

# G. R. SCATES. OPEN FIREPLACE HEATER.

No. 485,301.

Patented Nov. 1, 1892.

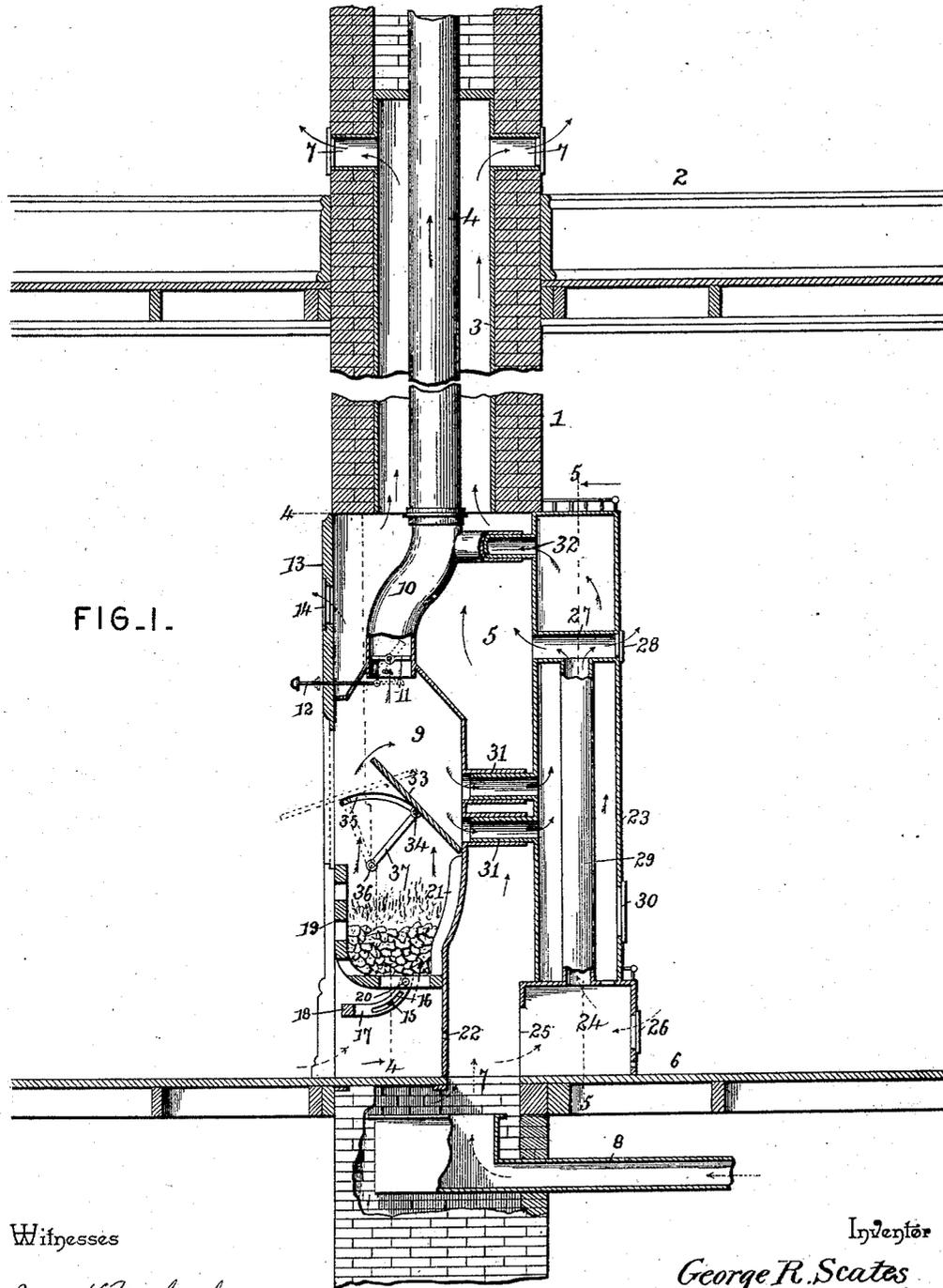


FIG. 1.

