

E. R. WESTON.  
Heating-Drums.

No. 149,903.

Patented April 21, 1874.

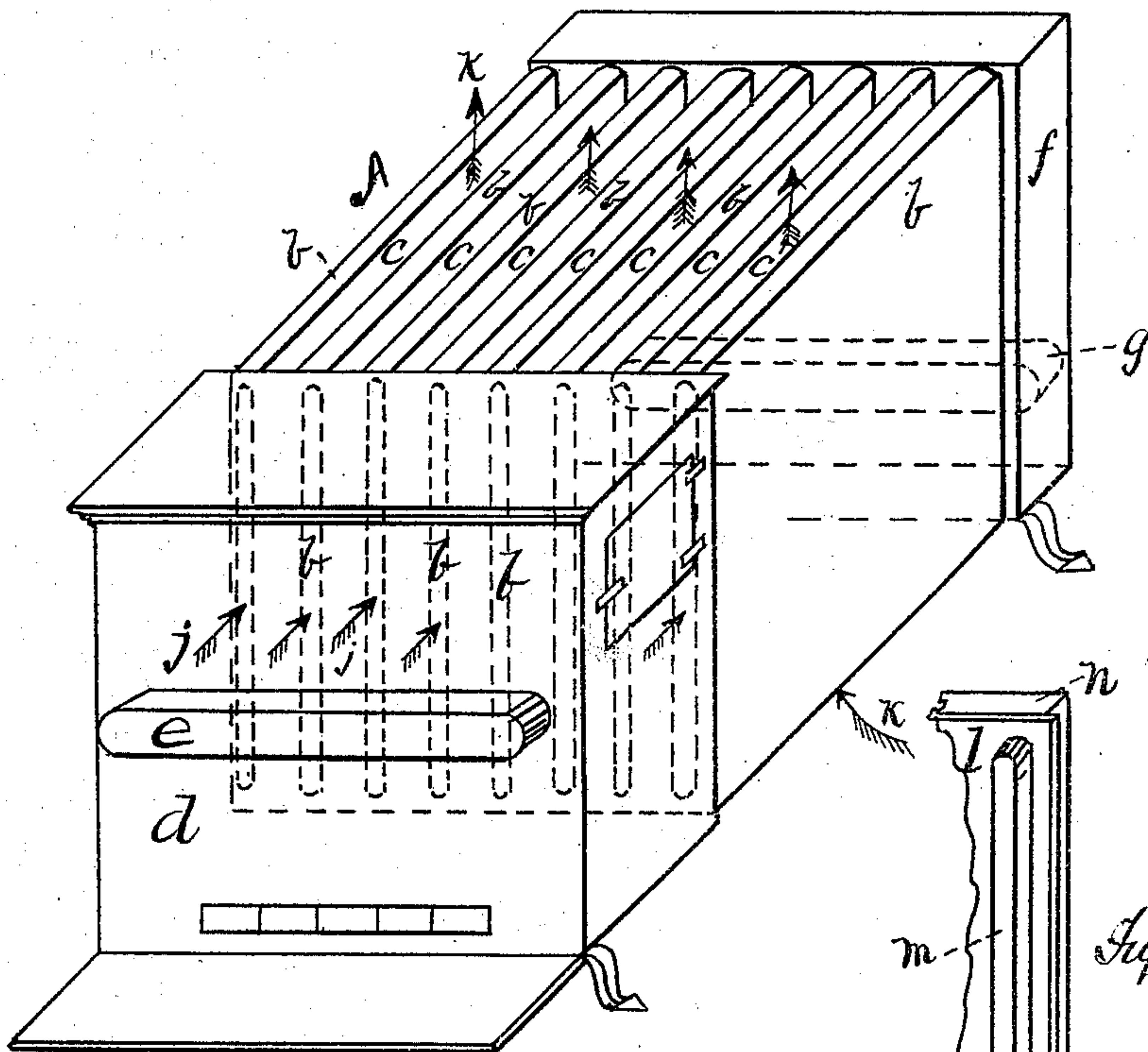
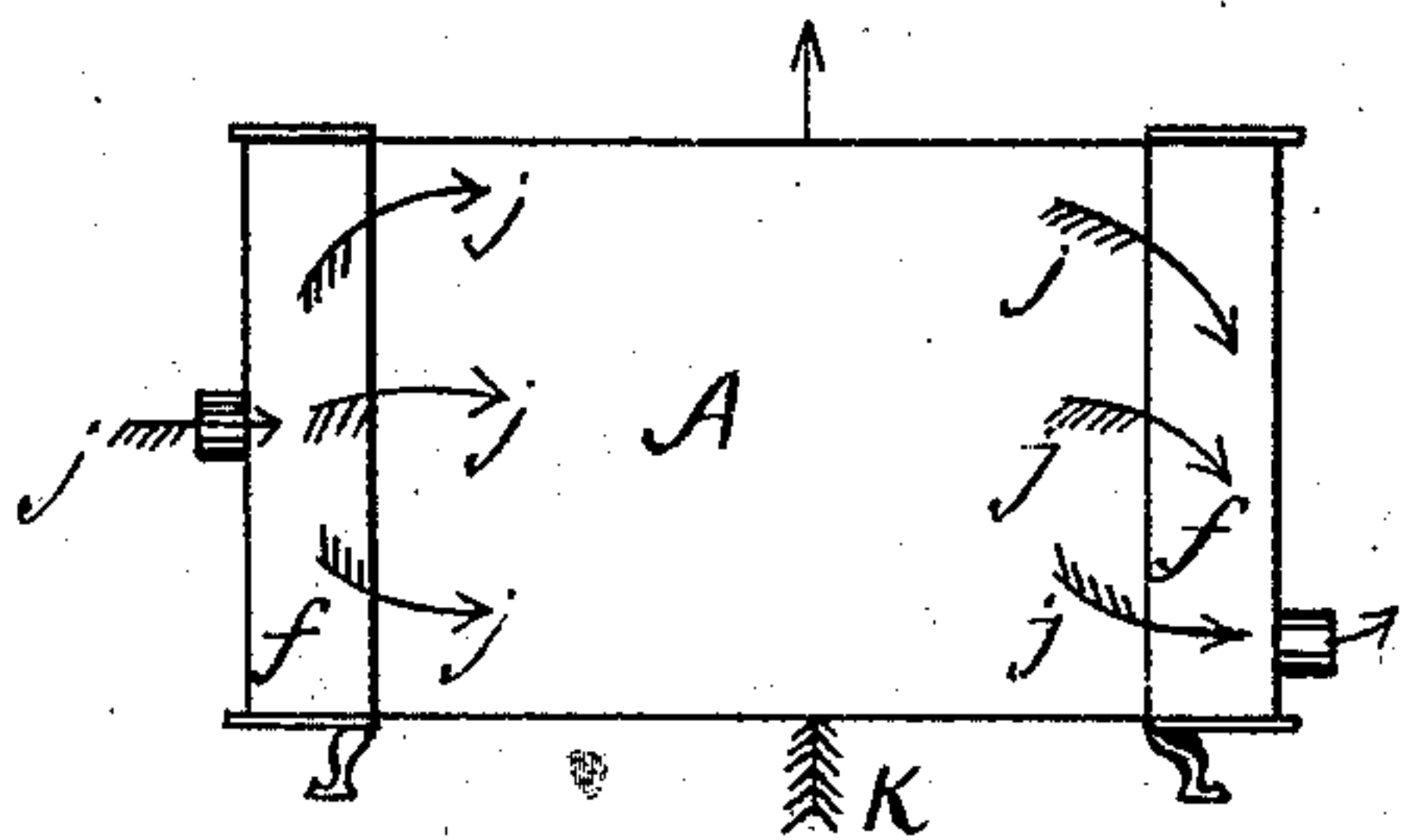


