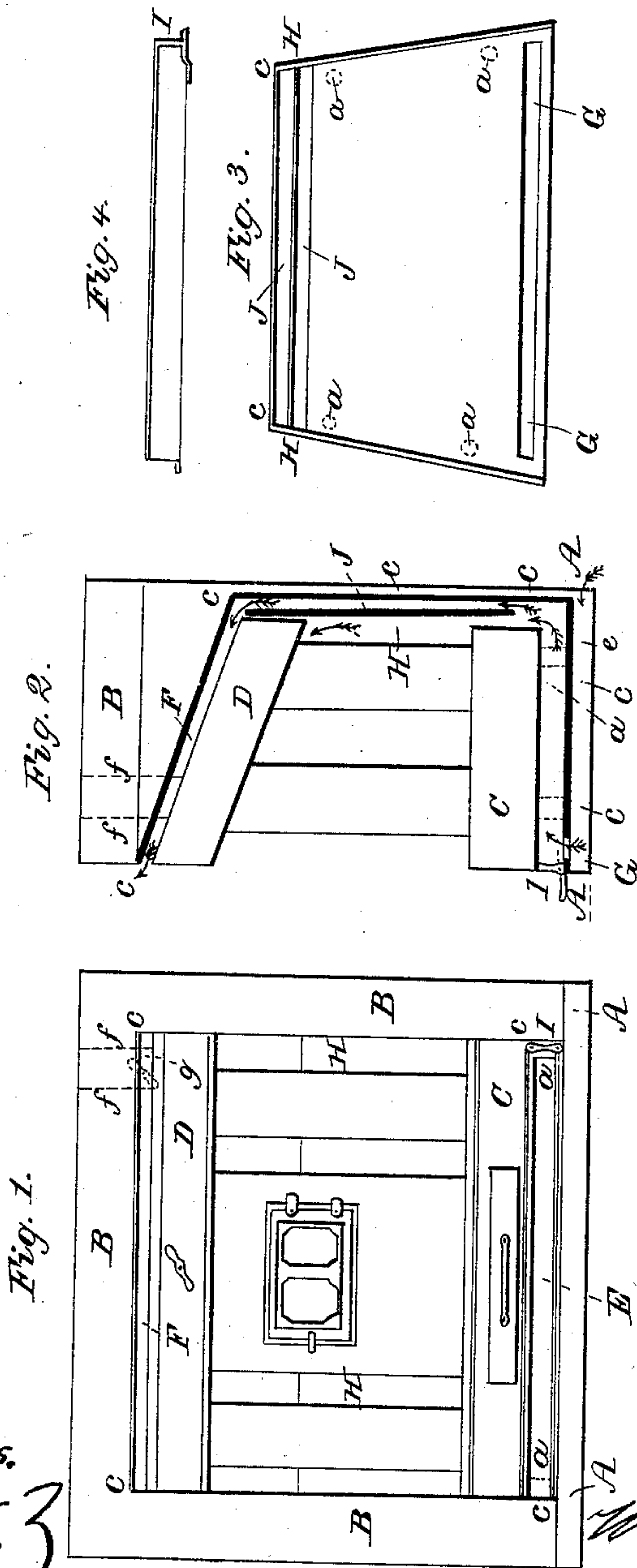


W. H. STINSON.

Fireplace.

No. 18,362.

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Witnesses.
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WM. H. STINSON, OF BALTIMORE, MARYLAND.

COAL-STOVE.

Specification of Letters Patent No. 18,362, dated October 6, 1857.

To all whom it may concern:

Be it known that I, WM. H. STINSON, of the city of Baltimore and State of Maryland, have invented certain improvements
5 in the construction and arrangement of stoves used in heating apartments both by direct radiation and currents of heated air.

To enable others skilled to make and use my invention I will describe its construction
10 and principles of operation illustrating the description by means of the accompanying drawings and the letters of reference marked thereon, which drawings form a part of my specification.

Before proceeding to a minute description, I will state generally the nature of my improvements and their advantages
15 over such devices as have hitherto been used for the same purpose in the same general manner.

My invention consists in fitting within the common fire place a suitably shaped hood or cowl covering the opening in the throat of the chimney the sides or jambs and
25 the hearth and inserting within the hood or cowl my peculiarly constructed stove somewhat after the manner of the Franklin or Pennsylvania fire-place heating a current of air directed either from without or from
30 within the room, in which the stove is placed, as the exigencies of temperature may require and by suitable devices dividing the current of air in such a manner that it shall necessarily pass over a great amount of
35 heating surface, and the heating surface so arranged that it shall facilitate the passage of the heated air into the room. I am also enabled by a peculiar construction and arrangement of the parts, to cut off the external supply of cold air, and derive it instead from the lower stratum of air in the room to be heated. The construction of the
40 upper fire flue or box also enables me to deflect the radiated heat in such a manner that the hearth immediately in front of the
45 stove is warm to the feet, and this peculiar construction of the upper flue, in its combination with the cowl and partition (which will be more particularly described in the
50 letters of reference to the drawings) enables me to divide the currents of air and to pass them readily over both the upper and under surfaces of the fire flue above named, the inclination of which at a suitable angle
55 not only deflects the heat in the manner described but also increases the amount of

heating surface without deepening the fire-place and promotes also the free passage of the heated currents into the room.

