

A. J. REDWAY.

Stove.

No. 223,861.

Patented Jan. 27, 1880.

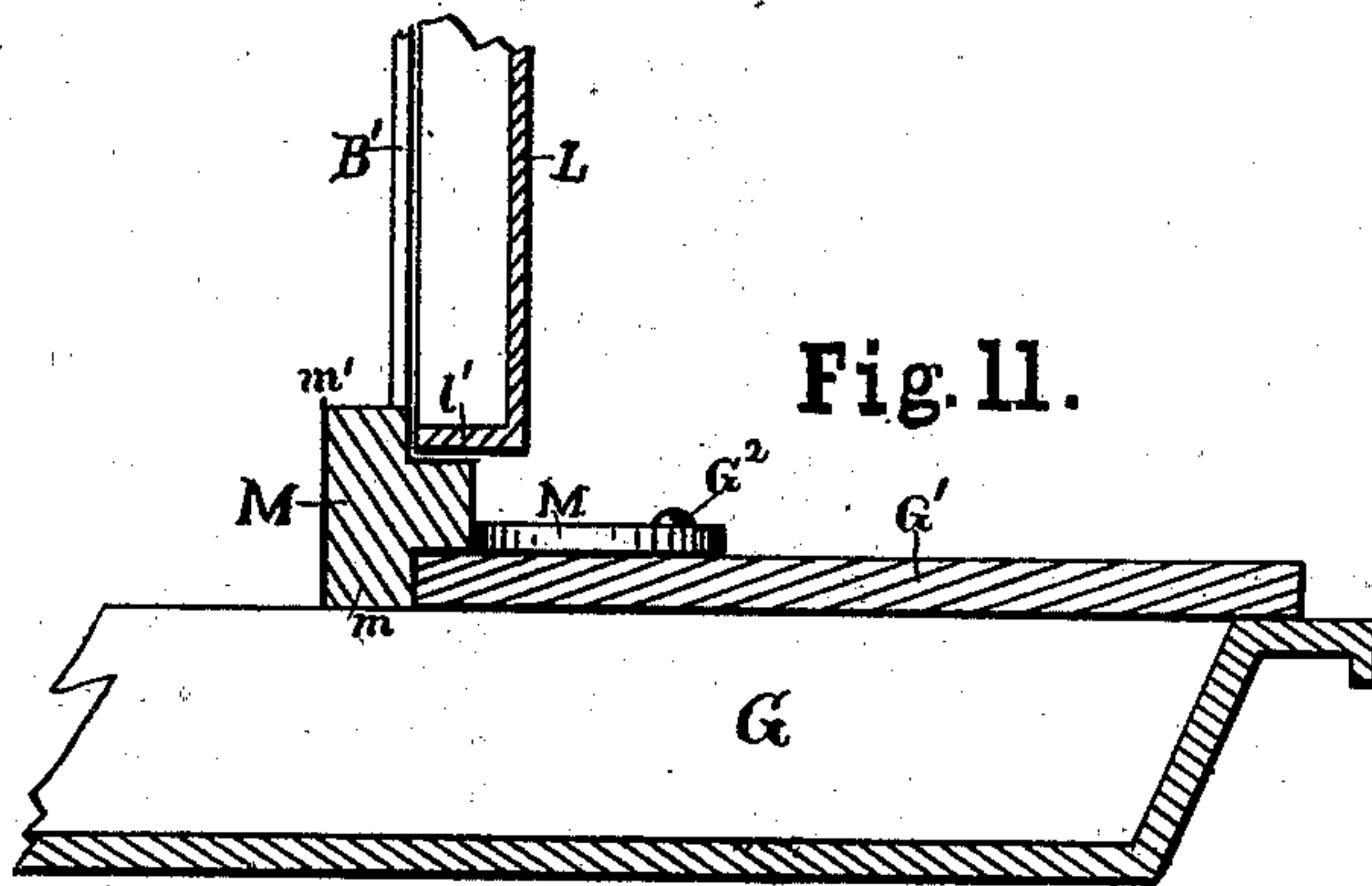


Fig. 11.

