(No Model.)

# W. J. KEEP.

## VENTILATING FLUE FOR STOVES.

No. 384,696. Patented June 19, 1888.

Fig. 1.

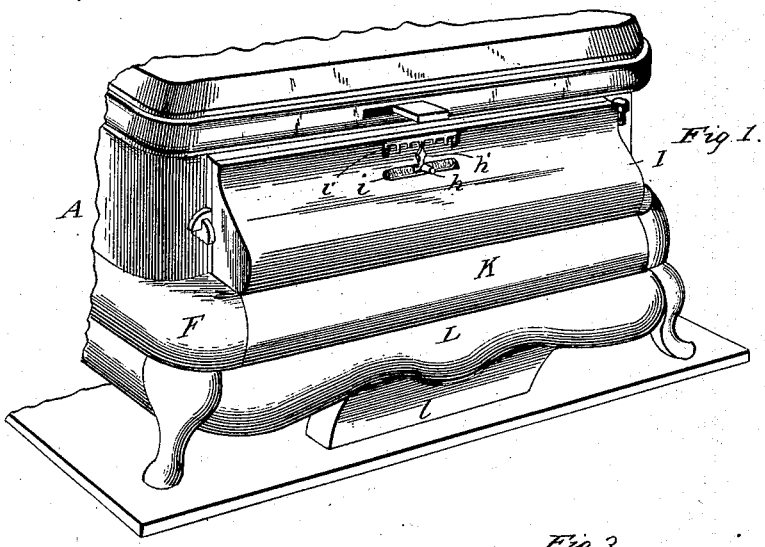



Fig. 3.

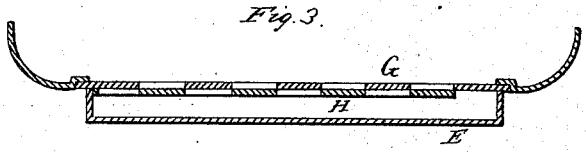



Fig. 4.

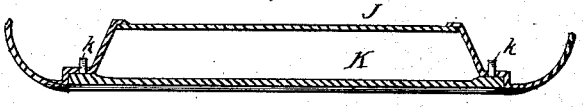



Fig. 2.

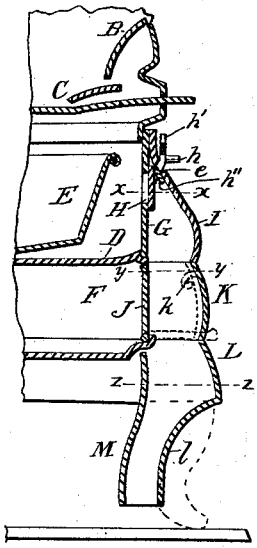



Fig. 5

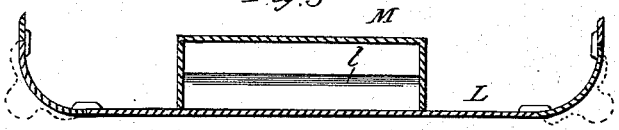
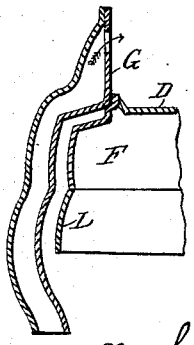



Fig. 6




Witnesses.
C. H. Haeder.
W. T. Robertson.

Inventor.
William J Keep.
By his Attorney.
T. W. Robertson.

# UNITED STATES PATENT OFFICE.

WILLIAM J. KEEP, OF DETROIT, MICHIGAN, ASSIGNOR TO THE MICHIGAN STOVE COMPANY, OF SAME PLACE.

## VENTILATING-FLUE FOR STOVES.

SPECIFICATION forming part of Letters Patent No. 384,696, dated June 19, 1888.

