

(No Model.)

3 Sheets—Sheet 1.

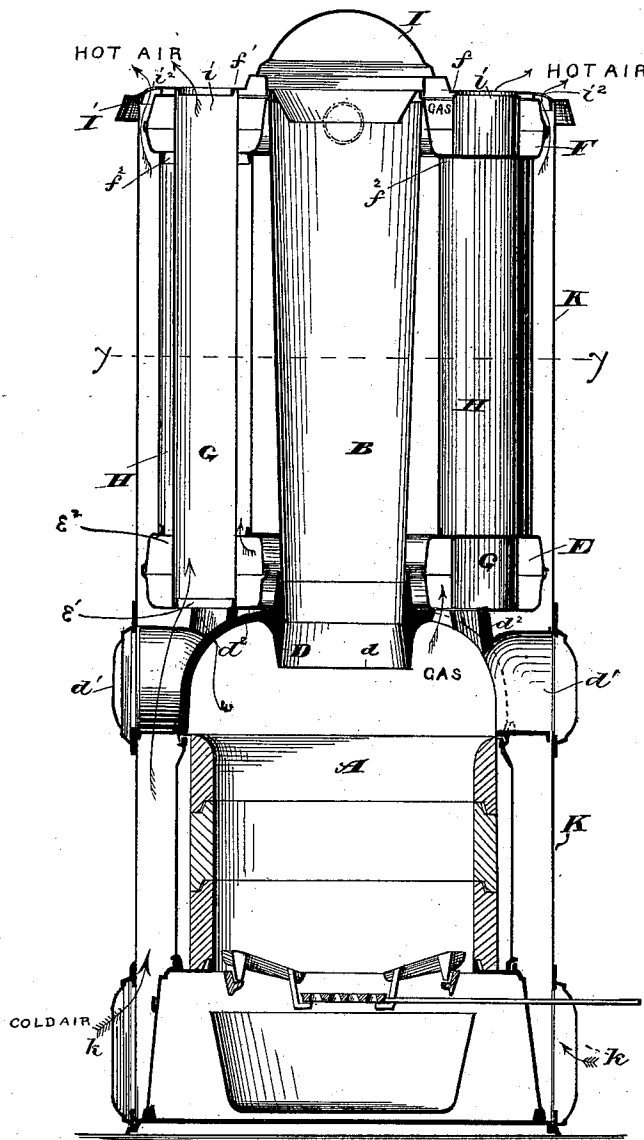
J. W. CUMMER.

HEATING STOVE.

No. 378,871.

Patented Mar. 6, 1888.

*Fig. 1.*



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Fig. 2.

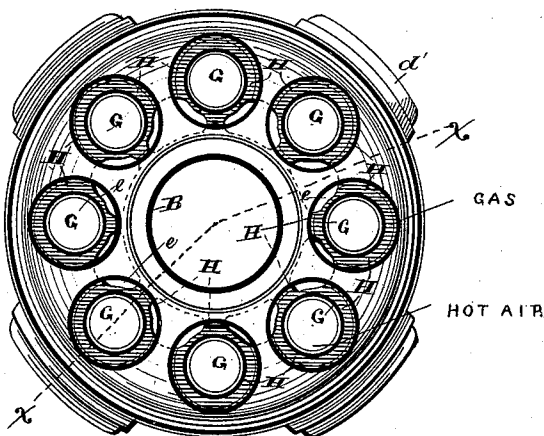
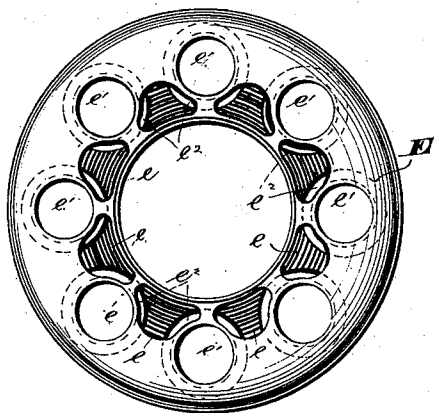


Fig. 3.



