

J. H. B. LATROBE.

Fire Place.

No. 4,744.

Patented Sept. 5, 1846.

Fig. 1.
Front View

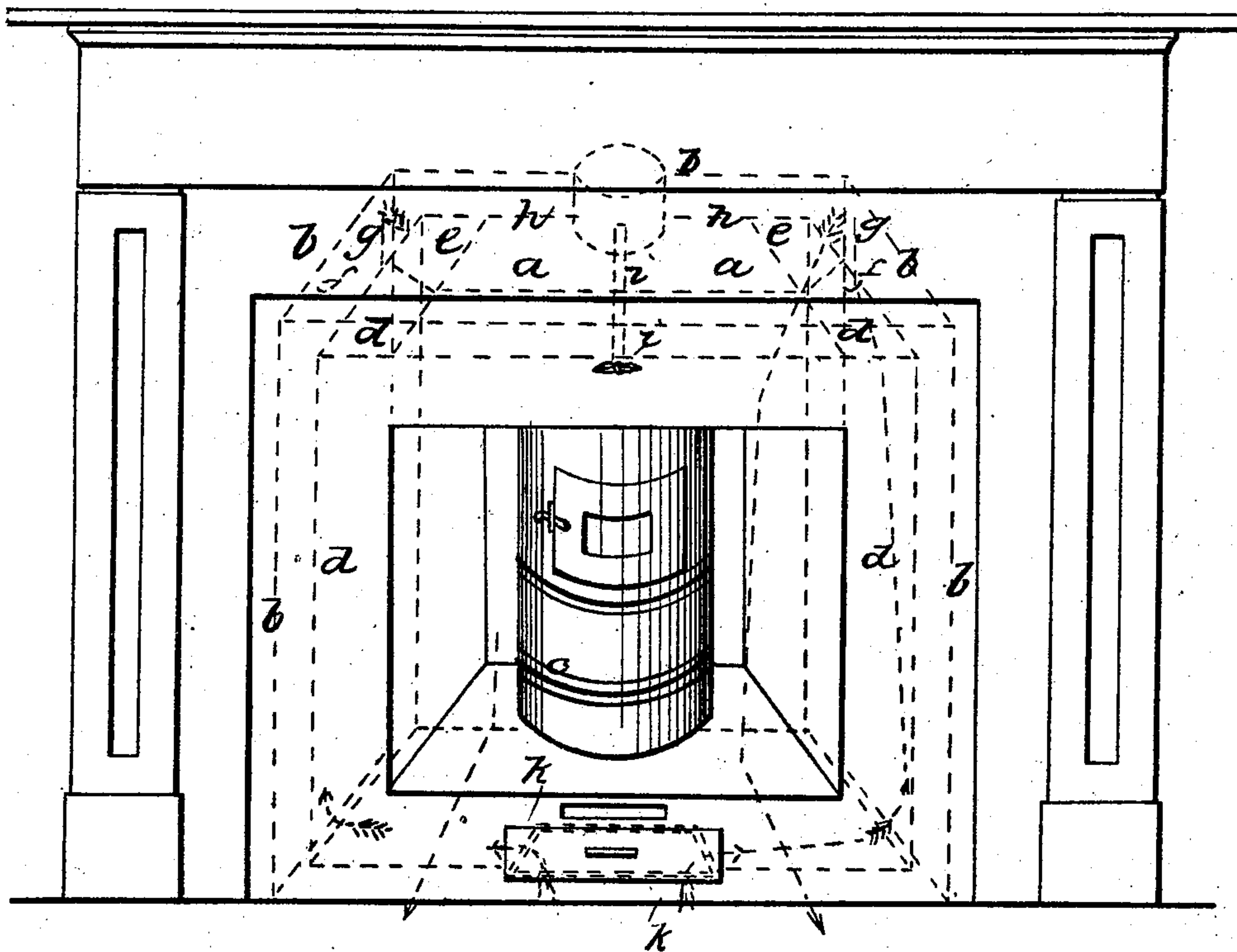
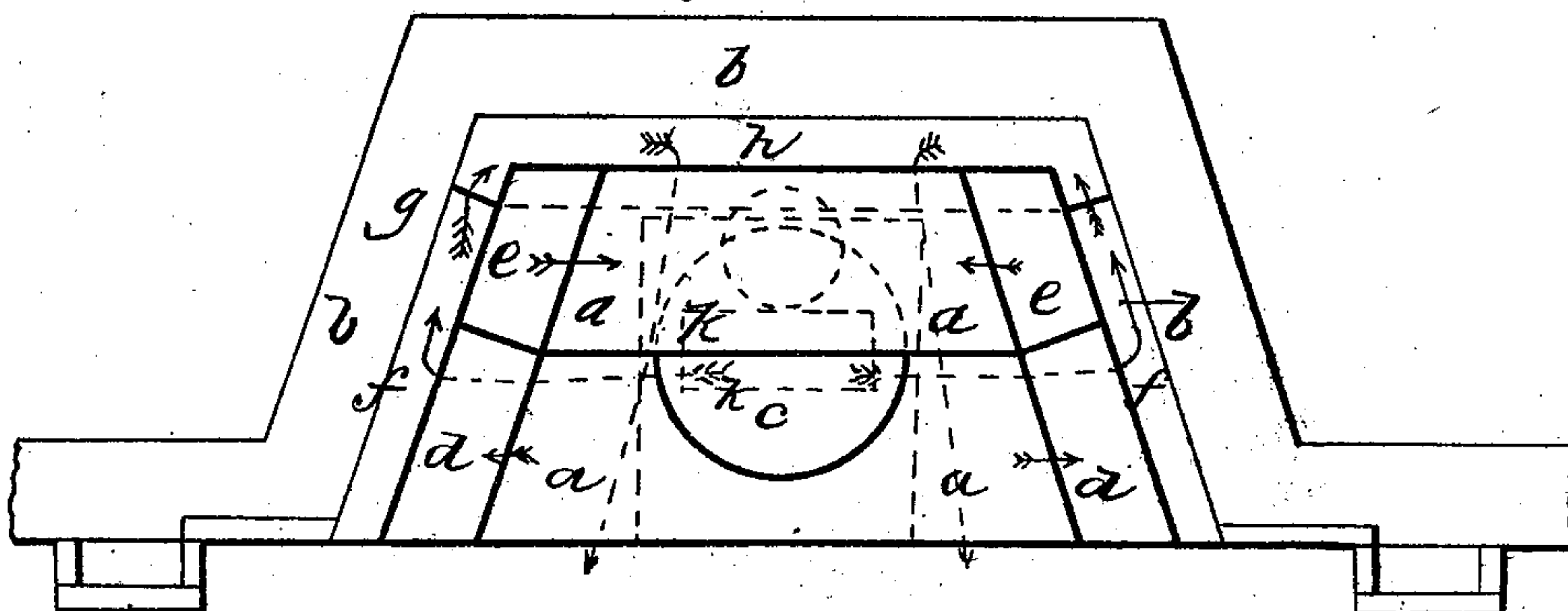


