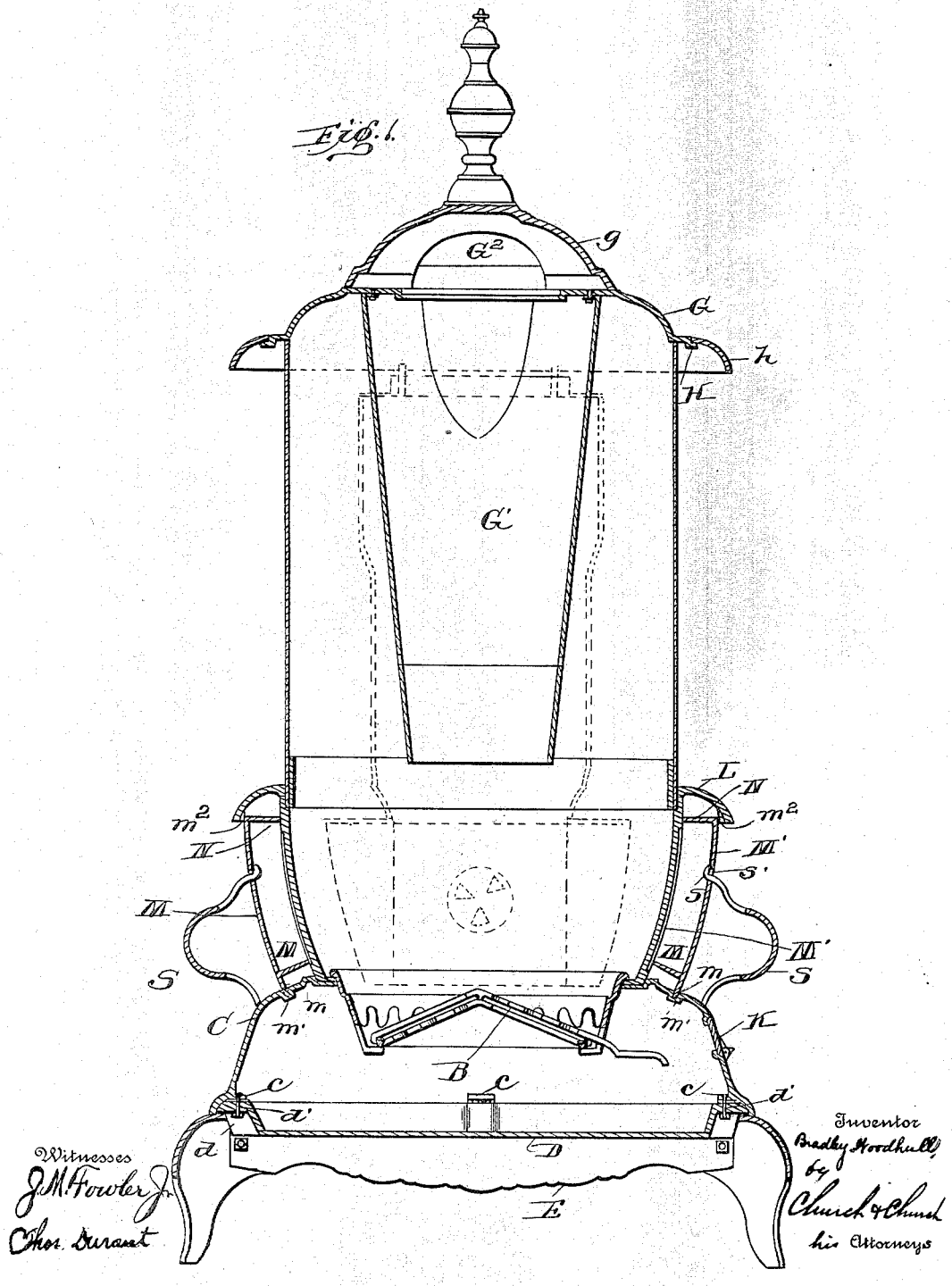
No. 647,641. Patented Apr. 17, 1900.

B. WOODHULL.

HEATING STOVE.

(Application filed Dec. 1, 1899.)

(No Model.) 3 Sheets—Sheet 1.



