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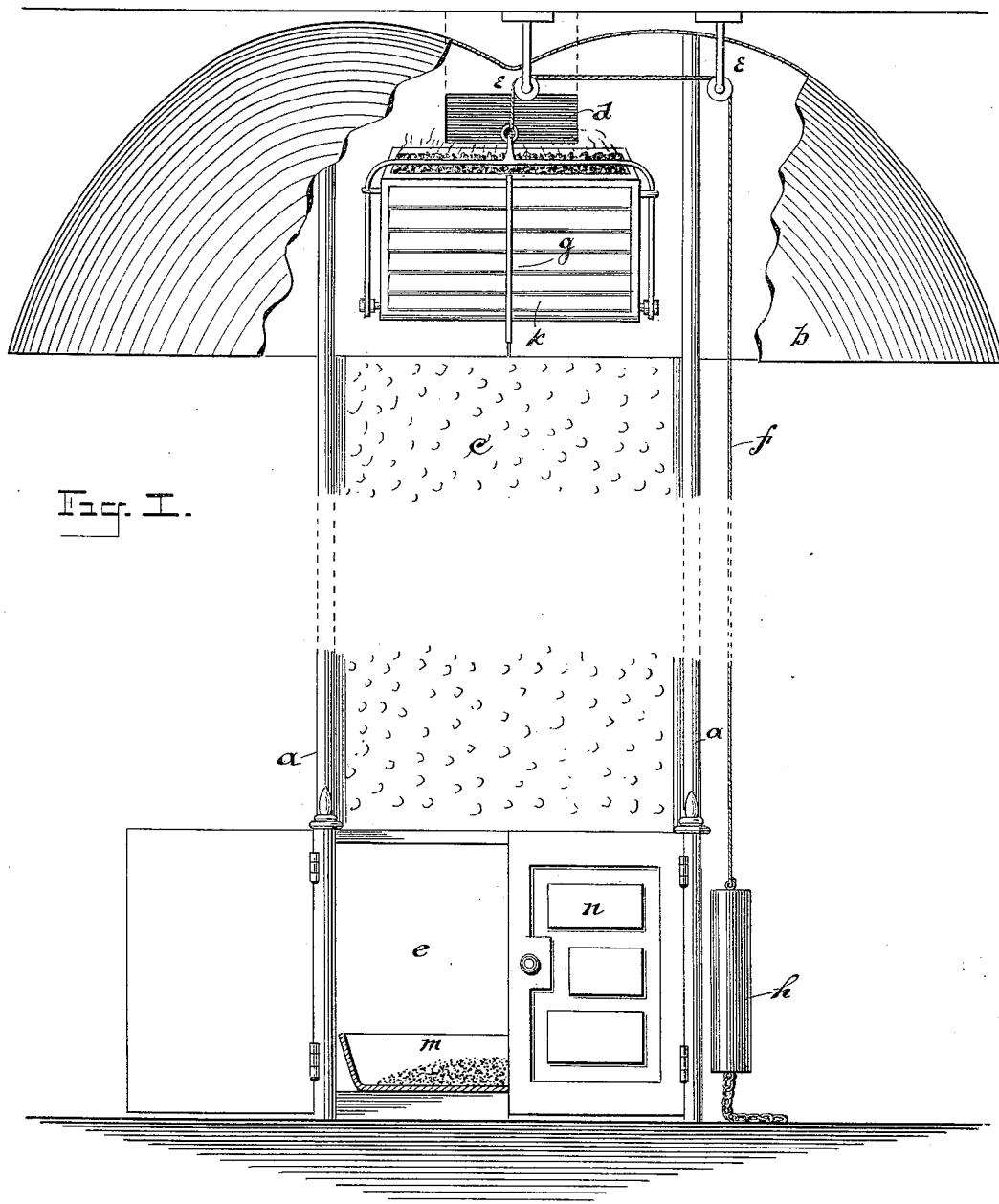
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J. CINNAMON.

HEATING AND VENTILATING ROOMS OR HOUSES.

No. 546,842.

Patented Sept. 24, 1895.



