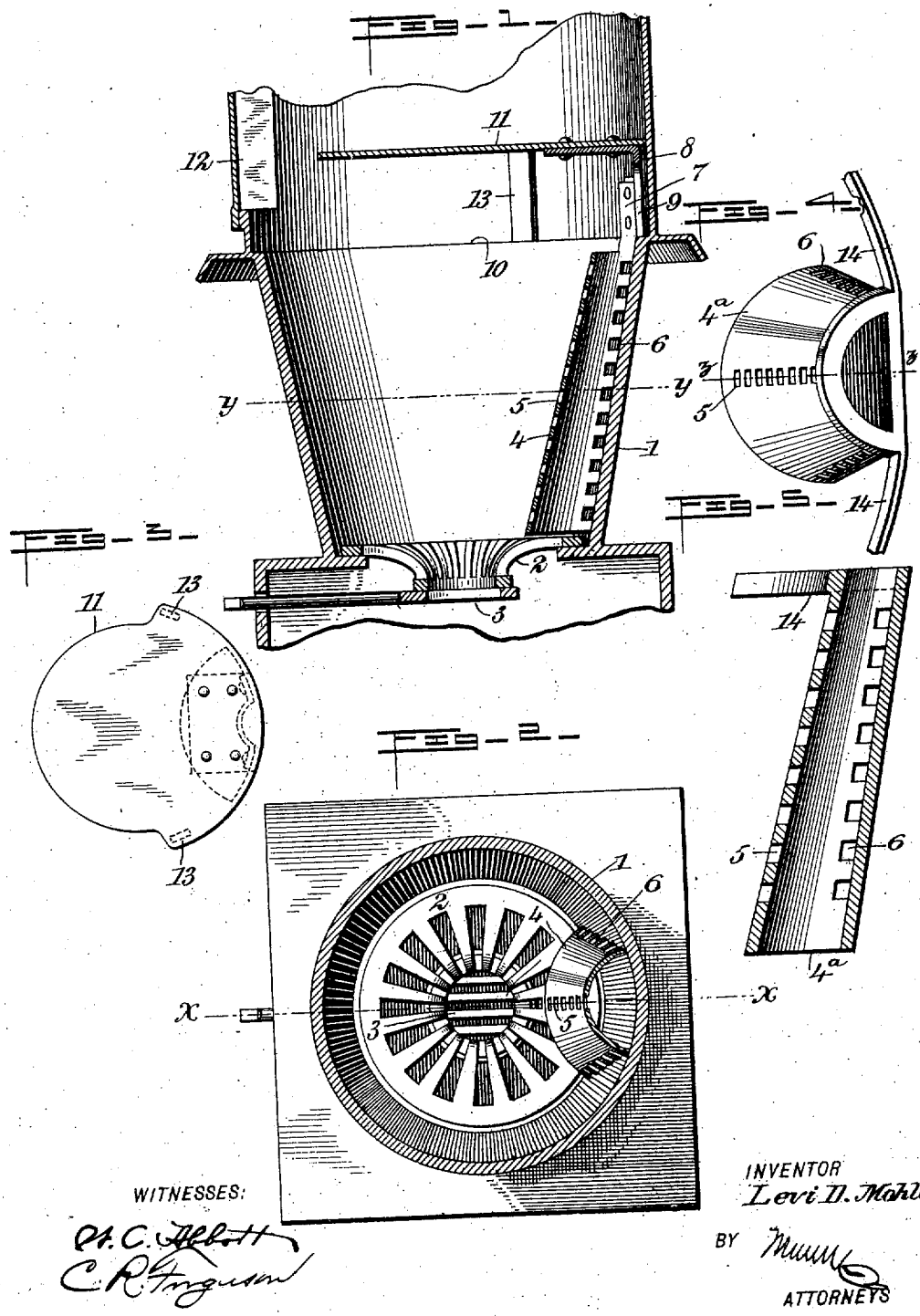
No. 850,171. PATENTED APR. 16, 1907.

L. D. MOHLER.

STOVE OR FURNACE ATTACHMENT.

APPLICATION FILED MAY 17, 1904.



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STOVE OR FURNACE ATTACHMENT.

No. 850,171. Specification of Letters Patent. Patented April 16, 1907.

Application filed May 17, 1904. Serial No. 208,341.

To all whom it may concern:

Be it known that I, LEVI D. MOHLER, a citizen of the United States, and a resident of McPherson, in the county of McPherson and State of Kansas, have invented a new and Improved Stove or Furnace Attachment, of which the following is a full, clear, and exact description.

This invention relates particularly to improvements in devices designed to be arranged in any form of stove or furnace for burning slack and smoke.

The object of this invention is to provide an unfailing draft from the grate of a stove or furnace upward into and through the fuel, effectually preventing smothering of the fire in the use of slack, coal-dust, or similar fuel; also, to conduct sufficient air above the fuel to carry away the surplus gas that may accumulate while the fire is starting or at times when there is no flame above the fuel, and thus prevent an explosion, and, further, to operate to deflect the air conducted above the fuel in a transverse direction across the top of the fire, with such clearance above the fuel as to employ said air for the combustion of gas and smoke generated in the combustion-chamber and in addition to hold the heat downward and to so spread the products of combustion against the sides of the combustion-chamber as to increase the radiation of heat through the walls thereof into the air without, and especially to increase the radiation of heat from the lower part of the stove for the purpose of warming the floor.

