

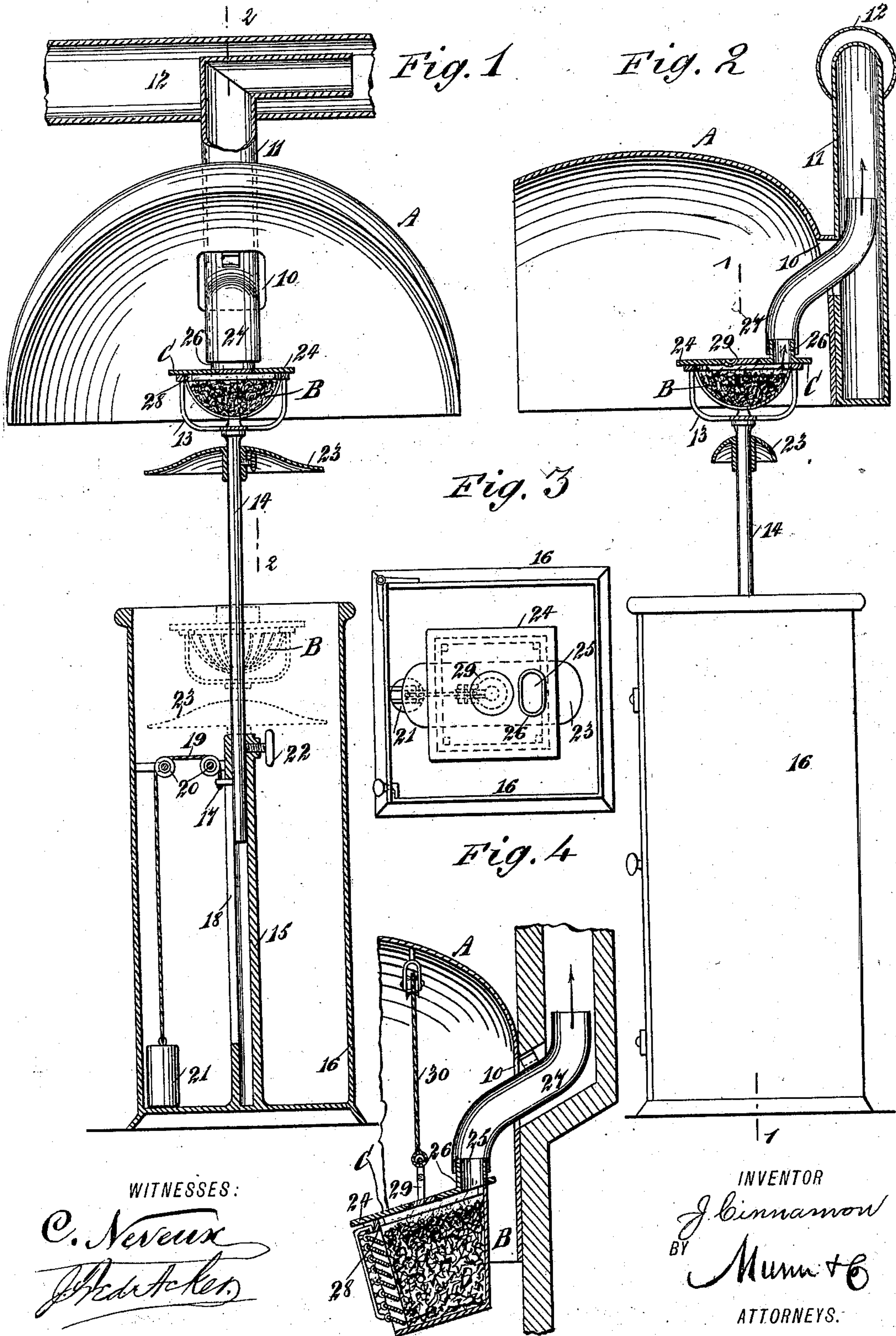
(No Model.)

J. CINNAMON.

DEVICE FOR HEATING AND VENTILATING ROOMS OR HOUSES.

No. 558,777.

Patented Apr. 21, 1896.



UNITED STATES PATENT OFFICE.

JOHN CINNAMON, OF NEW BRIGHTON, NEW YORK.

DEVICE FOR HEATING AND VENTILATING ROOMS OR HOUSES.

