

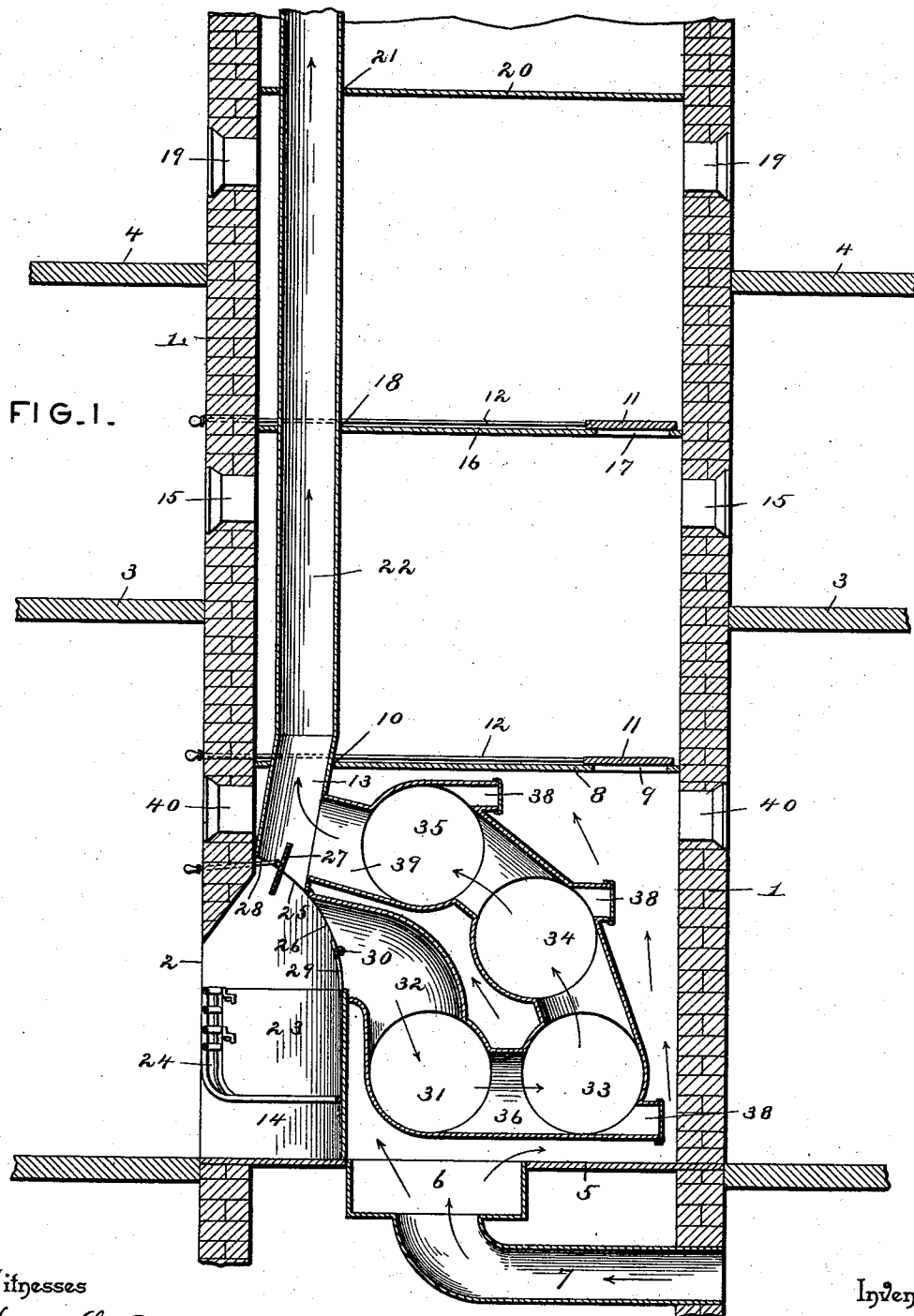
(No Model.)

2 Sheets—Sheet 1.

E. S. ROGERS.
COMBINED FIREPLACE HEATER AND FURNACE.

No. 506,796.

Patented Oct. 17, 1893.



Witnesses

Henry L. Amer.

H. S. Duval

Inventor

Elbert S. Rogers.

By his Attorneys,

Cash & Co.

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FIG. 2.