WITNESSES

J. V. Bedford
C. M. Ott

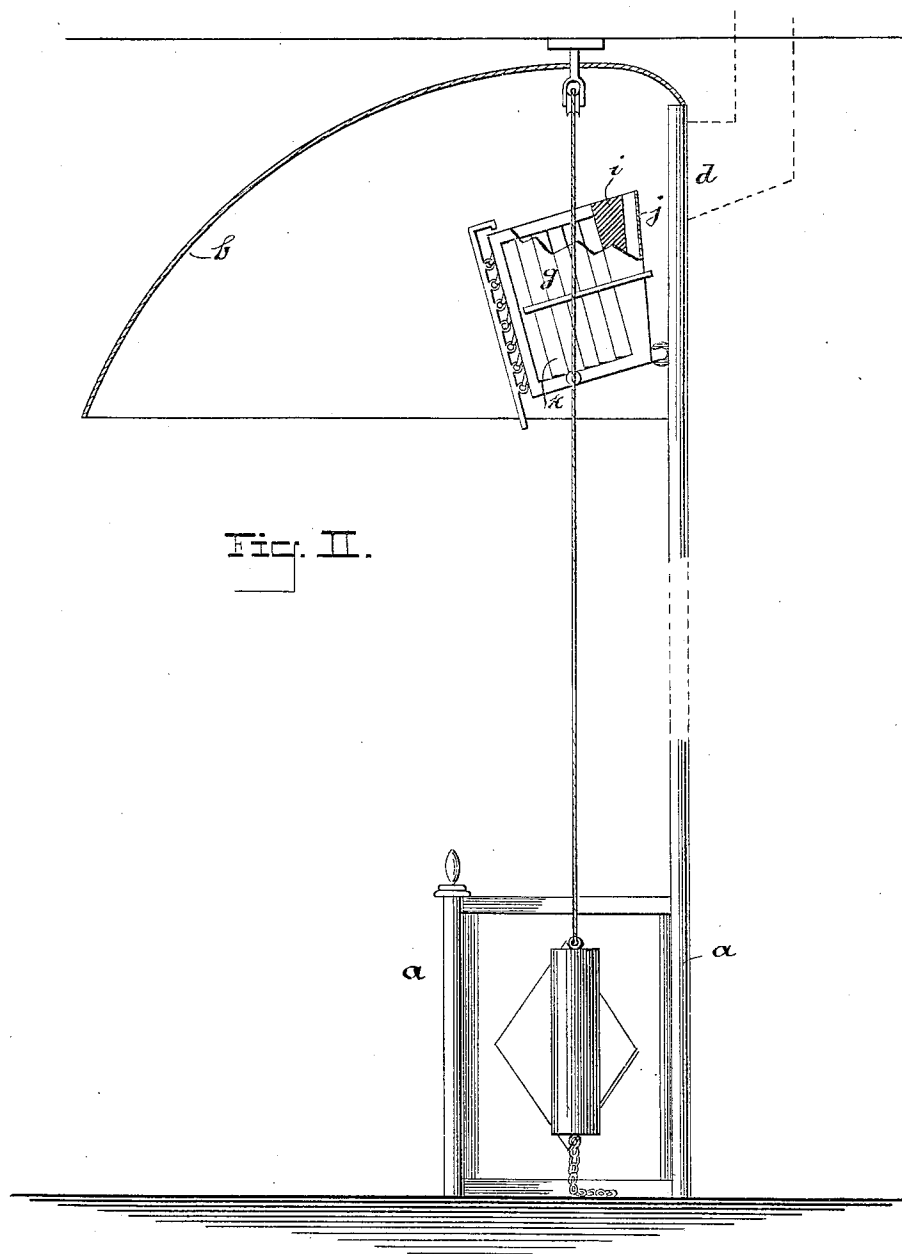
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Fig. III.

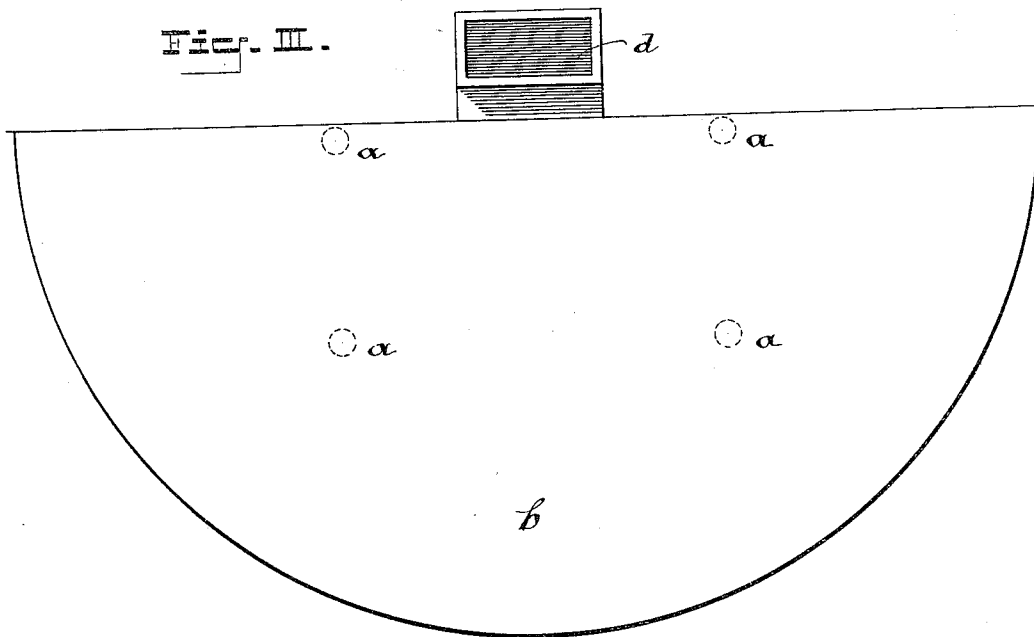
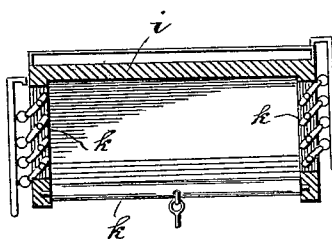