Fig 1.

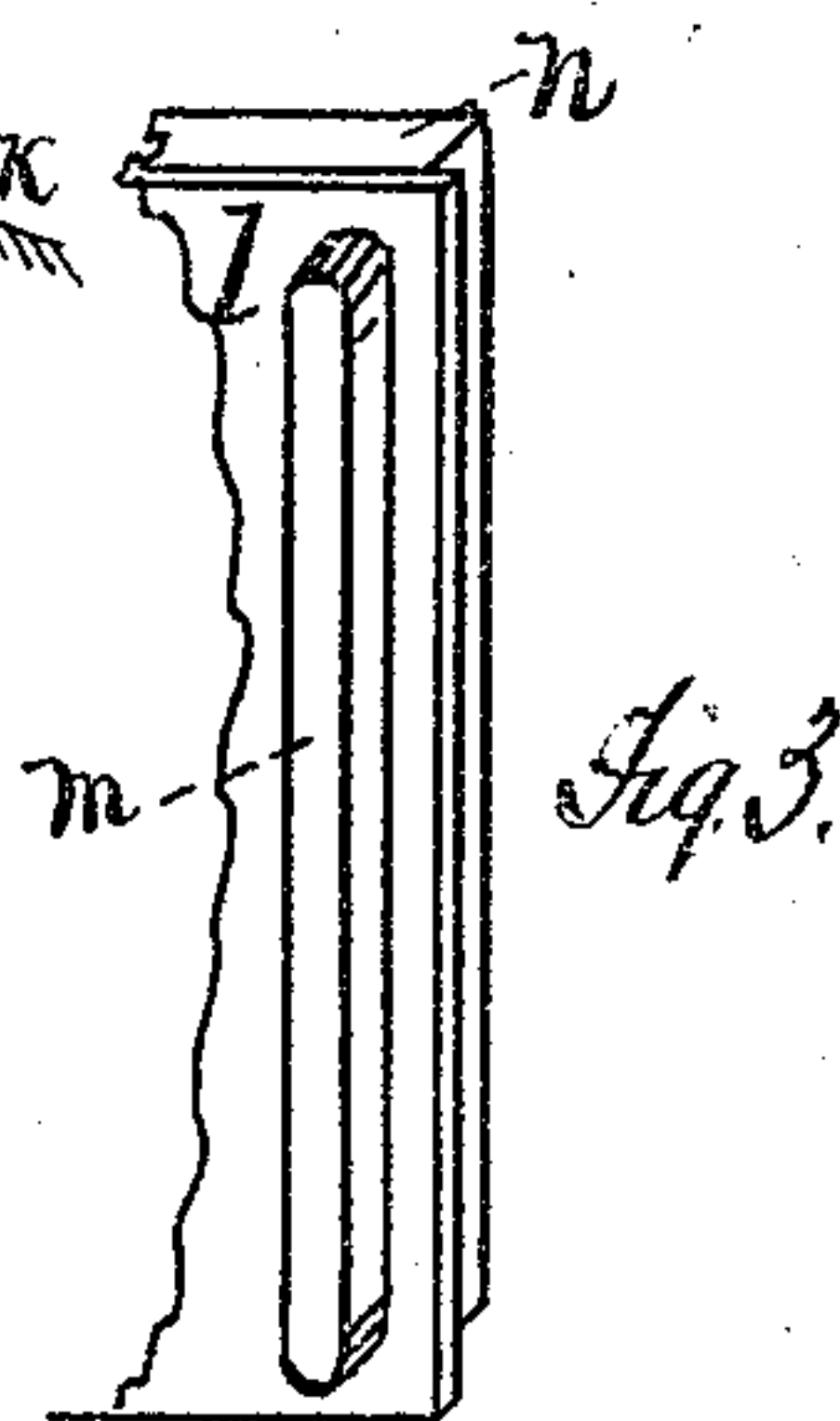


Fig 3.

Witness  
M. E. Brown  
Frank C. Weston

Inventor  
Emile R. Weston  
Per Wm. Franklin Peavy Atty.



# UNITED STATES PATENT OFFICE.

EMILE R. WESTON, OF BANGOR, MAINE, ASSIGNOR TO HIMSELF AND  
JOSEPH P. BASS, OF SAME PLACE.