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Fig. 5.

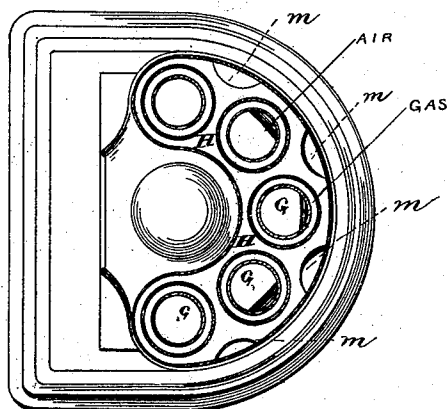


Fig. 6.

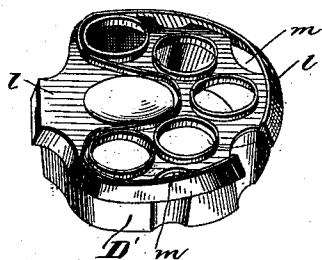
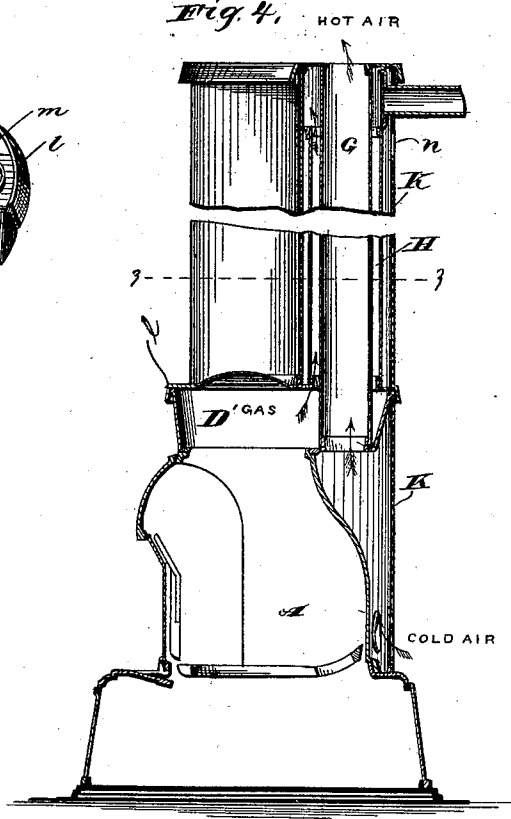


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JAMES WALTER CUMMER, OF CADILLAC, MICHIGAN.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 378,871, dated March 6, 1888.

Application filed December 13, 1886. Serial No. 221,439. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES WALTER CUMMER, a citizen of the United States, residing at Cadillac, in the county of Wexford and State of Michigan, have invented certain new and useful Improvements in Heating-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to improvements in heating-stoves of the class in which the cold air is heated by its passage through tubes exposed to the radiating heat of the stove or furnace, as hereinafter described.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of the stove on line *xx*, Fig. 2. Fig. 2 is a transverse section on line *yy*, Fig. 1. Fig. 3 is a bottom view of the drum in the body of the stove. Fig. 4 is a vertical sectional elevation of a modified form of stove, taken on line *z'z'*, Fig. 5; and Fig. 5 is a transverse section on line *z'z'*, Fig. 4. Fig. 6 is a view of the drum shown in the modification.

Similar letters of reference refer to corresponding parts throughout the specification and drawings.

The stove shown in Fig. 1 is designed as a base-burner for coal or coke, while that shown in Fig. 2 is constructed on the principle of the Franklin stove. Both may be adapted to burn wood without departing from the spirit of my invention.

A represents the fire-pot, and B, Fig. 1, the magazine.