Witnesses

*Jas. H. McCaffran*  
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Inventor

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By his Attorneys,

*C. A. Snow & Co.*

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FIG. 2.

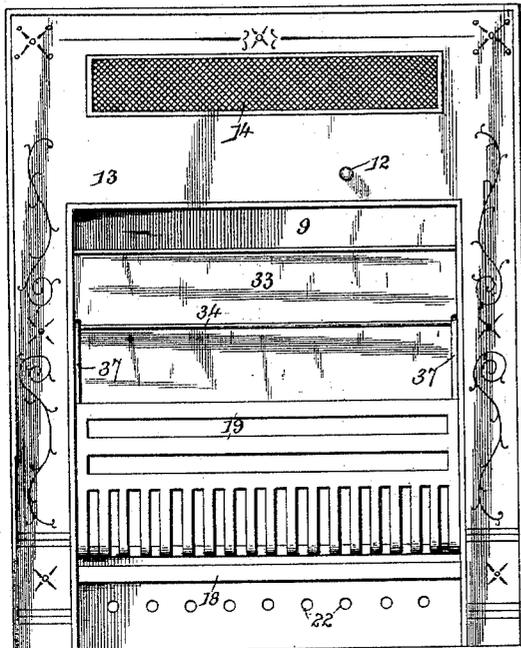


FIG. 3.

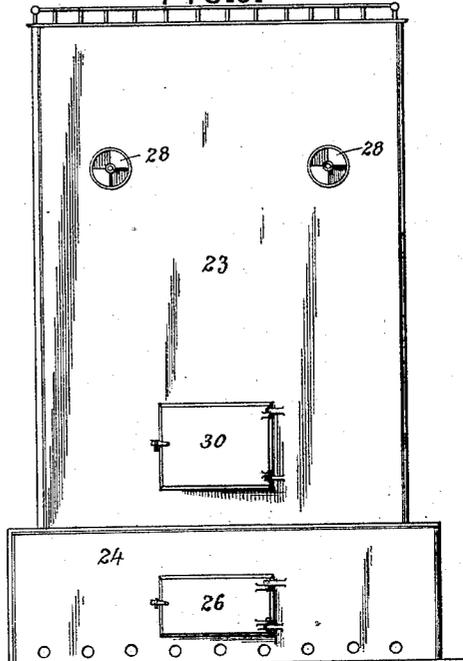


FIG 4

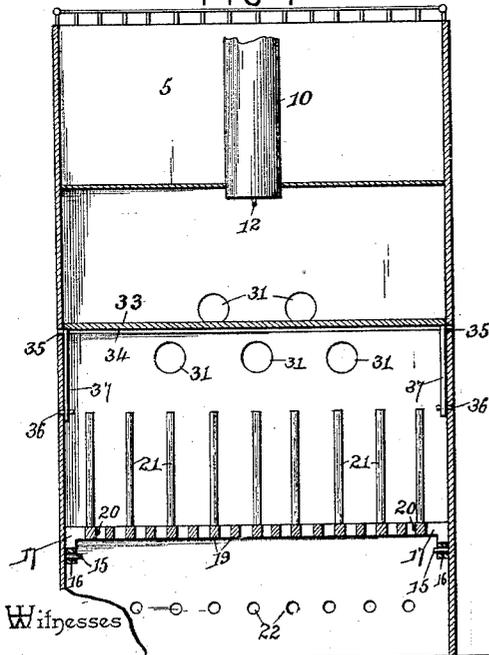
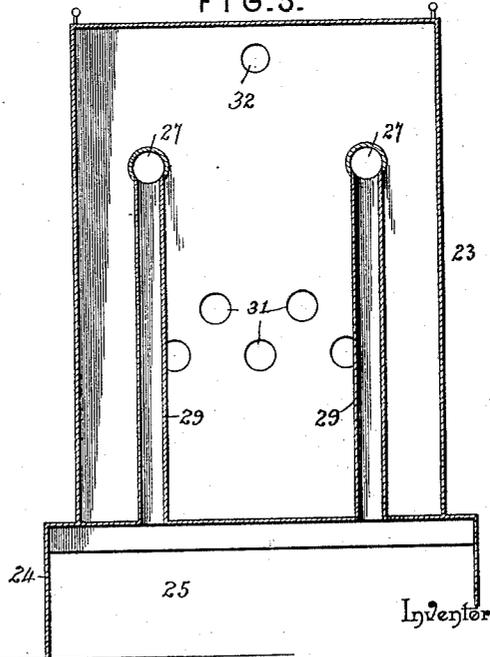


FIG. 5.