Application filed February 16, 1887. Serial No. 227,806. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. KEEP, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Ventilating-Flues for Stoves, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a perspective view of the front of a stove constructed according to my improvement. Fig. 2 is a central vertical section of the same. Fig. 3 is a horizontal section through the line *x x* on Fig. 2. Fig. 4 is a similar section through the line *y y* on the same figure, and Fig. 5 is a similar section through the line *z z*. Fig. 6 is a vertical section showing a modification.

The main object of this improvement is to rapidly take off from the floor the cold foul air that lies thereon by the aid of a ventilating-flue and to cover up and hide the damper-aperture, &c.; and the invention consists in the peculiar construction, arrangement, and combination of parts, hereinafter described, and then definitely pointed out in the claims.

A represents the stove, the main features of which—such as the fire-pot B, the grate C, the ash-pit D, ash-pan E, and bottom flue-base, F—may be of any approved form, and as my invention does not consist in these it is unnecessary to further describe or show them.

The ash-pit door G is provided with a sliding damper, H, (see Fig. 3,) having a projecting knob, *h*, and a pointer, *h'*, which knob and pointer project through a slot, *i*, in a plate or hood, I, arranged in front of the ash-pit door, and securely attached thereto so as to move with the same. This plate may be either nickeled, ornamented, or plain, as desired, and the slot in which the knob of the damper moves is stopped by a follower, *h''*, which is attached to and moves with the knob or damper. The plate I is preferably provided with a graduated scale, *i'*, which, in connection with the pointer *h'*, will indicate the amount of opening uncovered by the damper. Below this is a continuation of the ventilating-flue, which is formed on one side by a dropping door, J, and on the other by a removable front plate, K, provided with hooks *k*, that pass through slots in the fixed part of the stove.

The leg-base L has an extension, *l*, running nearly to the floor, leaving about one inch (more or less) between its lower edge and the floor. At the back of this is a plate, M, which forms, with the extension *l*, the lower section of the ventilating-flue, and it may be attached in any convenient way, and may be made of any suitable material, either cast or sheet metal, as it is in a position where it is not likely to be bent out of shape by an accidental knock. It will be seen that by this construction a ventilating-flue is provided that will be found very useful, as it takes up the cold and foul air rapidly from the floor when the fire is low and the draft therefore the poorest, and conveys the same to the fire, whereby the latter is not only supplied with the proper amount of cold air, but the room is more evenly heated, as the warm air from above necessarily descends to take the place of the cold air that is removed, and thus a person sitting in said room sooner feels the change of temperature, for it is a well-known fact that most persons' feet are very sensitive to changes of temperature, and that with their feet cold they feel very uncomfortable, whether the remainder of the body is hot or not; but with their feet warm they are comparatively comfortable even if the room is cold; hence it is believed that this addition to a stove will be found to be very valuable.

In stoves as ordinarily constructed the ashes show through the damper-aperture, and also in the line of junction between the bottom edge of the door and the door-opening, and present an unsightly appearance. Especially is this the case when the ashes have been removed without blackleading the stove, for in that case the white ashes cling to the front thereof and present a very untidy appearance. This is remedied by the use of my plate or hood, that covers up not only the damper, but also the lower part of the front of the stove, and thus there is no necessity of this part of the stove being cleaned, as it is covered by the plate or hood, so that independent of the use of the plate I for forming a flue it also has the useful effect of saving labor in cleaning the stove, because the ashes never come in contact

with the parts I K L, and hence they seldom require cleaning, while the parts with which the ashes come in contact in an ordinary stove—the hearth, for instance—require cleaning every time the ashes are spilt over them in clearing the stove of the ashes.

The use of the indicator will be found to be very useful, as a little experience will soon show what is the proper amount to have the damper open to produce the best effect on the stove, as this will vary with the draft of the chimney with which the stove is connected and the state of the weather, and by setting the indicator at that point which has been found to be the best in that particular case the best effect will always be produced on the fire. The use of the falling door J will also be found to be advantageous, as it acts, when open, to bridge over the flue and prevent the dust falling therein when cleaning out the bottom flue. The arrangement of the flue in the front of the stove will also be found to be an advantage, as the pointer is thus always in sight and it can be seen at a glance whether the damper is open or closed or whether it is open to the right degree.