Witnesses
J. M. Fowler Jr.
Thos. Durant

Inventor
Bradley Woodhull
by
Church & Church
his Attorneys

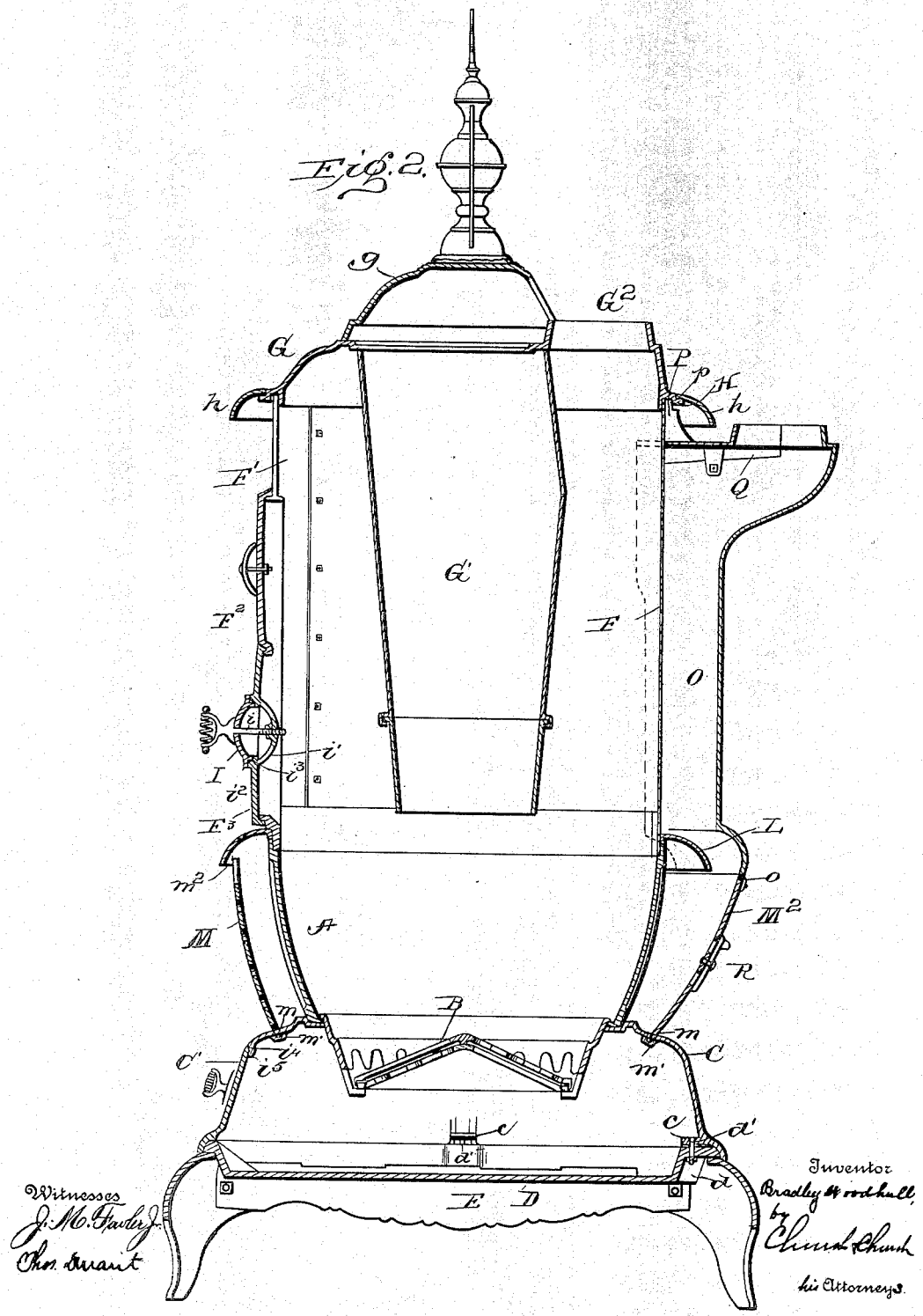
No. 647,641. Patented Apr. 17, 1900.

