(No Model.)

M. C. HULL.

HEATING STOVE OR FURNACE.

No. 263,705. Patented Sept. 5, 1882.

Fig. 1

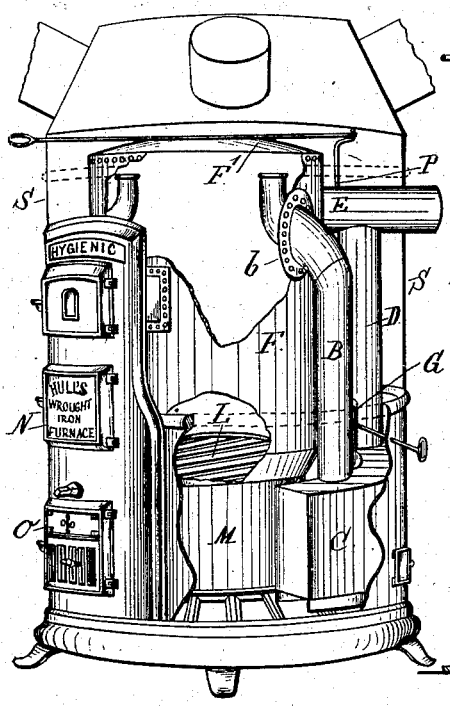


Fig. 2

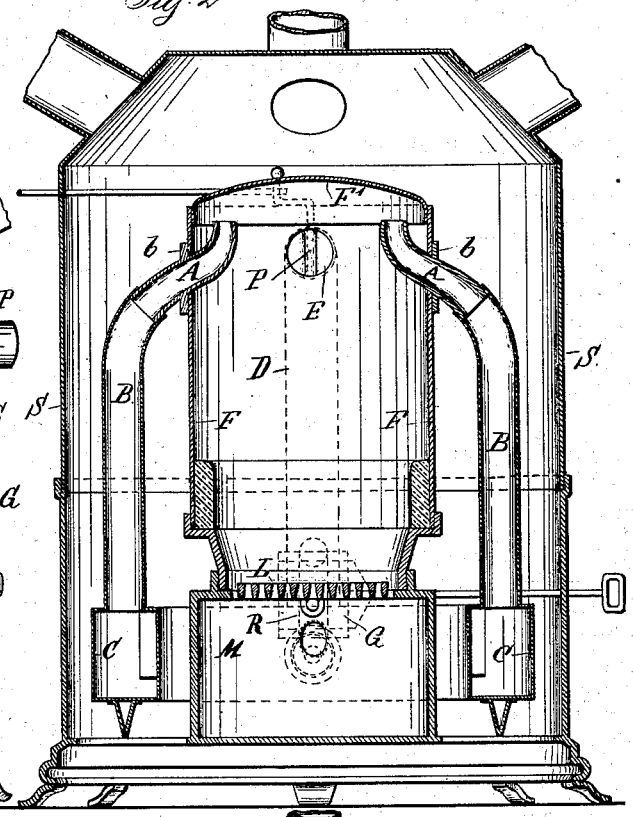


Fig. 3

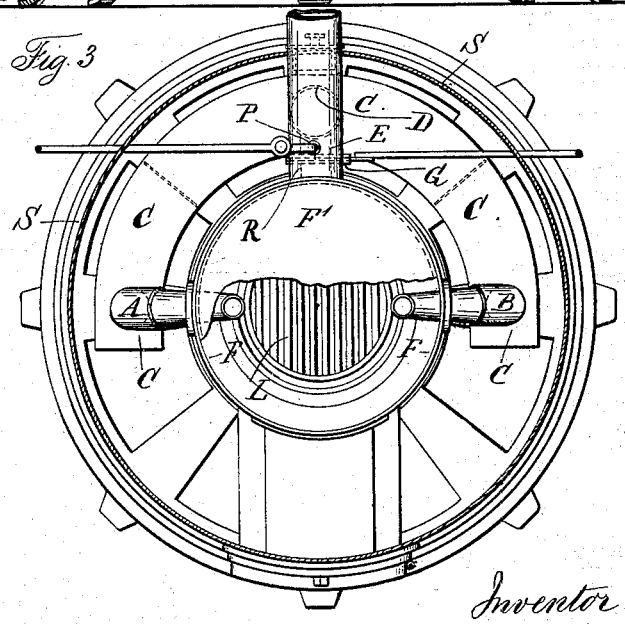
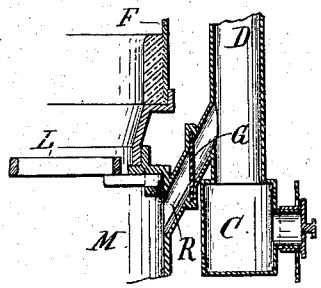


Fig. 4.



Witnesses
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atty

UNITED STATES PATENT OFFICE.

MAURICE C. HULL, OF WEST ORANGE, NEW JERSEY.