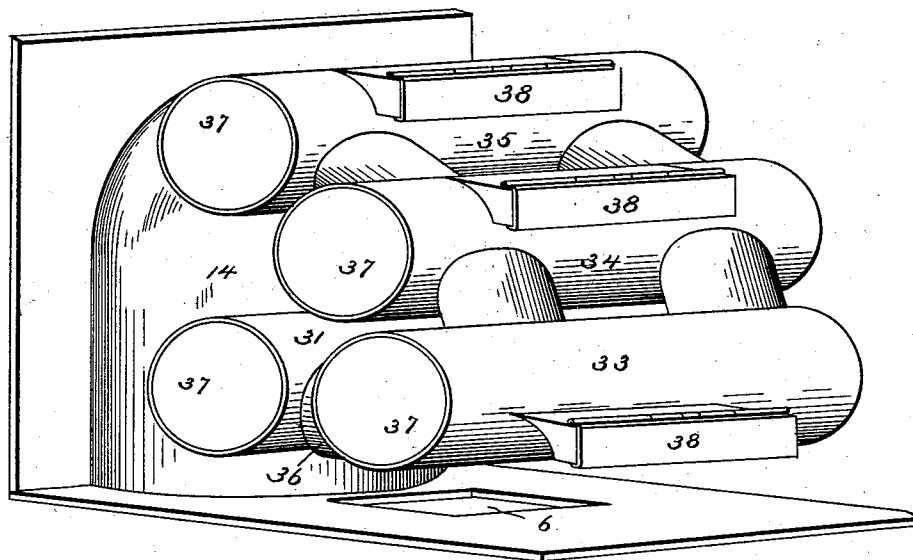
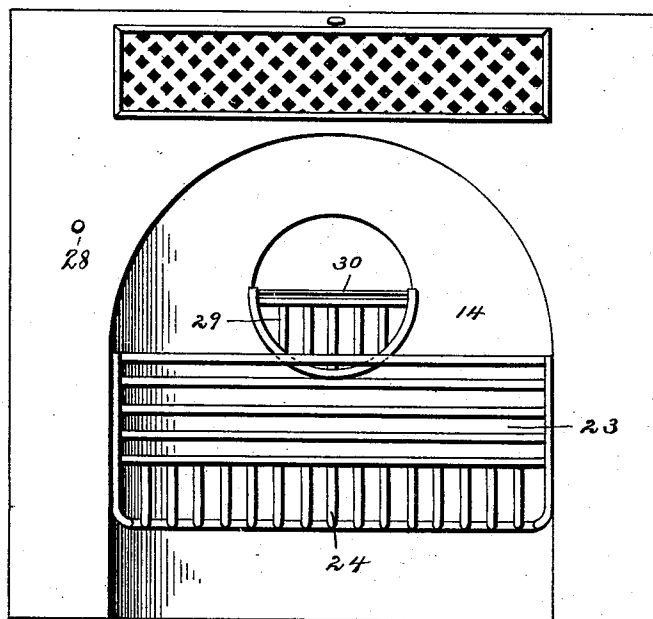


FIG. 3.



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UNITED STATES PATENT OFFICE.

ELBERT SEVERE ROGERS, OF KNOXVILLE, TENNESSEE.

COMBINED FIREPLACE HEATER AND FURNACE.

SPECIFICATION forming part of Letters Patent No. 506,796, dated October 17, 1893.

Application filed March 30, 1893. Serial No. 468,335. (No model.)

To all whom it may concern:

Be it known that I, ELBERT SEVERE ROGERS, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Combined Fireplace Heater and Furnace, of which the following is a specification.

My invention relates to that class of fireplace heaters constructed and adapted to heat distant rooms or apartments.

The objects of my invention are to provide a heater of cheap and simple construction; composed of few parts; readily formed and assembled and replaced when worn out; to provide for the admission of a continual current of cold pure air and adequate heating of the same; a conduction thereof to the various points of distribution when desired; to provide means for confining the air to the room in which the furnace is located; and to provide accessories in the way of dampers and their operating mediums, all being under the control of a person in the room wherein the heater or furnace is located, for controlling the distribution of the heat to the rooms above.

With these and various other 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 longitudinal sectional-view of a chimney and portions of the three floors of a building, a furnace constructed in accordance with my invention being located therein. Fig. 2 is a detail in perspective of the furnace. Fig. 3 is a front elevation thereof.

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

For the purpose of illustration, I have shown a chimney 1, having an opening 2, at its front, the same being intended to communicate with opposite rooms upon the same or first floor, and above the first floor I have shown two additional floors, designated as 3 and 4, though it will be apparent that, as will hereinafter appear, the heater may be employed in connection with either a one or a two-story house, or a house with a greater number of floors than three if desired, the principle being the same throughout. Located in the chimney on a level with the bottom of the openings 2 is the base 5, upon

which the furnace is to be seated. This base may be any suitable support desired, as for instance, a metal diaphragm suitably supported in the masonry of the chimney, and the same is provided with a central opening 6, with which communicates the upper end of a cold air-pipe 7, that may lead from the exterior of the building, and in localities where there are bad sanitary conditions, it may lead from the top of the house or any other suitable point of fresh air-supply. At a point above the openings 2 in the chimney there is located a horizontal diaphragm or metal plate 8, the same having in the present instance a pair of openings 9 and 10, the former being provided with a sliding damper 11, which is operated through the medium of a handle or rod 12 which projects through an opening in the chimney-breast into the room in which the furnace opens. The remaining opening is to accommodate the smoke-pipe 13 which projects upward from an opening made in the shell of the furnace 14. Above the floor 3, at opposite sides of the chimney, register-box receiving openings 15, are formed, and immediately above these a second horizontal diaphragm or plate 16, is seated in the masonry, the same having in the present instance a pair of openings 17 and 18. The third floor 4, likewise has register-box openings 19, at opposite sides of the chimney, and above the same is located a third diaphragm 20, in this instance having a single opening 21 in line with the openings 18 and 10 of the diaphragms below. If other floors are above the third floor of course the third floor will have an opening similar to the openings 11 and 17 of the diaphragms 8 and 16, the same being provided with a damper. In the present instance, however, as the third floor is the last one to be heated the damper and its opening are omitted.