B. WOODHULL.

HEATING STOVE.

(Application filed Dec. 1, 1899.)

(No Model.) 3 Sheets—Sheet 2.



Witnesses
J. M. Fowler Jr.
Chas. Durant

Inventor
Bradley Woodhull,
by Elwood & Church
his Attorneys.

No. 647,641. Patented Apr. 17, 1900.

B. WOODHULL.

HEATING STOVE.

(Application filed Dec. 1, 1899.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 3

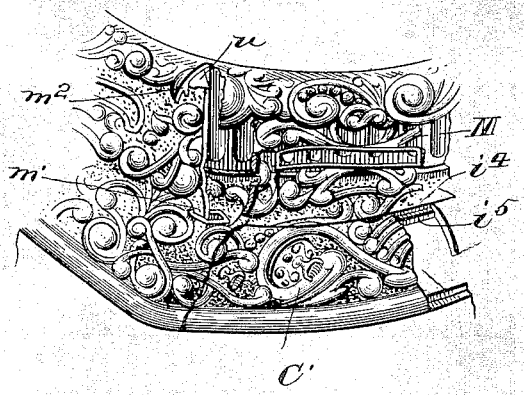


Fig. 4

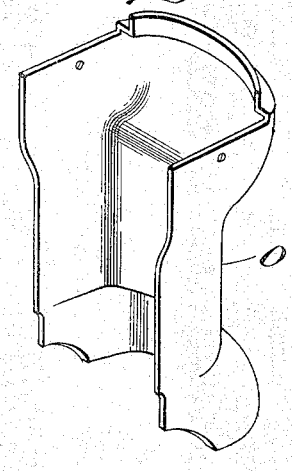


Fig. 5.

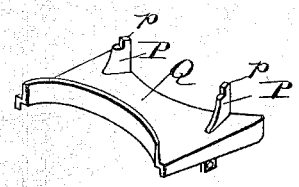
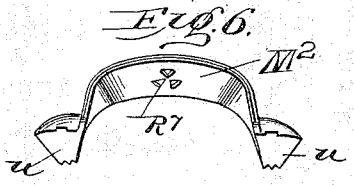
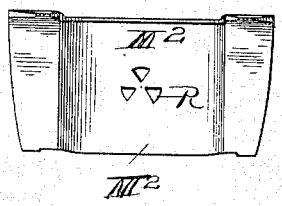


Fig. 6.





Witnesses
J. M. Fowler Jr.
Thomas Durant

Inventor
Bradley Woodhull
by Church & Church
his Attorneys.

UNITED STATES PATENT OFFICE.

BRADLEY WOODHULL, OF SCRANTON, PENNSYLVANIA, ASSIGNOR TO THE SCRANTON STOVE WORKS, OF SAME PLACE.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 647,641, dated April 17, 1900.

Application filed December 1, 1899. Serial No. 738,871. (No model.)

To all whom it may concern:

Be it known that I, BRADLEY WOODHULL, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Heating-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in heating-stoves, and is especially applicable to that class of stoves known to the trade as "Oak" stoves. Such stoves consist, primarily, in a fire-pot with an upwardly-extending and usually cylindrical body portion having relatively-large doors therein for the insertion of fuel, either wood or coal, and in some instances provided with a reservoir of any of the usual patterns for hard coal. Stoves of this character are usually made also with dampers, which may be closed very tight, so as to make the stove practically air-tight for retaining the fire for long periods even though the fuel be of a highly-combustible character.

The invention has for its object primarily to provide a means whereby the heat radiated from the fire-pot may be utilized to heat air in a flue or chamber surrounding said fire-pot, such heated air being conducted thence into the apartment or, where desired, into an overhead apartment, making the stove a double heater, the means for accomplishing this end, however, being readily removable, so as to adapt the stove for use either as a double or single heater at will.

A further object of the invention is to improve the details of construction, particularly with relation to the means for preventing ingress of air to the fuel and the construction of the several parts, all as will be now particularly described and claimed.

