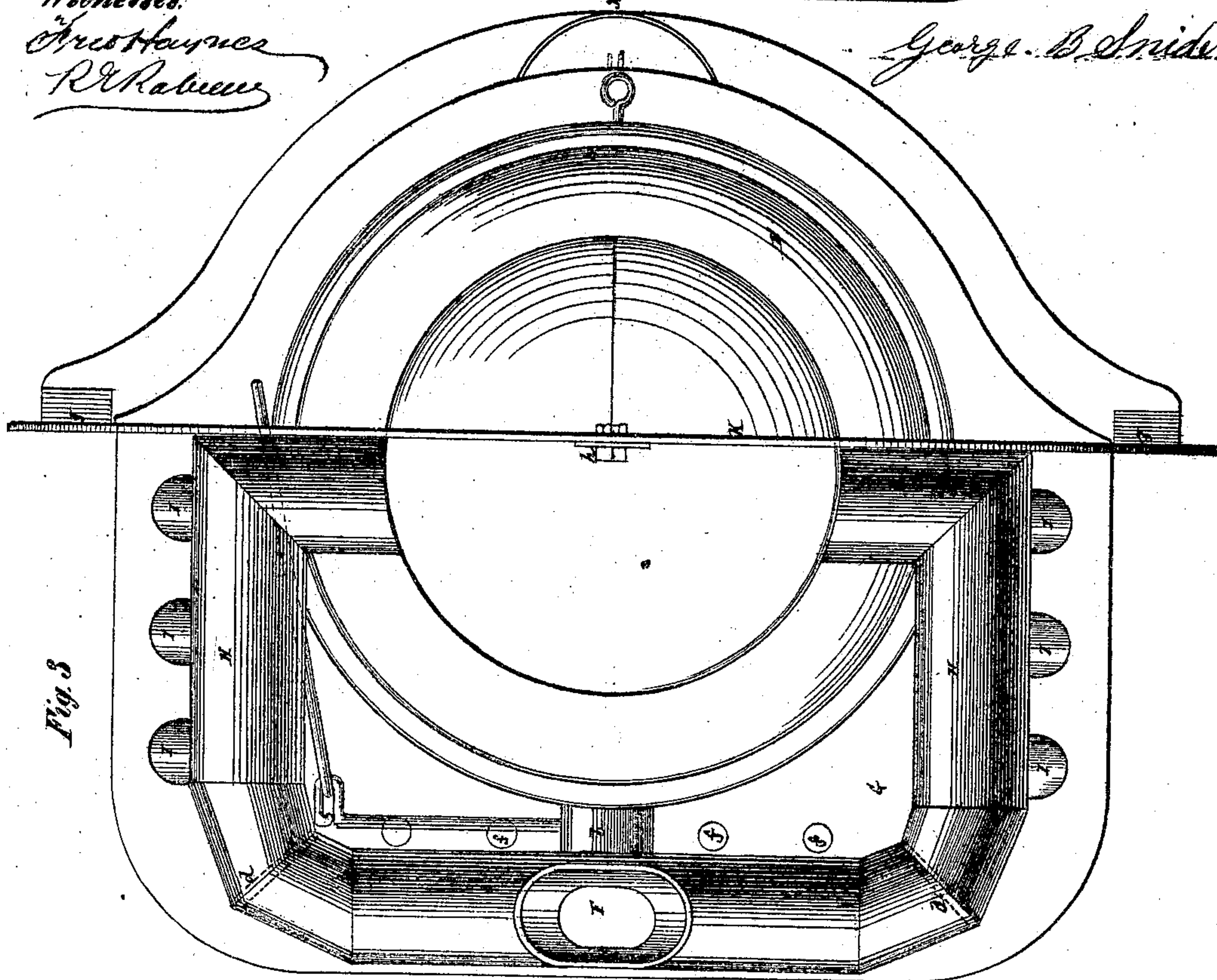


Witnesses:
 A. H. Haynes
 R. H. H. H.