I will describe a stove or furnace attachment embodying my invention and then point out the novel features in the appended 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 a sectional elevation on the line *x x* of Fig. 2, showing a stove or furnace attachment embodying my invention. Fig. 2 is a section on the line *y y* of Fig. 1. Fig. 3 is a top plan view of a deflector employed. Fig. 4 is a plan of a flue employed, showing a slight modification; and Fig. 5 is a section on the line *z z* of Fig. 4.

Referring to the drawings, 1 designates the fire-pot of a stove or furnace, 2 the grate therein, and 3 the shaking-grate. These grates, however, form no part of my present invention. Arranged removably in the fire-pot is a conductor-flue 4, which is so constructed and placed as to receive air through the grate and convey the air upward to pass it into and above the fuel, thus affording complete combustion. As here shown, the conductor 4 is semicircular in cross-section and is reduced in depth from the bottom upward. It is also shown as engaging its edges at the open side against the inner surface of the fire-pot, and thus the fire-pot forms one wall of the conductor. It is to be understood, however, that the conductor may be closed on all sides.

At its front the conductor is provided with air-openings 5, and similar openings 6 are formed at the sides. An upward extension 7 on the conductor is connected to a bracket 8, the vertical leg portion 9 of which rests upon the interior annular shoulder or top 10 of the fire-pot, and the horizontally-disposed portion of this bracket supports a deflector-plate 11, which extends partly across the fire-pot, the opening being at the side where the door 12 is placed, thus permitting of passing coal through the door and freely into the fire-pot. As a further means of support the deflector 11 is provided with opposite legs 13, which rest upon the said shoulder 10.

In Figs. 4 and 5 the conductor 4^a is shown as provided at its upper end with segmental braces 14, which may engage against the inner surface of the fire-pot and hold the conductor in place. In this instance the deflector may be dispensed with and the conductor rest upon the grate or slightly above the same, and in this modification it will be noted that the conductor is closed at all sides as the preferred construction.

While I have shown and described one shape of conductor, it is to be understood that as it is designed to be used in connection with stoves and furnaces already made the shape and size must be varied to suit the conditions, and therefore I do not limit my invention in this respect.

On account of the great heat to which the conductor is subjected it is desirable to make it of very heavy casting or of fire-clay, tile, or other material having great heat-enduring qualities. It may be here stated that it will be preferable in very large stoves or furnaces to employ a conductor closed on all sides, as indicated in Figs. 4 and 5; but in smaller stoves in order to save space the wall of the conductor next to the fire-pot may be

omitted, employing the inner surface of the fire-pot for the purpose, as in Figs. 1 and 2.

In the operation atmospheric air will pass through the grate into the conductor, and a portion thereof will pass out through the openings 5 and 6; but the greater portion will pass through the open upper end and be deflected across the fuel by the plate 11, thus consuming all gases and smoke given off from the fuel. The openings 5, it will be noted, will direct the air to the center of the fuel, while the air passing out through the openings 6 will travel around the edge of the fuel and will afford outlet for the fire in case it is entirely covered with fuel of the nature of slack or coal-dust, and thus prevent smothering of the fire. This movement of the air-current will create a suction to draw the smoke and gases to the upper end of the conductor to travel, mixed with the heated air, beneath the deflector close to the fuel and create great heat, whereby all the combustible elements rising from the fuel are consumed. The position of the deflector-plate directly over the fire deflects downward, the heat striking its under surface, which intensifies the heat in the fuel-pot and increases the radiation through the walls thereof to more effectually warm the floor and lower air of the room.

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

1. A slack and smoke burner attachment for stoves or furnaces comprising a conductor having an open side, the edges of which are adapted to engage loosely against the inner side of a fire-pot which forms a wall for the open side of the conductor, the said conductor being of such form in cross-section as to produce a lining for a portion of the fire-pot but so spaced from the fire-pot as to form an air-passage between the conductor and fire-pot, and a deflector over the conductor adapted to convey air horizontally over the fuel.

2. A slack and smoke burning attachment for stoves or furnaces, comprising a conductor open at its ends and having air-outlet openings, the said flue being adapted to be removably placed in the fire-pot of the stove or furnace, and a deflector attached to the upper end of the flue and extended partly across the fire-pot.

3. A slack and smoke burning attachment for stoves or furnaces, comprising a conductor having an open side, the edges of which are adapted to engage the inner side of a fire-pot which forms a wall for the open side of the conductor, the said conductor being of such shape in cross-section as to co-operate with the inner side of the fire-pot as to form a passage to convey air upward into and above the fuel, and a horizontally-disposed deflector-plate attached to the upper end of the conductor.

4. A smoke and slack burning attachment for a stove or furnace comprising a conductor adapted to rest against the inner surface of a fire-pot, the said conductor being open at its ends and provided with air-outlets, an upward extension on said conductor, a bracket to which said extension is attached, the said bracket having a portion for resting upon the upper edge of the fire-pot, a horizontally-disposed deflector-plate attached to said bracket, and legs on said plate for resting on the upper edge of the fire-pot.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEVI D. MOHLER.

Witnesses:
W. E. GREGORY,
MARY BALDWIN.