HEATING STOVE OR FURNACE.

SPECIFICATION forming part of Letters Patent No. 263,705, dated September 5, 1882.

Application filed July 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, MAURICE C. HULL, of West Orange, in the county of Essex and State of New Jersey, have invented an Improvement in Heating Stoves or Furnaces, of which the following is a specification.

In stoves or furnaces for heating buildings the gases often escape in consequence of opening the door either for slackening the fire or for supplying fuel. This escape often arises from an accumulation of gases in the upper part of the fire-chamber, there being no opening that is sufficient for removing these gases as they arise from the coal, the discharge-flue for such gases usually being nearly at the level of the fire-door, or else of such a character that they become obstructed by the fuel or by ashes. In cases where there are partitions in the fire-chamber or around the same the gases accumulate on both sides of these partitions, and are not drawn off in a manner that prevents them escaping when the door is open.

My present invention is for discharging the gases from the fire-chamber by means of pipes inside the combustion-chamber, which form descending flues partially within the combustion-chamber, so that the products of combustion ascend to the top of the dome and then descend through such escape-flues in such a manner that the hottest of the gases from the fire-chamber will pass to the escape-flue. Hence the draft in the chimney will not be suddenly cooled by the opening of the feeding-door, and the strength of draft will be maintained for carrying away the escape gases when the door is opened the same as if the fire-door was shut. By this improvement the heating capacity of the furnace or stove will be augmented.

In the drawings, Figure 1 is a perspective view representing the furnace as partially broken open. Fig. 2 is a vertical section. Fig. 3 is a plan, partially in section; and Fig. 4 is a section through the dust-flue.

The grate-bars L above the ash-pit M are of ordinary construction, and the fire-chamber above the grate-bars is made of a casing, F, with a top or dome, F′; and at the bottom the casing F is united to the fire-pot and lined with fire-brick. This casing F is preferably of wrought-iron or steel plates riveted together.

The fire-door N and ash-door O are of ordinary character; and the whole furnace may be placed in an air-chamber of brick, with hot-air pipes leading therefrom; or the casing *s* may be metal of any desired character; or the improvement may be used in a stove that is not in a hot-chamber.

From the fire-chamber there is a direct flue, E, to a chimney. When the damper at P is closed the products of combustion from the fire-chamber pass by the flues A and B to the semi-cylindrical base-flue C, and thence by the pipe D to the chimney-flue E. In this hollow base C there should be hanging partitions to prevent the heated air passing away too rapidly to the flue D. The flues A are preferably made with slightly contracted upper ends, that are inside the chamber and near the top or dome thereof, so that the hot air in the fire-chamber will not be conveyed away too suddenly or in too great volume, the open end of each pipe being uppermost. Each flue-pipe A curves or inclines outwardly as it descends, and it passes through the casing F, where it is provided with a flange, *b*, through which are rivets to secure it to the casing F. This flue A and flange *b* are preferably cast in one piece, and the flue A, being of a tapering form, can be passed from the outside of the casing in through the opening therein and turned upwardly to place. The sheet-metal pipe B is a continuation downwardly of the lower part of the flue A. The bottom part of the flue A is at a sufficient inclination to prevent ashes or dust lodging or interfering with the draft. By this construction I am enabled to take off the gases and products of combustion from the top part of the fire-chamber with the necessary rapidity to prevent them escaping when the fire-door is opened, and the upper ends of the flues A, opening upwardly, receive the hottest of the gases from the top of the fire-chamber, and the escape-chimney is not unnecessarily cooled by opening the furnace-door. I prefer to use two of the flues A; but one may be used, or a greater number than two.

Below the fire-chamber and grate-bars there is an ash-pit, and from this the dust-flue R passes to the escape-flue D and chimney, and in it is the sliding damper G. Dust-flues and dampers have been used before; but they be-

come obstructed by the dust. In consequence of placing the dust-flue at an upward inclination, with a vertical damper sliding horizontally, the flue becomes self-cleaning, and the damper, when moved, frees itself from dust that may lodge upon it, and the dust that settles in the flue is returned into the ash-pit.

I claim as my invention—

1. The combination, with the fire-chamber and the casing F above the grate-bars, of the flues E D C B, and the flue A, having a flange, *b*, by which it is attached to the casing F, the end being tapering, and having the opening at the upward end, substantially as set forth.

2. The combination, with the casing F, forming a fire-chamber, of one or more flues, A, having their open upper ends within the fire-chamber, or passing downwardly, first inside and then outside the combustion-chamber, substantially as set forth.

3. The combination, with the casing F, forming a combustion-chamber above the fire, of one or more descending flues, A, having contracted upper ends, within the fire-chamber and near the top thereof, and an inclined bottom to each flue, so as to be self-cleaning, substantially as set forth.

Signed by me this 1st day of July, A. D. 1882.

M. C. HULL.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.