Fig. IV.



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UNITED STATES PATENT OFFICE.

JOHN CINNAMON, OF NEW BRIGHTON, NEW YORK.

HEATING AND VENTILATING ROOMS OR HOUSES.

SPECIFICATION forming part of Letters Patent No. 546,842, dated September 24, 1895.

Application filed January 24, 1895. Serial No. 536,022. (No model.)

To all whom it may concern:

Be it known that I, JOHN CINNAMON, a citizen of the United States, residing at New Brighton, county of Richmond, State of New York, have invented certain new and useful improvements in heating and ventilating rooms or houses by the use of coal and wood or other fuel suitable for burning in a grate, of which the following is a specification.

My invention is designed to increase the heating force of a given amount of coal and wood fuel by producing combustion in such position that all the heat shall be preserved, circumscribed, controlled, and directed in its paths of radiation to take effect only where it may be deemed desirable.

My invention is designed to economize fuel by preventing the escape of heat during combustion into any wall or fireplace, where it has generally been absorbed, wasted, and lost for any practical purpose of heating dwellings.

My invention is designed to produce the combustion of coal and wood or other fuel in a grate at such elevation above the level of a floor as to admit of the waves of heat-rays to be radiated downward to strike at any desired distance across a room on the floor, and to be also reflected in like manner in waves of forcible effect for heating a floor.

My invention contemplates the suspension of a grate in the air at a comparatively high elevation and apart from any wall and at a distance from any substance whatever except the loop by which it hangs, so that no loss of heat can occur by contact; but all the heat that proceeds from the fire or from the hot bars of the grate must either strike the floor or strike a reflector situated in a position which will send the reflected heat-waves in the direction to which said reflector turns them, downward or forward.

In the drawings hereto annexed, Figure I is a front elevation of my invention. Fig. II is a side elevation, partly in section. Fig. III is a plan view thereof. Fig. IV is a sectional plan view of the grate or fire-basket seen in Figs. I and II.

In constructing the device which constitutes my invention I make a rectangular frame of four tubes or rods *a a a a*, of which

two are cut off at a distance of three or four feet from the bottom, and plates are put at sides, back, and front to form a metal box, having doors *n* at the front and open at the top. The two longer rods, which extend to a height sufficient to nearly reach the ceiling of the room in which my device is to be used, support a polished metal reflector *b* of the form shown. They are, moreover, joined together by a metal plate *c*, through which is cut the opening *d*, communicating with any chimney-flue. Pulleys *e e* support a cable or chain *f*, which carries at one end a grate or fire-basket *g* and at the other end a counter-weight *h*.

My improved grate consists of a hanging basket of metal, having a solid back *i*, to which is attached a second plate of polished metal *j* for preventing radiation, sides and front composed of grate-bars *k*, which are pivoted at each end after the manner of the familiar window-blind, and means for opening or closing these slat-like grate-bars. A removable ash-pan *m* in the bottom of the ash-pit *l* may be taken out by opening the doors *n*.

The operation of my invention is as follows: The grate *g* having been lowered into the space behind the doors *n*, said doors are opened and the grate filled with fuel, which is then set fire to. The grate is then hoisted into the position shown in Fig. I, occupying a position just below the flue *d*. Heat is then radiated therefrom and sent by the reflector *b* in the required direction. Radiation and combustion may be lessened by closing the grate-bars *k*, and the heat may be entirely shut off and the fire soon put out by lowering the fire-basket behind the doors *n*.