*Witnesses*  
 Jas. H. McArthur  
 J. B. Diggers

By his Attorneys,  
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# UNITED STATES PATENT OFFICE.

GEORGE RANDAULPH SCATES, OF KNOXVILLE, TENNESSEE.

## OPEN-FIREPLACE HEATER.

SPECIFICATION forming part of Letters Patent No. 485,301, dated November 1, 1892.

Application filed April 30, 1892. Serial No. 431,285. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE RANDAULPH SCATES, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Open-Fireplace Heater, of which the following is a specification.

My invention relates to heaters for open fireplaces, the objects in view being to provide a heater adapted to be set in an open fireplace and to thoroughly and efficiently distribute its heat throughout the several compartments with which it may be connected, which may be adjusted to fit or accommodate itself to various thicknesses of walls, and which will secure a complete combustion, or nearly so, of the fuel and will utilize to a greater extent than usual the products of such combustion for the purpose of heating by radiation.

With these objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical transverse section of a heater embodying my invention. Fig. 2 is a front elevation of the fireplace. Fig. 3 is a similar view of the hot-air box. Fig. 4 is a vertical longitudinal sectional view of the grate. Fig. 5 is a similar view of the hot-air box.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the chimney of a house; 2, the second floor; 3, the flue within the chimney; 4, the chimney-pipe; 5, the chimney-opening; 6, the floor below or first floor, and 7 the register-openings of the second floor leading from the flue. The lower floor 6 has an opening 7 within the chimney-opening, and communicating with said opening is a cold-air-supply pipe 8. Within the chimney-opening there is located the fire-box 9, and the same terminates at its upper end in a dome, which is connected to the smoke-pipe 4 by an elbow 10, in which a damper 11 is mounted and controlled by a rod 12, which extends through an opening formed in the facing-frame 13, that surrounds the front of the chimney-opening 5, and back of which is located the fire-box. The facing-frame 13 has a register 14, through which radiated heat may pass. A pair of studs 15 ex-

tend inwardly from the opposite side walls of the fire-box and through curved slots 16, with which the opposite ends or curved terminals 17 of a U-shaped frame are provided. The U-shaped frame also has a front transverse bar 18. 19 designates the grate, which is pivoted at 20 to the extremities of the terminals 17. The rear edge of the grate takes under a series of vertically-disposed angular deflecting-ribs 21, whereby it is supported in position or its movement limited. By engaging a poker or other device with the bar 18 it will be seen that the grate may be inverted, or partially so, and its contents dumped. Below the grate the back wall of the fire-box is provided with a series of air-inlets 22, which insure complete combustion at the rear end of the grate and prevent the accumulation of unburned or half-burned coals.

23 designates a hot-air box, and the same is provided with a lower base portion 24, which communicates with the chimney-opening and receives air from the pipe 8 through an opening 25. The front wall of the base has an opening for the removal of dust in cleaning the box and for the admission of cold air, which opening may be covered by a door 26. Near the upper end of the box a pair of transverse pipes 27 pass entirely through from rear to front wall thereof and are open at each end, the front end being covered by a perforated register-plate. These pipes 27 are connected to the hollow base 24 by a pair of vertical pipes 29. A door 30 is located at the front side of the box to give access to the pipes and increase the admission of cold air when desired. The backs of both the fire-box and hot-air box have pipe-sections 31 projecting therefrom, and the pipe-sections of one telescopically connect with the sections of the other, so that, as will be seen, an adjustable connection between the fire and hot-air boxes is made. From the upper end of the elbow 10, above the damper 11 therein, there leads a pipe 32 for passage of smoke.

