forming part of Letters Patent No. 765,143, dated July 12, 1904.

Application filed November 23, 1903. Serial No. 182,278. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. KLOEB, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Floor-Furnaces; and I do 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.

My invention relates to improvements in floor furnaces or heaters; and the invention consists in a furnace or heater in which gas is used as the fuel and which is removably set in the floor beneath a surface grid or grate, all substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the furnace with the grid partially broken away at one side to disclose its plan appearance. Fig. 2 is a vertical sectional elevation of the furnace right to left in Fig. 1. Fig. 3 is a sectional view of a modified form of furnace.

As thus shown, the floor is indicated by A, which has a suitable hole cut therein to accommodate the furnace, and the said hole may be rectangular or circular, as may be found desirable. It is substantially square, as shown herein, and grid or grate G covers the same practically flush with the top of the floor.

The furnace or heater is a suspended device set into the floor and working there to furnish heated or hot air for heating the room or apartment above after the manner of hot air from a furnace. To these ends I provide for taking at least a portion, if not all, of the air to be heated from the apartment into which the heat flows, thus establishing a healthful circulation of air and displacing the cold air with heated air from the furnace. This arrangement is carried out in this instance by means, first, of an outer inclosing wall B, which is of the size of the hole in the floor and is temporarily secured therein. This wall, as well as the wall C next within, may be of metal, covered with asbestos or other suitable non-conducting and non-combustible material, or a corrugated asbestos board or the like can be employed for this use or in conjunction with a sheet-metal interior. The next inner wall C is supported from or upon wall B and apart therefrom sufficiently to afford an air passage or space for air to descend, as indicated by arrows, Fig. 2. Next within wall C is the burner cylinder or tube D, and said tube is supported in turn from or by ball C, as shown, suitable cross-pieces *d* serving such purpose in this instance. Any suitable way of sustaining all said walls may be adopted. Walls C and D come to the same level below, as here shown, but above the level of the bottom of outer wall A, so as to have room for travel of air, as indicated by arrows, and at their top the outer wall C rises somewhat higher than burner-wall D, so as to split the air-space above and keep the drift of hot air from crossing into the cool-air channel and cutting off the down flow and circulation. Any suitable arrangement may be adopted at this point to maintain the separation of the cold and hot air currents and to sustain the circulation of air herein provided for.

The burner E is located centrally within the lower portion of tube D and is supplied with gas, natural or manufactured, through pipe F. Nothing is claimed for the burner itself, and it may be of any suitable kind or pattern. Of course the best of burners is none too good for this use, as it is practically essential that there should be perfect combustion; otherwise the atmosphere of the apartments would become vitiated with unwholesome gases. At the top the burner D is overhung and protected by a disk or cover H, which is supported from grid or grate G by straps *h* or other means and at such elevation above tube D as to afford free egress for the heated air rising within said tube and while thus causing a deflection of the air toward wall C. It serves especially as a protection for the burner against droppings from above through grate G. Then as a further means of taking care of such droppings and as an air-draft regulator as well I provide a pan-shaped cover or bottom P for the bottom of the furnace. This pan is large enough to compass the full width of primary tube B, from which it is suspended by a pivot

bail or link c' and a chain c and is adapted to be raised and lowered by means of said chain, engaged on hook d', located within tube B at its top, and adapted to be set at any desired elevation. As here shown, there is a slight open space between the said pan or bottom and wall B, through which air may enter into the furnace circulation, and this space may be enlarged or entirely closed.

The flow of gas in pipe F is controlled by means of a valve in said pipe, having a stem V, which is accessible at the floor above; but other means might be provided for this purpose.

The burner is adapted to be lighted from above by raising grid G and cover H, and this is one of the advantages of having cover H fixed to the grid.

In Fig. 3 cover H′ is adapted to rest upon burner-tube D′ to close the same, and the products of combustion are carried away by means of a pipe d^2; otherwise the construction is the same as heretofore described.

What I claim is—

1. In a floor-furnace, a burner and a burner-tube and inclosing walls about the same, each of said walls being higher than said tube and the outer wall higher than the inner one, in combination with a grate over said parts, and an imperforate cover for the burner-tube supported above and apart from said tube, whereby the burner is shielded and air circulation is afforded, substantially as described.

2. The floor-furnace substantially as described, comprising an outer inclosing wall, an inner wall and a burner-tube within said inner wall, the said outer wall extending below both the inner wall and the burner-tube and an adjustable bottom across beneath said parts fixed to said outer wall, said walls being open across their top and the outer wall extending above the inner wall, substantially as described.

3. In floor-furnaces, a burner and a burner-tube about the same, an outer inclosing wall and a second wall in the same toward said burner-tube, a pan-shaped bottom across the bottom of said parts engaged with the said outer wall, a grate over said parts and a protecting-cover for the burner-tube fixed to said grate and removable therewith, substantially as described.

4. In floor-furnaces, a burner and a burner-tube and an inclosing casing for the same, a grate at the top of said casing, a movable bottom for said casing, and means within said casing at its top to adjust said bottom to provide or cut off the air-supply, substantially as described.

5. The burner-tube and burner thereon, and an inclosing casing therefor with air-spaces between said tube and casing, an open grate above said tube and casing, a pan-bottom pivotally supported beneath said casing, and a chain attached to said bottom and suspended from above, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM R. KLOEB.

Witnesses:
R. B. Moser,
A. U. Moser.