My invention is designed to make a portable elevated fireplace to be placed adjacent to and in front of any flue at a wall; or the device may be built in a solid chimney or in a wall and be made stationary, in which arrangement walls may take the place of the high metal box, which in the portable fireplace serves the purposes of brickwork, and has a receptacle for ashes, consisting of a box into which the grate with its fire may be lowered out of sight when it is desirable that heating should cease. My device may be applied in any new chimney or fireplace made

with an opening by cutting out its front and sides, beginning at a point, say, four feet above the floor, to a point above the entrance to the flue near to the ceiling where the reflector
 5 covers the open flue; or my device may be applied to be stationary in any old fireplace by cutting out the wall. For the purposes of radiating heat-rays I prefer a basket-grate with a plate back, having only one bar at its top,
 10 and with the bars on front and both ends made to open and to close by a rod in the center of each, similarly to the window-slat arrangement in common use, the object being to increase or retard draft or radiation by
 15 opening or closing the front or ends, and I prefer to make the grate of wedge form, narrow at bottom and with large surface area, and having its front surface inclined forward and downward, so that the radiation from the
 20 front bars will point obliquely across the floor, while the upper surface will rise slightly from the front to the back to direct the current of air and smoke into the flue. The grate may be hoisted by a chain and pulleys, with a balance-weight to lift and lower it, or by other
 25 suitable means.

My invention is designed to maintain a healthful temperature in rooms by heating the floors without cooking the air together
 30 with its impurities, which the funnel-shaped reflector tends to draw out with all the hot air which I heat under it immediately below a level of the smoke-flue, causing a strong draft near the ceiling and obviating every
 35 probability of any other draft being perceptible across the room and absolutely preventing any draft on the floor, which is by my improvement made to be the warmest part of the room and from which a slightly-warmed
 40 air continues to rise, while the radiated and reflected heat-rays continue to strike down on it.

My invention improves on previous methods of heating by coal and wood fire grates in the following important respects: They produce a heated condition of the framework surrounding the fire of such a high temperature that not only is the heat wasted, but it is impossible to cool the fireplace and discontinue the heating process when desirable.
 50 My device, on the contrary, can stop the heating process in less than a minute by lowering the grate. Experiments with high fireplaces, where the fire stood over four feet
 55 above the floor, proved that feeding the fire with fuel was attended with difficulty, whereas my invention renders it most convenient. All fires under a flue waste the heat-rays upward with the smoke into the flue-walls. My
 60 improvement prevents that, as my fire is not perpendicularly under the flue. All fires at or near the floor tend to heat the ceiling and upper walls by radiating heat-rays upward, leaving the floor cold, while my improvement
 65 radiates and reflects heat-waves downward

to warm the floor, leaving the ceiling and upper walls cool.

Another important advantage obtained by my improvement is the production of all the good effects of the Turkish bath, while at the
 70 same time avoiding the dangerous consequences of breathing its hot air, which is applied to the skin of the bather, whereas by a simple movable attachment of additional reflector placed at its top to slide downward and
 75 forward the heat-rays are directed down on the body to produce as high temperature on the skin as that produced by hot air in the bath. In case of sudden chill in hospitals the reflected heat, either alone or accompanied
 80 with direct radiation downward, may be applied, so as to quickly raise the temperature of a thermometer on the floor to register 190° Fahrenheit. As a fact of experiment in a residence where the hot-air furnace has been
 85 abolished and in a bed-room when the mercury out of doors (December 28, 1894) was 10° Fahrenheit, the occupant of a bed-room slept in air temperature of 60° Fahrenheit, while a thermometer on the foot of the bed, subject to the
 90 reflected rays from an elevated fire, registered 90° Fahrenheit.

Having thus described my invention, the following is what I claim and desire to secure by Letters Patent:

1. In a heating device, a supporting frame-work having a grate suspended therein free
 95 of contact from any wall, and capable of being lowered or elevated to any height in a room, substantially as described. 100
2. In a heating device the combination of a grate with means for elevating and lowering the same, a metal box into which it may be lowered and from which it may be elevated,
 105 and having a front door extending upward about one half of its height, having a back to stand against a wall, the frame work of the structure being of metal bars, covered with sheet metal, substantially as set forth.
3. In a heating device the combination of a
 110 grate, a metal box in which it may rest or above which it may be suspended, and a reflector to intercept the heat rays radiated from the fire in the grate, substantially as described. 115
4. In a heating device the combination of a grate, a metal box into which it may be lowered or from which it may be hoisted to any
 height in a room, a reflector to intercept the radiated heat from the grate, and a hoisting
 120 apparatus to lift the grate toward the smoke flue when desired to burn a fire, and to lower it to the bottom of the box when the heating process is to cease, substantially as set forth and described.

JOHN CINNAMON.

Witnesses:

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 C. M. OTT.