From the smoke-pipe 13, which terminates immediately above the diaphragm 8, there extends a suitable flue 22, preferably formed of tiling, the same leading to the upper end of the chimney through the openings 18 and 21.

The shell or furnace is provided with a suitable lining 23 of firebrick, a grate 24, and openings 25 and 26, the former being above the latter, and the latter being directly in the back-wall above the line of fire-brick; and pivotally mounted therein is a damper 27, the

shaft of which is connected with an operating-rod 28, which projects through the chimney-breast above the opening 2. A semicircular perforate guard-plate 29, is pivoted as at 30, in the opening 26, and serves to prevent coal when fed to the grate passing through the opening and yet at the same time being perforate does not obstruct to any material extent said opening.

In rear of the furnace below the opening 26 a steel drum 31 is located, and the same communicates at its center with the opening 26 through the medium of a pipe 32. In rear of this drum 31 and the pipe 32 there is located an inclined series of drums, in this instance three in number, and designated as 33, 34, and 35. The drum 31 communicates with the series and the series with each other through pairs of short side-pipes 36. The drums are preferably constructed of steel, that is, their body-portions are, while their heads 37 are of cast-metal. The rear sides of the drums it will be seen are provided with hand-holes 38 having suitable covers, which when removed permit access to the drums for the purpose of clearing them of soot. From the upper drum 35 at the center thereof there leads a pipe 39 which communicates with the smoke-pipe 13 immediately above the damper 27. Just below the diaphragm 8 the opposite sides of the chimney are provided with register-openings 40.

The operation of the combined heater and furnace is as follows: When starting the fire the damper 27 is opened so that a direct draft is secured. When sufficiently kindled or started the damper 27 is closed and the products of combustion then pass through the opening 26 and through the series of heating-drums, and is finally directed into the smoke-pipe or flue. Before reaching the smoke-pipe or flue its caloric qualities are for the most part absorbed, and the cold fresh air circulating around the various pipes and drums becomes heated, and if the damper 11 is closed will be discharged through the lower register box 40 so that the heat is confined to the first floor. If, however, it is desired to heat the second floor also, the damper 11 is opened and the heat ascends to the diaphragm 16, being discharged through the register boxes 15 of the second floor. If it is also desired to heat the third floor the damper 17 is opened and the heat may be discharged through the register-boxes 19. The drums 31, 33, 34, and 35 may be given any relative proportion desired, but I prefer constructing the first drum 31 somewhat greater in diameter than the remaining drums 33, 34, and 35 of the series.

From the foregoing description in connection with the accompanying drawings it will be seen that I have provided a combined furnace and fireplace heater, the same being

composed of few parts, readily manufactured, assembled and replaced, and adapted to be employed for heating one or a series of floors as may be desired, the said furnace having the external appearance of an ordinary open fireplace-heater.

Having described my invention, what I claim is—

1. The combination with a chimney having an opening, a diaphragm over the opening, a register-box over the opening, of a furnace-shell arranged in rear of the opening within the chimney, a smoke-pipe leading from the upper end of the shell, a damper therein, a series of hollow drums arranged in rear and in a series extending over the shell, a pipe leading from the back of the shell to the first drum, and pipes leading from the first drum to the second, and so on throughout the series and from the upper drum to the smoke-pipe above the damper therein, substantially as specified.

2. The combination with the shell of the furnace having the grate, and openings at the upper end of the shell and immediately above the grate, a smoke-pipe connected with the upper opening, heat-radiating devices connected with the rear opening, and a perforate guard pivoted in the lower opening, substantially as specified.

3. The combination with a chimney having an opening, a perforated diaphragm arranged in the chimney above the opening, a damper thereover, a rod for operating the same, a lower diaphragm having a perforation arranged below the opening, a cold-air pipe communicating therewith, of a furnace-shell located in rear of the opening and supported upon the lower diaphragm, a smoke-pipe leading from the upper side of the shell and having a damper therein, and a series of cylinders arranged in rear of the shell communicating with each other, the rear opening of the shell, and the smoke-pipe above its damper, substantially as specified.

4. In a combined fireplace heater and furnace, the fireplace having openings 25 and 26, and the grate 24, and the damper 27 to close the opening 25, combined with the pipe 32 connected thereto, the drum 31, the pipe 36, the drums 33, 34, and 35 connected together and communicating with each other, and the pipe 39 connecting the last drum 35 of the series with the chimney above the damper 27, substantially as described.

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

ELBERT SEVERE ROGERS.

Witnesses:

A. T. COTTRELL,
GEO. L. SNYDER.