33 designates a deflecting-plate, which extends transversely in the upper end of the fire-box 9. A rod 34 is secured rigidly to the plate, the ends of the rod taking over and moving in guides 35, which are curved, as shown, and concentric with pivots 36 of a

pair of swinging rods or arms 37, the upper ends of which are loosely connected to the rod 34. This deflecting-plate 33 may be swung rearwardly, so that it practically covers or is interposed between the fire and inner ends of the pipes 31, and thus the heat would be deflected into the room, or by swinging it forwardly a portion of the heat will be permitted to pass rearwardly direct through the pipes 31 into the hot-air box around and among the pipes 29 and 27, and finally out through the pipe 32 to the smoke-pipe, and when drawn to the front closes the grate, acting as blower. The cold air passes from the pipe 8 through the base 24, vertically through the pipes 29, thence outwardly into the space or opening 5 of the chimney, where it is joined by more air, which has become heated by contact with the pipes 31 and back portion of the hot-air box. Some of this heated air passes laterally through the register-openings 28 into the room, while the rest of it will pass through the register-openings 14 of the room opposite or up the flue and through the openings 7 of the second floor, and during its passage will be in contact with the smoke-pipe 4, and in this manner the products of combustion are utilized to their fullest extent, and a constant supply of pure cold air is being heated and conducted to the various compartments with which the heater is connected.

Having described my invention, what I claim is—

1. In a heater of the class described, the combination, with the fire-box, of the hot-air box located in rear thereof, the smoke-pipe leading from the upper end of the fire-box and communicating with the upper end of the hot-air box, cold-air inlets for the hot-air box, transverse pipes through the hot-air box, vertical pipes leading from the cold-air inlets to the transverse pipes, pipes between the fire-box and the hot-air box, and a movable deflecting-plate pivotally supported below the pipes between the fire and hot-air boxes, substantially as specified.

2. In a heater of the class described, the combination, with the fire-box, the hot-air box, pipes between the same, air-pipes located in the hot-air box, and smoke-pipes leading from the box, of opposite curved ways secured to the inner walls of the fire-box, a shaft having its ends resting in the ways, a deflecting-plate connected to the shaft, and arms pivoted concentric to the ways and to the shaft, substantially as specified.

3. The combination, with the fire-box having the smoke-pipe and the damper located in the lower end of the smoke-pipe, of the hot-air box mounted on the hollow base, having air-inlets, a pipe connecting the upper end of the hot-air box with the smoke-pipe, and pipes leading from the hollow base to the front and upper end of the air-box, substantially as specified.

4. The combination, with the fire-box having the smoke-pipe and the damper located in the lower end of the smoke-pipe, of the hot-air box mounted on the hollow base, having air-inlets, a pipe connecting the upper end of the hot-air box with the smoke-pipe, transverse pipes extending through and through the upper end of the hot-air box, and pipes leading from the hollow base to the transverse pipes, substantially as specified.

5. In a heater of the class described, the combination, with the fire-box having the smoke-pipe, of the hot-air box provided with a hollow base, air-pipes leading from the base to the upper end of and discharging from the hot-air box, and adjustable pipe-sections leading from the backs of the fire and hot-air boxes and from the smoke-pipe and telescopically connecting with each other, substantially as specified.

6. The chimney having the chimney-opening 5, the internal flue having register-boxes 7, the smoke-pipe 4, and the floor 6, having the opening 7, and the cold-air pipe 8, communicating with the opening, combined with the facing-frame 13, having the perforations 14 and the opening, the hot-air box 9, located in the chimney-opening in rear of the opening in the facing-frame and communicating with the pipe 4 by the elbow 10, the damper 11, located in the elbow, the perforations located in the back of the fire-box below the grate, the hot-air box 23, the pipes 31, connecting the same with the fire-box, the pipe 22, connecting the upper end of the hot-air box with the elbow, the hollow base having the opening 25, the transverse pipes 27, located in the hot-air box, and the vertical pipes 29, connecting the hollow base with the transverse pipes 27, the latter having their ends opened, substantially as specified.

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

GEORGE RANDAULPH SCATES.

Witnesses:

W. O. WHITE,

W. O. HAWORTH.