## IMPROVEMENT IN HEATING-DRUMS.

Specification forming part of Letters Patent No. 149,903, dated April 21, 1874; application filed  
January 9, 1874.

*To all whom it may concern:*

Be it known that I, EMILE R. WESTON, of Bangor, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Air-Heaters; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 shows a perspective view of my heater with combustion-chamber attached; Fig. 2, a side view of same with expansion-chambers at each end; Fig. 3, a detail, showing a convenient means of constructing my heater.

Same letters show like parts.

The object of my invention is the production of a device for attachment to a stove, grate, or similar heating device, by which the heat may be economized and retained in the apartment, instead of passing off by the chimney. My invention consists in a heating-drum of peculiar construction, which is so arranged as to divide the smoke, gases, and other products of combustion into thin sheets by means of broad, flat conductors, and introducing between these conductors a thin sheet of air, which is constantly renewed from the room as the heat from the conductors causes it to expand and rise.

The construction of my heater is shown in the drawings. The products of combustion are separated as they come from the combustion-chamber and led into a series of broad, flat conductors, communicating at one end with said combustion-chamber, and at the other with the chimney. Alternating with these conductors (and in fact formed by their sides) are passages for air, communicating at each end with the air in the apartment, the openings for its admission and exit being at right angles with the openings in the conductors. As the heated products of combustion escape through these conductors to the chimney, they heat the air in the passages between them, causing it to expand and rise, its place

being supplied by the entrance of air from the apartment, and a continuous draft established.

Both conductors and air-passages are, preferably, made narrow, so that a large amount of heating-surface may be obtained, operating on thin volumes of air, thereby heating it more rapidly, and causing a quicker draft through the passages.

My invention, as described above, may, by slight changes in construction, which are indicated in the drawings, be applied to almost any of the devices for heating purposes now used. When applied to an ordinary stove, I inclose the openings of the smoke-conductors with narrow boxes, one being provided with a collar to receive the stove-funnel, and the other with a similar collar to receive the funnel leading to the chimney. These collars are preferably long and narrow, so that the smoke may enter and escape in a broad sheet. The boxes act as expansion-chambers, allowing the smoke and flame to reach all the conductors, those at the ends as well as in the center.

Another method in which I contemplate using my device is by attaching it directly to a combustion-chamber or grate communicating with the conductors without any intervening funnel, the smoke-conductors, in this case, entering the back of the stove or grate. In such case one expansion-chamber might be used at the back of the heater.

Referring to the drawings, A shows the heater, having the series of hot-air conductors *b* and cold-air passages *c*. Fig. 1 shows the device connected immediately with a combustion-chamber, *d*, having the usual doors, drafts, &c. When this construction is employed, an opening, *e*, may, if desired, be made for convenience in cleaning the pipes. At the back of the heater is shown an expansion-chamber, *f*, connecting with the chimney through the opening *g*. In Fig. 2 is shown this device as used when attached to an ordinary stove. Two expansion-chambers are used at front and back, and the funnel connecting the heater with the stove and chimney is placed at *i*. The smoke and hot air follow the arrows marked *j*, while the course of the cold air is indicated by those marked *k*.

A convenient means of constructing the

heater is shown in the detail, Fig. 3. A plate, *l*, is cast, having therein openings *m*, surrounded by collars, the number of said openings corresponding to the number of hot-air conductors required. These are fitted on over the collars, and the plates *l* form the ends of the heater, being held together by rods and nuts. A second collar, *n*, around the outer edge of the plate, on its opposite side, may be employed to secure the chambers *f f*. However, I do not limit myself to this construction for my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

In combination with a grate or chamber for the combustion of fuel, an air-heater con-

structed substantially as described, to wit, having a series of vertically-flattened smoke-conductors, *b*, parallel with each other, and each communicating both with the fire-chamber and the chimney, and a series of air-passages, *c*, formed by the sides of said smoke-conductors, and communicating with the air of the room at top and bottom, as herein described and shown.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of January, 1874.

EMILE R. WESTON.

Witnesses:

JOSEPH P. BASS,

WM. FRANKLIN SEAVEY.