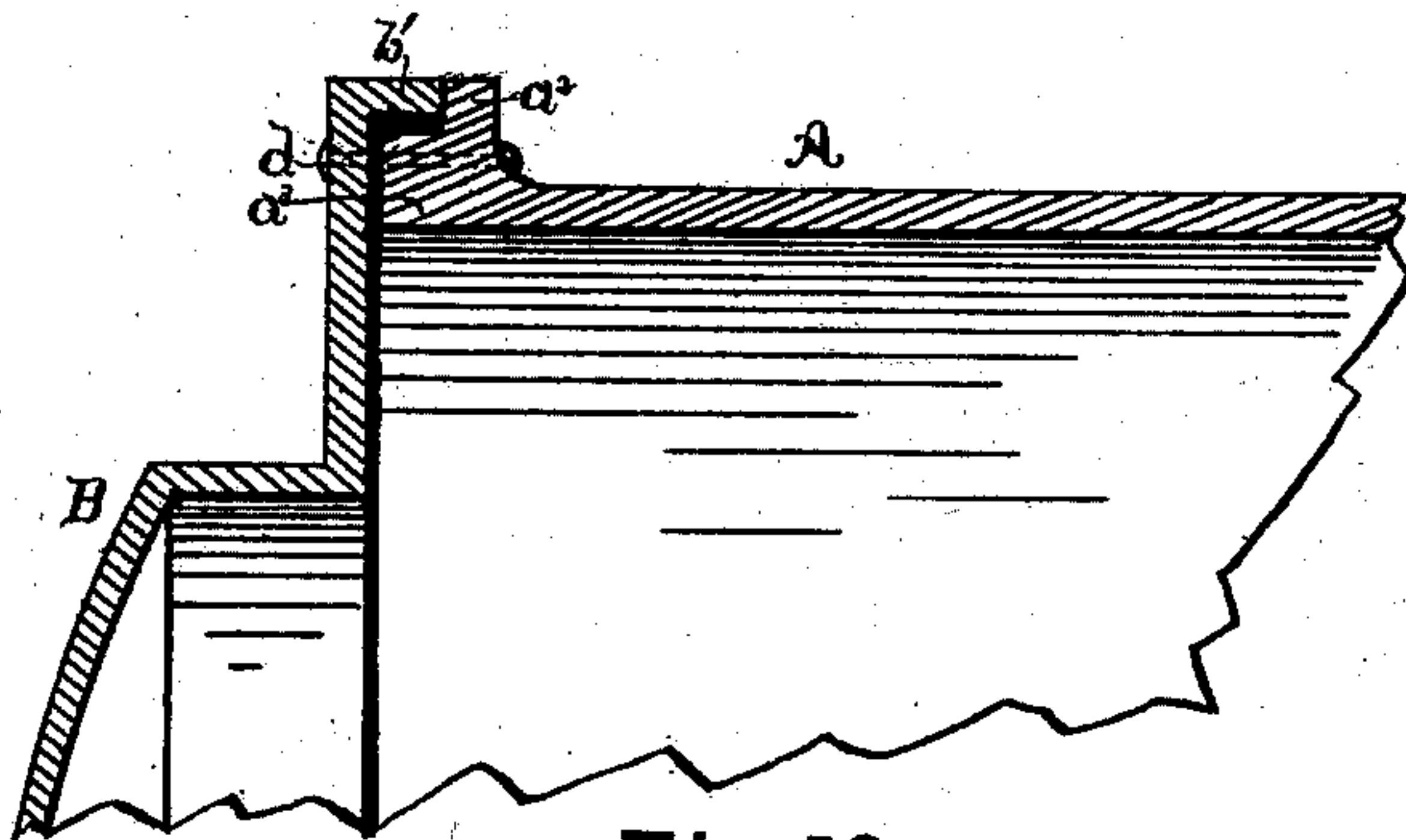


Fig. 12.