Referring to the accompanying drawings, Figure 1 is a vertical section through a heating-stove embodying my present improvements, the section being taken centrally of the stove and looking toward the rear. Fig. 2 is a similar view from front to rear of the stove, showing the uptake of the double-heater attachment. Fig. 3 is a detail perspective view of a section of the base at one of the front corners. Fig. 4 is a detail perspective view of one of the castings which constitute in part the uptake for the hot air. Fig. 5 is a detail perspective view of the top plate for the uptake shown in Fig. 4. Figs. 6 and 7 are detail top plan and front elevations of the rear removable panel of the air-heating chamber.

Like letters of reference in the several figures indicate the same parts.

The letter A indicates the fire-pot of the stove, made of any usual form, but preferably circular in horizontal section and having at the bottom a grate B of any approved pattern. The fire-pot A is mounted on a base-section C, which bulges outwardly from the bottom of the fire-pot, and at its lower edge is provided with inwardly-extending lugs *c*, adapted to coöperate with projections on the bottom plate D, which constitutes the bottom of the base-section. The base-section and bottom plate form an ash-pit, into which an ash-pan or other receptable may be passed through a front door C', Figs. 2 and 3. The lugs *c*, it will be noted, project inwardly, and the bottom plate D is provided with recesses *d*, forming upwardly-extending projections. Bolts *d'* are passed through the projections *d* and lugs *c* for uniting the base-section and bottom plate, which bolts, it will be particularly noted, are entirely hidden from view, leaving the exterior of the base-section with its ornamentation unbroken. The base-section may, if desired, rest on a leg-section E of any approved construction and forming no part of the present invention.

Extending upwardly from the fire-pot A and forming the body of the stove is a sheet-metal body-section F. This sheet-metal section extends around the back part of the stove, and at the front the body is formed by a cast-metal section F', preferably conforming to the circular outline of the body portion, but suitably ornamented for aesthetic effect and having in it openings which are closed by doors F^2 and F^3, one located above the other and the lower one of which may be opened independently. By the employment of two doors smaller or hard fuel may be in-

serted by simply opening the lower door but in case larger fuel, such as large sticks of wood, are to be inserted the upper door may also be opened, and in closing them the lower door alone need be handled, as its upper edge overlaps the edge of the upper door and will close the same when the lower door is closed.

Surrounding the body portion F is a cap-section G, having the usual top g and coal-hole for the admission of coal, which when desired may be held in a reservoir G′, extending down through the body-section F. At the back of the top section G is a small exit G^2, to which a smoke-pipe may be attached in the usual manner.

The top or cap section G, Fig. 2, is provided with a flange H, which depends around the upper edge of the body-section F and supports an ornamental ring h, and in addition serves as a means for retaining the uptake for the hot air in place, as will be presently described.

Inasmuch as one of the advantages of a stove of this character is the ability to close the same air-tight it will be noted that the dampers through which air is supplied to the fuel are of a form adapted to be bodily opened or closed, being preferably in the form of caps I, mounted on screw-stems i, threaded into supports, such as i'. The contacting surfaces or edges of the dampers are made with double seals formed by providing co-operating flanges and recesses i^2 i^3 on the damper and stove, respectively. One of such dampers is preferably provided in the lower door F^3 and other dampers are provided in the ash-pit door C′. The door C′, as will be seen from Fig. 3, is also provided with a double seal, its edge and the jamb for co-operating therewith having double flanges i^4 i^5 for forming the double seal, and the door itself closes in tightly and conforms to the outlines of the base, the ornamentation on the base being continued on the door, whereby when said door is closed there is nothing to indicate its presence save the fact that a handle for opening is provided and the dampers for the admission of air-supply are located in it.

The grate is preferably reached for shaking down the fire through a small door K, hinged at the bottom on one side of the base-section and also conforming to the outline of said base-section, its presence only being indicated by the hinges on which it opens.

At the top of the fire-pot section A an overhanging or outwardly and downwardly curved ornamental gallery or flange L is provided, and in order to utilize to the highest degree the radiated heat from the fire-pot section, as well as to inclose said section, so as to screen it from view, I provide ornamental and removable panels which may be slipped into position for entirely inclosing said fire-pot section, such panels having suitable entrance and exit apertures opening into and out of the space between the panels and fire-pot sections, and I utilize the space so formed for heating a volume of air, which may be conducted into an apartment above, or, if desired, discharged directly into the apartment in which the stove is located, and in any instance the formation is such that a larger volume of air is caused to travel past and around the fire-pot section, so as to be thoroughly heated, and to this extent the heating capacity of the stove is increased.