SPECIFICATION forming part of Letters Patent No. 558,777, dated April 21, 1896.

Application filed November 22, 1895. Serial No. 569,815. (No model.)

To all whom it may concern:

Be it known that I, JOHN CINNAMON, of New Brighton, in the county of Richmond and State of New York, have invented a new and Improved Device for Heating and Ventilating Rooms or Houses, of which the following is a full, clear, and exact description.

The invention is designed to supersede the use of stoves and furnaces in heating and ventilating houses, the said heating and ventilating being accomplished by radiation or reflection of heat-waves, as distinguished from heating rooms by filling their empty space with air which has been heated.

The invention particularly relates to an improvement upon the construction of a device of like character for which Letters Patent were granted to me September 24, 1895, No. 546,842, in which patent the grate was used in connection with a reflector, being elevated within the reflector or carried downward therefrom by a chain and pulley, suitable balances or counterweights being employed, the grate being adapted to burn in mid-air.

The object of the present invention is to provide an improved means of supporting, elevating, and lowering the grate, whereby the grate need not be engaged with any perpendicular surface, and whereby, further, it may be supported in a rigid manner directly from the floor and at a distance from any wall.

Another object of the invention is to so construct the support for the grate that said grate may be adjusted vertically, as desired.

A further object of the invention is to provide a grate with a radiating-cover, which will cause the fire to burn uniformly over the entire area of the grate, the said cover serving to make more effective the upward radiation of the heat-rays to the reflector by causing them to move in more uniform force and more economically, as the uniform spreading of the heat is best accomplished when the heat-waves are of uniform length from the surface of the radiator for reflection.

Another object of the invention is to provide a device which will prevent the products of combustion from clouding the reflector, and to provide a connection between the ra-

diating-plate and the flue or a pipe leading thereto.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an irregular section approximately on line 1 1 of Fig. 2 and showing by dotted lines the grate in a lowered position. Fig. 2 is a section taken through the reflector, the flue and offtake-pipe, and also through the grate, the section being on the line 2 2 of Fig. 1, the lower portion of the grate-support being in section. Fig. 3 is a plan view of the improved grate and its support, and Fig. 4 is a vertical section through a form of grate suspended by a chain or its equivalent and illustrating the application of the said grate to the radiating-cover.

The reflector A is usually of somewhat segmental shape, being provided with a back and being open at the front, and in the back portion of the reflector an opening is made, which connects with an offtake-pipe 11, the latter being usually connected with a flue 12.

The grate B, which may be of any desired shape or of any approved construction, is supported, preferably, upon arms 13, which are connected and are carried upwardly from a rod 14, and the said rod is held to slide at its lower end in a tubular seat 15, which may be a casting or otherwise made and usually located within a box 16, the said box being adapted to receive ashes or coals that may drop from the grate.

The rod 14 may be raised or lowered in any suitable or approved manner—as, for example, the rod may be provided with a pin 17, projecting from one of its sides and held to travel in a slot 18, made in the tubular support 15, the said pin having attached thereto a cable or chain 19, passed over pulleys 20, and provided at its lower end with a weight 21, capable of balancing the rod 14, the grate, and the material carried thereby, and the rod is held in whatever position it may be adjusted in its support by means of a set-screw 22 or its equivalent.

lent; but if in practice it is found desirable ratchets or other ordinary hoisting mechanism that will give perfect control and a steady movement up and down without perceptible oscillation may be employed to control the movement of the rod.

A reflector 23 is preferably secured to the rod 14 below the grate in order that any heat that may radiate from the sides and the bottom will be directed upward to the reflector. The practical simplicity of the stem or rod 14 is seen in the elevating and lowering of pianolamps now in common use in lighting; but to my knowledge this principle has never until now been made practical in the manipulation of any grates for heating rooms by reflecting heat, so that the device would seem to be unquestionably new for heating by high radiation and reflection.