It will be observed that by the construction shown in the drawings and herein described the leg-base, the flue-base, and ash-pit door are separated by horizontal joints, whereby each may be removable and capable of some lateral motion independent of the others.

Instead of constructing the ventilating-flue in the manner shown in Figs. 1, 2, 3, 4, and 5, a separate flue may be attached to or cast with, or partly cast with and partly attached to, the ash-pit door, as shown in Fig. 6.

In some cases I may dispense with the base-flue door or set it in one of the other sides of the stove, in which case the outer wall of the base-flue will form part of the inner wall of the ventilating-flue.

I deem it important that the flue should be in the position indicated, for it is essential to the proper burning of the fuel that the air to support combustion shall enter in a long narrow stream along the front of the stove, as otherwise the fire will frequently burn unevenly, because the outlet is generally at the rear of the stove, and hence if the inlet for the air is at one side or in any other place than the front the draft on the fire will be uneven, and if on one side the stove would be unsymmetrical in appearance, and if on both sides the expense of construction would be doubled, and, moreover, the base-flues in many stoves would prevent the arrangement of the ventilating-flues on any other place than the front without an expense that would be prohibitory.

The position of the ventilating-flue in front is important for another consideration also, for if the ventilating-flue were located upon the back or side of the ash-pit the ashes that are backed up above the pan would for much of the time cut off all connection with the flue and prevent any air from entering the fire, thus defeating the object sought and being unreliable. Again, when the ash-pan was removed, the ashes and cinders would fall into the passages of the flues and soon choke them, as there would be no convenient way of clearing them.

Having thus described what I consider the preferable mode of carrying out my invention, but without intending to limit myself to the exact construction shown, what I claim as new is—

1. The combination, with a stove-door having an opening communicating with the interior of the stove, of a hood attached thereto and projecting down below the bottom edge of the opening in the door, said door and hood forming a ventilating-flue open at the bottom and terminating above at the opening in the stove-door, substantially as described.

2. The combination, with a stove-door having an opening communicating with the interior of the stove and a damper closing said opening, of a hood connected to the upper part of the door and projecting downward sufficiently to hide the damper and the bottom edge of the stove-door, said door and hood forming a ventilating-passage open at the bottom and terminating above at the opening in the stove-door, substantially as described.

3. The combination, in a stove and with its ash-pit door having an aperture communicating with the interior of the stove, of a damper for closing the same, a hood covering said aperture from sight, said door and hood forming a ventilating-passage open at the bottom and terminating above at the opening in the ash-pit door, and said hood having an opening for a connection with the damper, and a slide closing said opening, substantially as described.

4. The combination, in a stove and with its ash-pit door having an aperture communicating with the interior of the stove, of a damper for closing the same, a hood covering said aperture from sight, said door and hood forming a ventilating-passage open at the bottom and terminating above at the opening in the ash-pit door, and said hood having an opening for a connection with the damper, a slide closing said opening, and an index for indicating the position of the damper, substantially as described.

5. In a stove having an ash-pit, a smoke-flue under the same, and a ventilating-flue communicating with the interior of the stove at top and with the atmosphere at the bottom, a pivoted door dividing said ventilating and smoke flues, and an opening in the outer wall of the ventilating-flue through which access may be had to said door, substantially as described.

6. In a stove having a ventilating-flue communicating with the interior of the stove at top and with the atmosphere at the bottom, the combination of a movable door above an opening in said ventilating-flue with a pivoted

door forming one side of the flue and dropping over and bridging said opening, substantially as described.

7. In a stove, a ventilating-flue formed of the door G, provided with suitable openings, the plate I, attached thereto, the wall of the bottom flue-base, the plate K, the leg-base L, the extension *l* thereof, and the plate M, substantially as shown and described.

In testimony whereof I affix my signature, in presence of two witnesses, this 14th day of February, 1887.

WILLIAM J. KEEP.

Witnesses:
WILLIAM H. SEXTON,
H. B. GILLESPIE.