George B. Snider

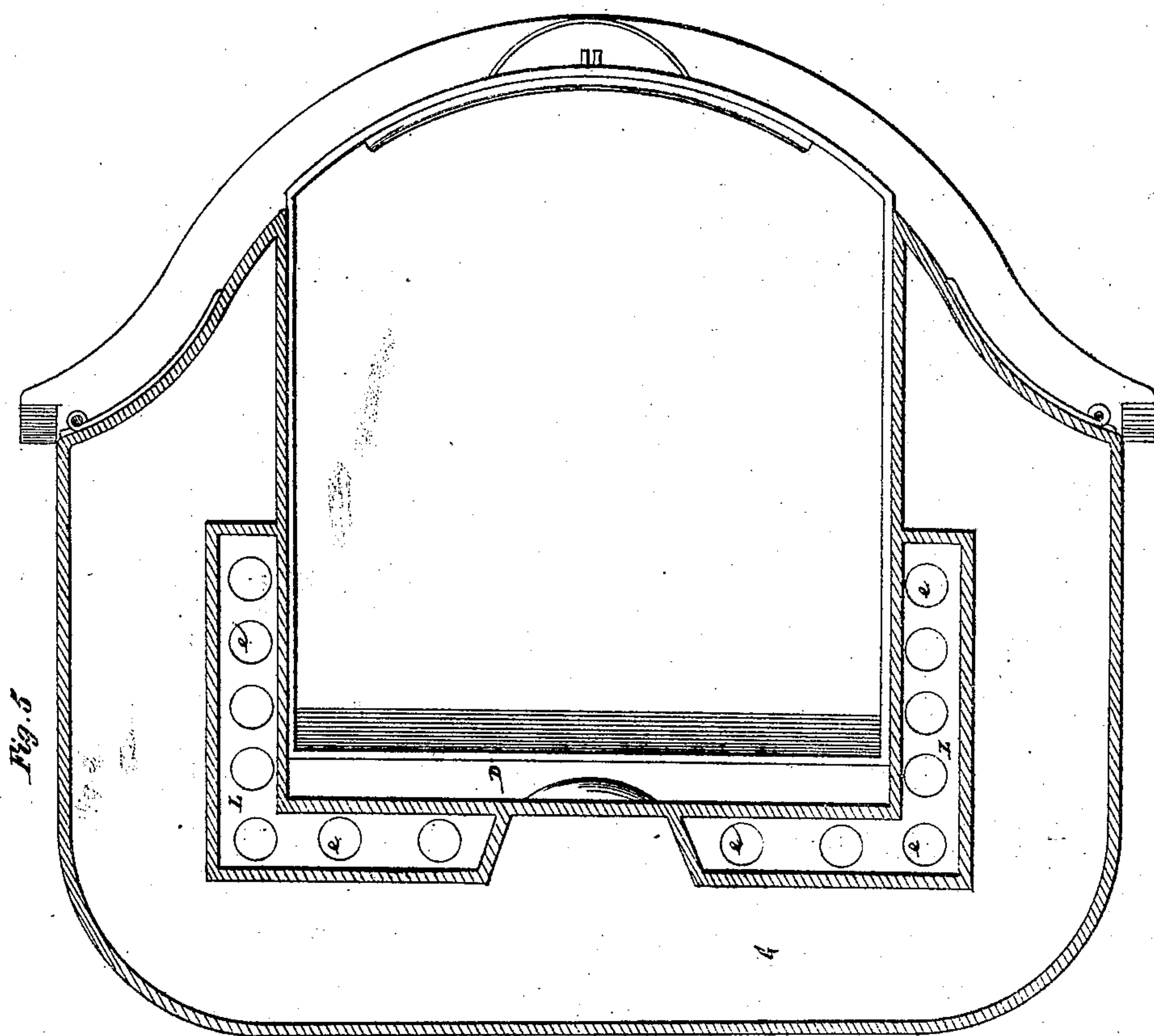


George B. Snider, Impⁿ in Base-burning Fire-place Heaters. Sheet 3.

3 Sheets.

116365

PATENTED JUN 27. 1871



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE B. SNIDER, OF NEW YORK, N. Y.

IMPROVEMENT IN BASE-BURNING FIRE-PLACE HEATERS.

Specification forming part of Letters Patent No. 116,365, dated June 27, 1871.

To all whom it may concern:

Be it known that I, GEORGE B. SNIDER, of the city, county, and State of New York, have invented certain new and useful Improvements in Base-Burning Fire-Place Heaters and Stoves, of which the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a side elevation of a fire-place heater constructed in accordance with my invention; Fig. 2, a sectional elevation taken as indicated by the line *xx* in Fig. 4; Fig. 3, a plan of the heater; Fig. 4, a horizontal section through the line *yy* in Fig. 1; and Fig. 5, a like section through the line *zz*.

Similar letters of reference indicate corresponding parts throughout the several figures.