One of the main features of the invention is to improve the draft and, as heretofore stated, to improve the upward radiation of heat-rays from the fire to the reflector. This is accomplished by providing the grate with what I term a "radiating-cover" C. This cover consists, preferably, of a metal plate 24, adapted to fit on the top of the grate over the fuel, practically closing the said grate in an airtight manner at that point and protecting it against any upward draft, except that the said plate is provided with an opening 25 at its back, surrounded by a collar 26, which collar is adapted to fit into a pipe 27, the said pipe at its upper end being within the offtake-pipe 11 and extending outward through the opening 10 in the reflector downward to a suitable point within the same. The auxiliary pipe 27, which is adapted as an offtake for the grate, is secured within the offtake-pipe 11 in any suitable or approved manner.

The lower end of the auxiliary offtake-pipe 27 is brought to such position that when the grate B is elevated to a proper position within the reflector the offtake-pipe will automatically receive the collar of the radiating-cover. The radiating-cover rests mainly on the grate by reason of its own weight; but it is preferably held against lateral movement by locating lugs 28 on the bottom of the plate, adapted to fit in the corners of a polygonal grate, or against the inner surface of a grate of circular or corresponding contour. The radiating-cover is likewise preferably made of sufficient size to extend an inch or more beyond the top of the grate, and in order that the grate may be filled with coal without removing the radiating-cover the said cover is provided with a lid 29, normally closing an opening ordinarily made at a central point therein. The surface of the plate is a radiator, effective for the spreading of heat-rays for reflection.

I have no knowledge of a basket-grate being provided with any such radiator, which radiator furnishes a steady beam of heat-rays of equal temperature pointed directly upward from all of its surface, directing the said rays to the reflector A. The result attained by

the use of the radiating-cover cannot be secured from any open coal-fire until it becomes entirely incandescent.

I am aware that grates have heretofore been provided with hoods or blowers; but the radiating-cover cannot be classed with such devices. The proper height of the rod or stem 14 will be determined by the area of the floor to be heated. In a room twenty feet square the proper elevation of the grate is from five to seven feet. In a zoological garden, or where animals require good cold air with a warm floor and heat-waves on their bodies, the grate may be carried up much higher and will be located in the center of the floor, which is also the proper location in a tent, in both of which places, as also in hot-houses for growing tropical plants or fruits, the reflecting-cover of the basket-grate may have its smoke-outlet in the center, so that its collar may readily fit into a centrally-located conducting-pipe leading out to the exterior of the tent or building.

When the grate is located in the center of an apartment, a full-circular reflector will be provided for the grate instead of the semicircular one shown in the drawings.

If in practice it is found desirable, the rod or stem 14 may also carry upward with it the ash-receiving receptacle or pan, it then being located between the lower reflector 23 and the bottom of the grate.

In Fig. 4 the grate is shown as being raised through the medium of a cable 30, which will be provided with a suitable counterweight, and the grate is rectangular and is adapted to be located adjacent to the wall or other support upon which the reflector is secured.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A suspension-grate provided with a radiating-cover, and means for conducting the waste products of combustion from the grate, substantially as shown and described.

2. A suspension-grate provided with a radiating-cover having an outlet for the waste products of combustion, as and for the purpose specified.

3. A grate, having a reflector arranged to intercept the heat-rays radiating from the fire in the grate, and a radiating-cover for the grate interposed between it and the reflector, as and for the purpose specified.

4. A suspension-grate provided with a radiating-cover, an opening through which the fuel may be introduced, a lid for the said opening, and an outlet for the waste products of combustion, as and for the purpose specified.

5. In a heating device, a supporting-framework having a grate supported therein, free from contact with any wall and capable of being lowered or of being elevated to any height in a room, a reflector located over the grate, and a radiating-cover for the grate, interposed between it and the reflector, the said radiating-cover being provided with an offtake for

the waste products of combustion, as and for the purpose set forth.

5 6. In a heating device, a supporting-frame-work having a grate supported therein, free from contact with any wall and capable of being lowered or of being elevated to any height in a room, a reflector located above the grate, a flue connected with the reflector, an offtake-pipe located in the said flue, and a radiating-
10 cover resting on the top of the grate, being interposed between the said grate and the reflector and being provided with an opening for the escape of the waste products of com-

bustion and capable of registry with the afore-said offtake-pipe, as and for the purpose 15 specified.

7. The combination of a stand, a rod supported on the stand, a grate held on the upper portion of the rod and supported by the same, and a radiating-cover for the grate, 20 substantially as described.

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Witnesses:

A. A. HOPKINS,
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