D is the dome of the fire-pot or body proper of the stove, provided with a central flanged opening, *d*, which supports the magazine B, doors *d'* at the sides, and a series of flanged openings, *d''*, about its center. Resting upon this dome is a drum, E, having three series of openings, (indicated by *e e' e''*, respectively.) The openings *e* are in the bottom of the drum and register with and fit closely about the flanged openings *d''* in the dome. The openings *e'* likewise are in the bottom of the drum, intermediate of the openings *e*, and removed nearer the outer edge of the drum, so that the respective series of openings will be separated by suitable margins. The openings *e''* are in

the top of the drum, immediately over the openings *e'*, and are of about one-third greater diameter than the said openings.

F represents a drum, which in the main is a duplicate of the drum E, and is firmly secured about the top of the magazine. This drum has openings *f'* in its top corresponding to the openings *e'* in the drum E, and other openings, *f''*, in its bottom corresponding to openings *e''* in said drum E.

Fitting closely about the openings *e' f'*, and connecting them, is the cold-air tube G, and between the openings *e'' f''* is the hot-air flue H. These tubes and flues being of the same diameter as the openings with which they are connected, and said openings being arranged with a common vertical center, it follows that as one set of openings is larger than the other the smaller pipe or tube, G, will be located within the larger pipe or flue, H, with a space between said pipes or flues equal to one-half the difference in their diameters.

I is a crown-plate having a central opening adapted to the top of the magazine, and a series of small openings, *i*, corresponding to and registering with the tubes G, whereby the air passing through said tubes is discharged into the room.

A cylindrical jacket, K, incloses the entire structure hereinbefore described. This jacket extends from the base to the top of the stove, and is of such width or diameter as to leave an open space between it and the body of the stove throughout its entire length. The top of the jacket rests within an overhanging flange, I, and inside of this flange and the jacket K are openings *i''* for the passage of heated air into the room. Cold air enters the space between the jacket and the stove proper through openings *k* around the bottom of the jacket or cylinder.

The operation is as follows: It will be observed that a channel is established for the products of combustion, first through the openings *d''* into the drum E, then through flues H to drum F, and thence to the chimney through a hole in the rear of the drum. (Shown in dotted lines in Fig. 1.) Inasmuch as cold or fresh air envelops the drums and flues within the jacket and fills the tubes G, it follows, when this air is heated by radiation from the stove and its flues

and drums, that it will rise in the passages provided for it. This creates a current through the said fresh-air passages, which is fed through the openings in the bottom of the jacket, and circulation of the air being thus established, the process of heating the air continues according to the heat in the stove.

In Figs. 4 and 5 a modification is shown of the above-described stove. Here the heating devices are adapted to a Franklin stove, and extend only half-way around the bottom and top. The jacket K is in two portions, separated by the flanged plate l, which is perforated by the apertures m, Figs. 5 and 6, around its outer edge, to admit fresh air into the space about the tubes H inside the jacket K, and near the top of said jacket are a series of apertures, n, to admit the air thus heated into the room.

In conclusion, it may be observed that while I prefer the methods of construction described above I do not confine myself to them, but may make use of any form of construction which does not depart from the spirit of my invention.

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

1. In a stove, a jacket extending from its base to its top and provided with fresh-air in-

lets, in combination with two drums within the jacket and apart therefrom to leave an air-passage between said parts, fresh-air tubes passing through both drums, and heat-carrying flues connecting the drums and enveloping the fresh-air tubes, whereby the heat in the drums and on both sides of the heat-carrying flues is utilized to heat the air, substantially as set forth.

2. In a stove, a jacket provided with fresh-air inlets, substantially as described, two drums connected by heating-flues, fresh-air tubes passing through said drums and flues, and communicating with the space between the stove and jacket at one end and with the open air at the other, all combined and arranged substantially as set forth.

3. In a stove, the combination of a dome above the fire-pot, having a series of openings, a drum communicating with said dome, and a jacket outside said drum, in combination with a second drum above the first, heat-carrying flues connecting said drums, and fresh-air tubes passing through said flues and drums, substantially as set forth.

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