My invention consists in a certain arrangement of air-heating or radiating pipes, through which the products of combustion are passed, the same consisting of upper-side pipes, which connect with the body of the heater near its top side dip-pipes, and up-take pipes that connect by branches above with the main escape-pipe or flue. By this arrangement of the pipes that carry off the products of combustion, all the available heat derivable from the latter is utilized in heating the air outside of the pipes without interfering with or impairing the draught. The invention also consists in a novel arrangement of an air-heating chamber or chambers in the case of the heater, into which the air to be heated is introduced through holes in the bottom, and distributed when warmed through holes in the top, said air-heating chamber or chambers being exposed on its or their sides to radiation from the ash-pit and to the base-flue of the heater. The invention likewise consists in a novel and convenient means of hanging and securing the front plate of a fire-place heater, by inserting said plate in rear of side lugs on the base-plate, and securing it by a screw to the top of the heater, whereby increased facility is afforded for introducing said front plate in rear of the center ornament of the mantle-piece and for holding it in its place. Furthermore, the invention consists in a novel construction of the fuel-reservoir by making the lower part or throat of it in the form of a detachable curtain, which is secured to the main or upper portion of said reservoir by bayonet or other suitable fastenings,

that, on said curtain-like portion being turned, allow of its detachment and removal, and this by a certain arrangement and enlargement of the doors of the heater or stove without disturbing the structure generally. This provides for the ready replacement, by a new throat or portion when required, of that part of the fuel-receptacle in base-burning heaters and stoves which is the soonest destroyed by the action of the fire.

Referring to the accompanying drawing, A represents the upper part of the body of the heater; B, the fire-pot or chamber; C, the grate; and D, the ash-pit. E E' is the fuel-reservoir. F is the main escape-pipe or flue for the products of combustion. This pipe is connected in a direct manner, as by a branch, *b*, under control of a damper, *c*, with the body A of the heater, to provide for a direct draught on starting the fire, and at other times when required. Said pipe F is also connected with the base G, which forms a flue round the ash-pit, and is in communication above, as hereinafter described, with other up-takes used in the regular or indirect draught.

To circulate the products of combustion for the heating of the air, either to warm the apartment in which the heater is placed, or to distribute it by suitable ducts to other apartments, the products of combustion, on turning the damper *c*, are made to first pass into upper-side pipes H forward of partitions *d*, and then to descend down dip-pipes I to the base G, through which they pass to up-take pipes J and to the main escape-pipe F, the up-takes J connecting at their upper ends back of the partitions *d* with rear extensions of the side pipes H. This arrangement of pipes obtains a most effective and economical heating-surface without impairing the draught.

The air to be heated is introduced by holes *e*, in the bottom plate of the base G, to air-heating chambers L, and, after being warmed, passed out through corresponding holes *f* in the top of the base, for circulation among and around the pipes H I J, and other exterior radiating surfaces of the heater. These air-heating chambers L are situated within the base G, and so arranged as to be exposed on their sides in a direct manner to the heat of the base-flue, and to radiation from the ash-pit of the heater. This double exposure effects a considerable warming of the air before its passage to or around the exterior radiating surfaces of the heater.

The front plate K of the heater is hung and secured to its place by passing it obliquely in a backward direction at its bottom behind the lugs or projections *g* on the bottom plate of the base, and then swinging or passing its upper end over the top of the heater, where it is secured by a screw-bolt and nut, *h*, to a projection from the top of the heater. This mode of introducing and attaching the front plate of the heater admits of its ready insertion behind the center ornament of the mantle-piece without damaging or disturbing the latter.

The fuel-reservoir is made in two horizontal parts or sections, E E', the lower one E' of which is made in the form of a detachable curtain that is attached to the other section E by bayonet or other suitable fastenings, *i*, so that said lower section, when damaged by the action of the fire, can readily be replaced by another like portion by simply turning it so as to unhook it from the upper section E, and removing it through the doors *k* of the heater, said doors being so ar-

ranged and of such dimensions, by hinging them as at *l*, as that a curtain-section, E', can readily be removed or inserted and detached or attached without disturbing the structure generally. This provides for the easy replacement of the lower or throat portion of the fuel-reservoir in base-burners generally, without taking out or destroying the whole reservoir, said throat being the part of the reservoir most exposed to damage by the action of the fire and from the shaking of the grate.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination of the side pipes H, dip-pipes I, up-takes J, air-heating chamber L, flue G, and escape-pipe F, all arranged with relation to the body A and fire-chamber B for operation, as shown and described.

GEORGE B. SNIDER.

Witnesses:

FRED HAYNES,
R. E. RABEAU.