In the preferred construction four panels are provided—one at the front, as shown at M, Fig. 3, and two others, one at each side, as shown at M′ in Fig. 1, and one at the back, as shown at M^2 in Figs. 2, 6, and 7. The front panel M is preferably opened or of a fretwork design for the admission of air at this point, while the side panels and rear panels may be ornamented, but closed, castings, so as to conduct the air around and discharge it at the back, as will be presently explained. The panels are adapted to be held in place by having projections m formed on their lower corners, which projections are adapted to coöperate with seats, recesses, or sockets m' formed on the base-section, while their upper edges rest against lugs m^2, cast on the inner side of the overhanging flange L. In putting the panels in place they may be simply pushed up under the flange L until their lower edges will drop into the seats m'. To confine the air behind the side panels, said panels may be provided at top and bottom with flanges N, which will fit in against the fire-pot section and form channels for conducting the air from the front around into the space formed by the rear panel M^2. This rear panel is held in place just as are the front and side panels, and in addition it is provided with a rearward extension or outwardly-bulged portion located centrally of the panel and adapted to form the lower portion of an uptake for the hot air. A continuation of the uptake is formed by the removable uptake air-duct section O, Figs. 2 and 4, made in substantially trough form, with its lower and side edges adapted to fit accurately the upper edge of the rear panel M^2 and the wall of the body F of the stove, respectively. Its lower end may be held in place and in registry with the lower panel by a turn-button o, while its upper end is held in place by upwardly-extending projections P, which take under the flange H of the cap-section G. Thus in putting the air-flue section in place its upper end is first brought into contact with the body of the stove and the upwardly-extending projections p moved up beneath the flange H. The lower end is then pushed inwardly against the body of the stove, and by turning the button o it is held rigidly in place. Each panel is provided near the upper corners with inwardly-extending flanges or projections u, adapted to rest against the fire-pot to prevent the panels from moving inwardly, as will be readily understood.

The air-flue section, as well as the panels, is preferably made of cast metal, and in order to facilitate the casting, as well as to provide a more convenient means for repairing in case of accidental breakage, the air-flue section is formed with a top plate Q, Fig. 5, adapted to be bolted on the upper end of the air-flue section, and this plate carries the projections P before mentioned. This construction enables the uptake to be formed in simple molders' flasks with ordinary patterns and obviates the necessity of employing cores and expensive molding-work, such as would otherwise be necessary.

To reduce the temperature of the air in the uptake or to supply a greater volume of it not so highly heated to the apartment above, the uptake may be provided with a damper or dampers, such as indicated at R, in the rear panel, although it is obvious that a damper or dampers may be located at any suitable points in the uptake and the same results be accomplished.

Foot-rails S may be provided at each side of the stove and held in place by hooks *s* at their upper ends entering apertures *s'* in the side panels, while the lower edges or feet of the rails rest on the base-section C, no other fastening or securing means being found necessary or desirable.

With a stove embodying the features of removable panel and uptake sections forming air-flues for the hot air it will be noted that the trade is enabled to secure all the advantages of handling two separate classes of stoves, inasmuch as at a few minutes notice a dealer can convert an ordinary "Oak" stove into a double heater or, on the other hand, a customer purchasing an "Oak" stove may at any time apply the double-heating attachment thereto or remove the same therefrom in case it is no longer desired. Even in case the double-heating attachment is not desired removable panels may be placed around the fire-pot, thereby effectually screening the necessarily-rough and ugly surfaces of the same. This will be appreciated when it is remembered that the fire-pot, being an iron section adapted for direct radiation from the contact of the fuel with it on the inner side, will become discolored, because of the heat, and hence ordinarily presents an unsightly appearance; but at the same time because of the great economy effected it is highly desirable that it should be utilized for direct radiation into the apartment.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a stove, the combination with the body, fire-pot and base section, the latter provided with an ash-pit-door opening having double flanges around the same, of a door conforming to the outline of the base-section and having flanges coöperating with the double flanges on the base-section whereby a double seal is formed for preventing the ingress of air; substantially as described.