In pursuing the experiment necessary to perfect my invention I discovered that the defects existing in the stoves of the same general character, to be specifically as follows: The limited amount of heating surface, and its high temperature burning or
60 vitiating the air as it passed into the room, and also insufficiency of volume, and where this was not the case as in other modes of construction the imperfect methods of conducting the air to the heater over the heating
65 surfaces and thence into the room although not burning it, was not at the same time sufficient either in flow, volume or temperature to render the room comfortable, and no arrangement was provided for
70 changing the supply of the cold air from the external to the internal source when the temperature of the weather was more than ordinarily cold thus the room under these circumstances could never be sufficiently
75 heated, and the greatest effect was not derived from the amount of fuel burned. To remedy these defects has been the aim of my experiments and under my system of construction and arrangement, they have been
80 entirely overcome.

Description of drawings.—Figure 1 represents a front view of the stove as it stands within the fire place. As the general form of the radiator does not differ from those in
85 common use, it is not deemed necessary to describe it particularly except where a different form or arrangement is made. A, A, shows the level of the hearth. B, B, B, the jambs of the fire place. The dark lines
90 c c c, show the edges of the hood or cowl fitting closely into the fire place, and of sufficient height to allow a space of one and a half or two inches between the interior of the cowl at top and bottom and the
95 upper and under surfaces of the radiator which spaces are shown in the drawing at E and F and constitute an important feature of my device. C the lower flue, is constructed as ordinarily while D the upper
100 one, is inclined from the front to the back of the stove at an angle of 15° to 25°, any angle which will deflect the heat of direct radiation in front of the stove and promote the outward flow of the heated
105 current of air. The stove is raised up from the flooring of the hearth by means of legs

or small cylinders represented by the dotted lines *a a*. I, I, shows the handle and edge of the damper which is used in controlling the currents of air. In Fig. 1 the edge only is seen as it is supposed to be lying on the orifice of the lower cowl plate, which has a long opening one or two inches in width near its front margin, as may be seen in Figs. 2 and 3, at G, the one in end section and the other in top view. The damper I being of sufficient width to close the orifice E when turned up and to close also the opening G in the flooring of the fire place, when turned down. The shading in Fig. 1 below the fire flue, D, represents the under side of the inclined flue. The lower edge of this inclined box has affixed to it a partition of iron which extends below the upper margin of the flue C and its office is to divide the currents of air in its upward course, directing one to the under side of the upper flue D, and the other over its upper surface, thus exposing the heating surfaces each to its current of air. Fig. 2, showing an end view of the radiator and the inclined fire box, D, and a sectional view of the cowl, *e, e, e, e*, and the partition H, shows also by the small arrows, the direction and division as also the admission and flow of the air currents. Where the chimney admits of it the current of external air should be derived from its back at the arrow, *e*, passing forward until it reaches the opening, at G Figs. 2 and 3, passing thence onward and upward till it is divided by the partition H into the two currents, J, J, passing thence by an easy flow is from the inclined passages, thrown with considerable force into the room. The change in mode of admission of the current of cold air is simply to raise the handle of the damper I, which turning the damper on its pivots closes the passage G, and admits the cold stratum of air at the bottom of the room, and by this simple change when the weather is extremely cold, the temperature of the room is kept warm and comfortable, while without this it is impossible to heat the room sufficiently with even a large expenditure of fuel.

Fig. 3, represents a top view of the plate resting on hearth and forming the floor of the cowl—with its orifice G G and the par-

tition H dividing the currents of air—as the letters in each figure refer to the same parts, it is unnecessary to further describe them as a view of the same will declare the part and its office.

Fig. 4 shows the damper I detached from the other parts. The dotted lines *f f* Figs. 1 and 2, shows the best position of the smoke flue leading from the stove to the chimney, though it may be placed in any other convenient part of the radiator.

I make no claim broadly to the heating of rooms by means of currents of air introduced from without and circulating in chambers or passages around a stove situated within the fire place, neither do I claim the introduction of cold air from without into a fire chamber and thence into the room in a heated state, as these devices are well known in the Franklin stove and the stove of Feinour. Neither do I claim the construction of a stove with a vacant space around the stove, closed in front except the space between the cylinder and sides, the heated air being forced out between the said cylinder and sides, as in the stove of latrobe, as all these devices fail of effecting the purposes which are perfectly fulfilled by my invention, viz, the control of the source from whence the cold air is derived, the dividing and passing it over a great amount of heating surface, and by the arrangement of the air passages, aid its flow into the apartment in such volume and temperature as while it is sufficient to warm the room, is not so heated as to vitiate its quality, while the radiated heat is thrown to the front of the stove, rendering it warm to the feet. Neither do I claim broadly and as separate devices the various parts, as described and forming my stove, as these parts have been before and variously applied. But

What I do claim is—

The arrangement of the air passage E the division plate or partition H, and the inclined flue, D with its corresponding air passage F made, combined, and operating substantially as before described.

WM. H. STINSON.

Witness:

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