Fig. 2 Plan at top



UNITED STATES PATENT OFFICE.

JOHN H. B. LATROBE, OF BALTIMORE, MARYLAND.

STOVE.

Specification of Letters Patent No. 4,744, dated September 5, 1846.

To all whom it may concern:

Be it known that I, JOHN H. B. LATROBE, of the city of Baltimore and State of Maryland, have invented a new and useful Improvement in the Mode of Heating Rooms, and that the following is a full and exact description of my improvement.

I use a stove with radiators on each side of the receptacle for the fuel, which last may be either round or square, and which is commonly called the cylinder. This stove is the same in principle with that in common use for the burning of anthracite coal, and, as is well known, consists of a lower box or drum of sheet iron on which stands the cylinder, with a pair of columns, or an upright box or drum with a vertical division, on each side, the whole being connected at top by the upper box or drum which has also a vertical division in it parallel to the front. The fire being lighted in the cylinder the draft passes either directly up the chimney or by closing a valve, is made to descend the front columns or corresponding spaces, where side drums are used, and, passing through a connecting chamber in the lower drum, to ascend the back columns or spaces into the upper drum, and thence into the chimney—heating in its progress the contiguous surface of the stove.

Upon the plan here described, which is well known, I construct a stove to fit into the ordinary fire place of the room it is desired to warm, leaving a space all around it; that is to say—the lower drum is raised about two inches above the hearth. The upright drums are an inch and a half or two inches from the sides of the fire place and parallel thereto, and the upper drum is the same distance below the opening of the fire place. The fronts of the upper, lower and side drums are in the same plane, or cut out of the same sheet of iron, which projects all round so as to close in front the open space just described, by reaching to the hearth below and lapping over the opening of the fire place at the sides and top. The back of the lower and side drums are also in one plane, the sheet iron projecting at the bottom and sides so as to fit close to the bottom and sides of the fireplace back. (This is easily managed by a careful measurement in each case before making the stove,) or flanges of iron may be fastened to the bottom and side drums to answer the same purpose. The throat of the chimney at a con-

venient distance up is closed with a sheet of iron made tight with a little mortar, and having a hole to admit the stove pipe with a close fit. An opening in the bottom of the hearth under the center of the stove, admits the external air as hereafter described in the reference to the drawings.

It will be seen at once that the spaces between the lower drum and the hearth and the side drums and the sides of the fireplace form chambers or channels through which the external air, from the opening in the hearth passes into the space above the stove and from thence as it cannot escape in front into the room nor up the chimney, it passes down behind between the upper drum and back of the fireplace and through the interval between the cylinder and side drums out into the apartment as show by the red arrows. The channel or chamber thus formed between the stove and the bottom and sides of the fireplace for the passage of the external air, may also be formed by an outer casing of tin or sheet iron at the bottom, sides and top of the stove, which outer casing would be in contact with the bottom and sides of the fireplace, an opening being made in it corresponding with the opening in the hearth already described, but this is a variation in construction only, not affecting the principle of my invention. Thus while the stove visible from the room heats the latter by direct radiation, the parts concealed within the fireplace, heat the air which passes in contact with them, in the manner described so that it is warm when it enters the room.

It will be seen that the adaptation of a stove in the manner and for the purpose described to an ordinary fire-place from which it can be removed at pleasure without materially or perhaps at all disturbing the original structure is an important object gained by my improvement. Another is that the peculiar character of stove heat is changed by the current of fresh air constantly entering the room at an agreeable temperature. Besides, the unsightly appearance of an ordinary stove is avoided inasmuch as the stove used sets wholly within the fire place. When the back of the fire-place is perpendicular there is no need for any alteration to fit it for the stove, nor is any absolutely necessary when the upper part of the back leans forward, because the stove may be made to fit, but I would recommend for

the sake of increasing the fire surface and facility of construction, that the back be straightened before putting in the stove which may then be made without a slope.

5 The accompanying drawings and model are made a part of my specification and fully illustrate it.

What I claim as new and desire to secure by Letters Patent is—

10 The employment of a stove such as described, so constructed and placed within the ordinary fire place as to heat the room by its direct radiation as well as by heating air entering the room from the outside
15 as described, serving the double purpose of a stove and hot air furnace.

Explanation of drawings.—Figure 1, shows the front view of an ordinary fire-place, with the stove in its proper place.
20 An isometrical top view of the stove is represented by the dotted lines. The dotted red lines show the opening of the fire-place which is hidden by the front casing of the stove. The dotted black lines show the top and side drums and the upright round smoke
25 pipe leading into the chimney above. The heavy dotted blue lines behind the ash-drawer, show the opening in the hearth for the admission of pure atmospheric air.
30 Fig. 2, shows the plan of the top of the stove, supposing the top of the upper drum removed.

b b, is the casing of the fire-place.

c the stove itself.

d, d, the descending pipes or chambers 35 for the smoke.

e, e, the ascending pipes.

f, f, the chambers for the ascent of the atmospheric air between the fire-place and side drums, divided by the partitions *g, g*, 40 from the space *h*, at the back of the stove, where the air from the outside descends and passes around the cylinder of the stove into the room.

h, h, the dotted red lines below the stove, 45 show the opening in the hearth for the cold air and the red arrows indicate its direction. The heavy dotted black line near the back connecting the two upright side flanges *g, g*, over which the external air passes in, shows 50 the lower horizontal flange, forming with the side flanges the channel for the air from the outside on its way into the apartment. The dotted blue lines (circular) above the back part of the stove show the position of 55 the pipe for the final exit of the smoke into the chimney.

i, is the rod connected with the damper in the smoke pipe.

Similar letters refer to similar parts in 60 plan and elevation.

JNO. H. B. LATROBE.

Witnesses:

HENRY WEBSTER,
PHIL. W. KEYSER.