2. In a stove, the combination with the body, fire-pot and base section, of removable panels surrounding the fire-pot and air ingress and egress openings into the space between the panels and fire-pot; substantially as described.

3. In a stove, the combination with the body, fire-pot, and base-section, of an outwardly and downwardly extending flange surrounding the stove at the top of the fire-pot section and removable panels surrounding the fire-pot section and held in place by the downwardly-extending portion of said flange; substantially as described.

4. In a stove, the combination with a fire-pot section and an outwardly and downwardly extending flange surrounding said stove at the top of said fire-pot section, of an outwardly-bulging base-section on which said fire-pot section is mounted and removable panels surrounding the fire-pot section held in place at their lower ends by coöperating projections on their lower edges and recesses in the base-section and held in place at their upper edges by the outwardly and downwardly extending portion of the surrounding flange; substantially as described.

5. In a stove, the combination with the fire-pot section and the outwardly and downwardly extending flange at the top thereof, of the base-section, extending outwardly from the bottom of the fire-pot section and having seats in its upper surface, of the removable panels having projections fitting in said seats and adapted to coöperate with the inner side of the outwardly and downwardly extending flange at their upper edges whereby said panels may be removed by being lifted out of the seats; substantially as described.

6. In a stove, the combination with the body, fire-pot and base section, of the removable panels surrounding the fire-pot section and forming an air-space about the same, and the removable uptake-section coöperating with the rear panel at its lower edge and removably connected with the top of the body-section at the upper edge; substantially as described.

7. In a stove, the combination with the body-section, fire-pot section, the outwardly-bulging base-section, the intermediate overhanging flange and the cap-section having the overhanging edge, of the removable panels surrounding the fire-pot section and having their upper edges held in place by the overhanging flange and the removable uptake-section having its upper end held in place by the overhanging flange of the cap-section; substantially as described.

8. A trough-shaped removable uptake for heating-stoves having the semicircular extension at its upper end forming one half of the exit-opening, of an independent top plate formed with a semicircular extension consti-

tuting the other half of the exit-opening, and provided with means for securing it in place upon the top of the uptake; substantially as described.

9. In a heating-stove, the combination with a body-section, a cap-section having the downwardly-extending peripheral flange, a fire-pot section, an outwardly-bulging base-section, and an intermediate overhanging flange, of the removable panels surrounding the fire-pot section and confined between the overhanging flange and base-section to form an air-chamber the rear panel having an outwardly-bulging central portion constituting an uptake, of an uptake-section adapted to register with said outwardly-bulging portion of the rear panel, a projection on said rear panel for retaining the bottom of the uptake-section in place and upwardly-extending projections at the top of said section confined beneath the downwardly-extending flange on the cap-section; substantially as described.

10. In a stove, the combination with the body, fire-pot, base-section and intermediate overhanging flange, of the removable panel confined between the overhanging flange and base-section and having inwardly-projecting flanges for coöperating with the fire-pot to prevent inward movement of the panels; substantially as described.

11. In a stove, the combination with the body, fire-pot, base-section and intermediate overhanging flange, of the removable panels, coöperating seats and projections on the base-section and panels for retaining the lower edges of the panels in place, and coöperating seats and projections on the overhanging flange and upper edges of the panels for retaining the upper edges of the panels in place and inwardly-extending flanges on the panels for contacting with the fire-pot to prevent inward movement of the panels; substantially as described.

12. In a heating-stove, the combination with the body-section, fire-pot section, base-section and intermediate overhanging flange, of the removable front panel having air-entrance openings therein, removable side panels having inwardly-extending flanges at top and bottom forming air-chambers between the panels and fire-pot, the removable rear panel having the base of the uptake formed therein and the removable uptake-section registering with the base of the uptake in the rear panel with means for retaining the upper end of said uptake-section in contact with the body of the stove; substantially as described.

BRADLEY WOODHULL.

Witnesses:
A. C. FULLER,
BENJAMIN E. WATSON.