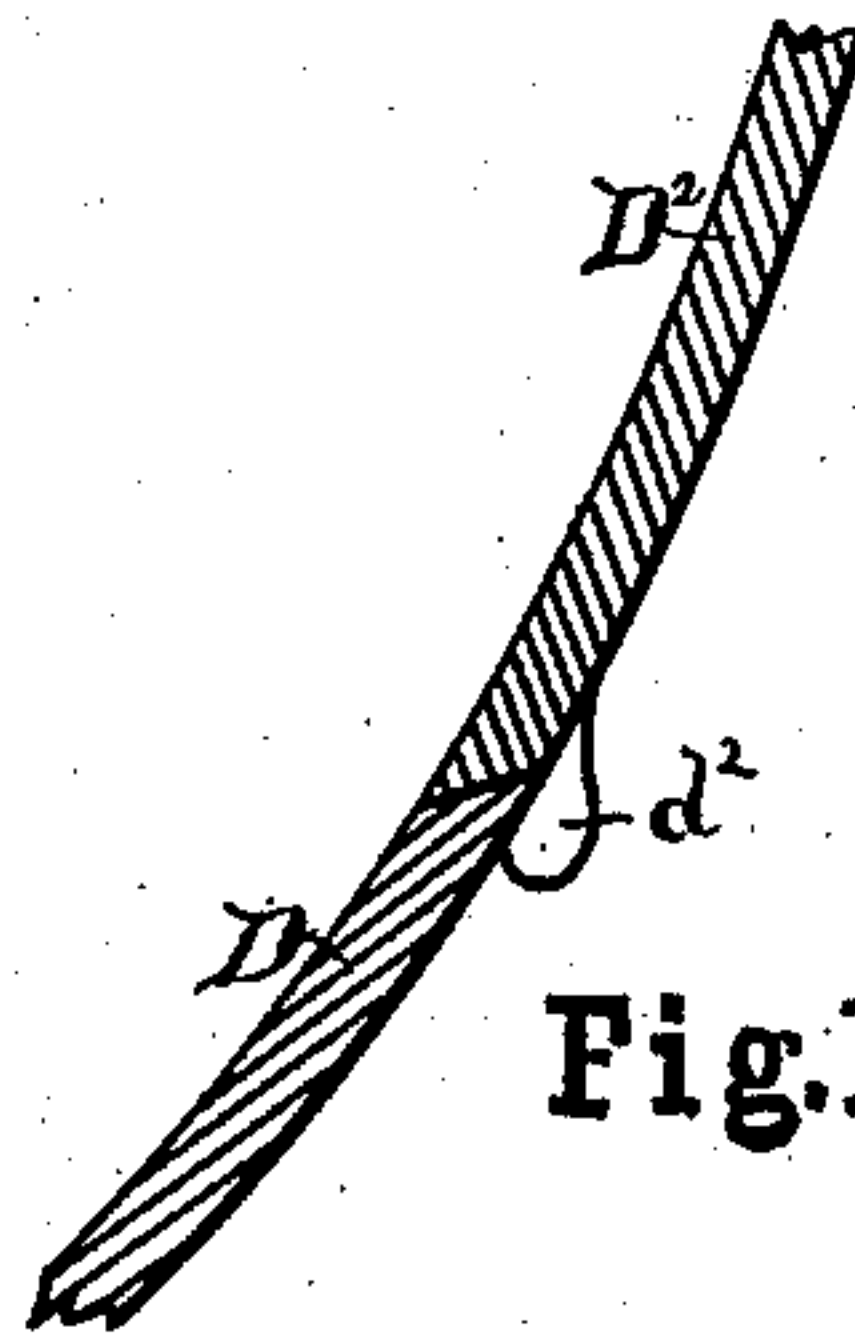


Fig. 13.

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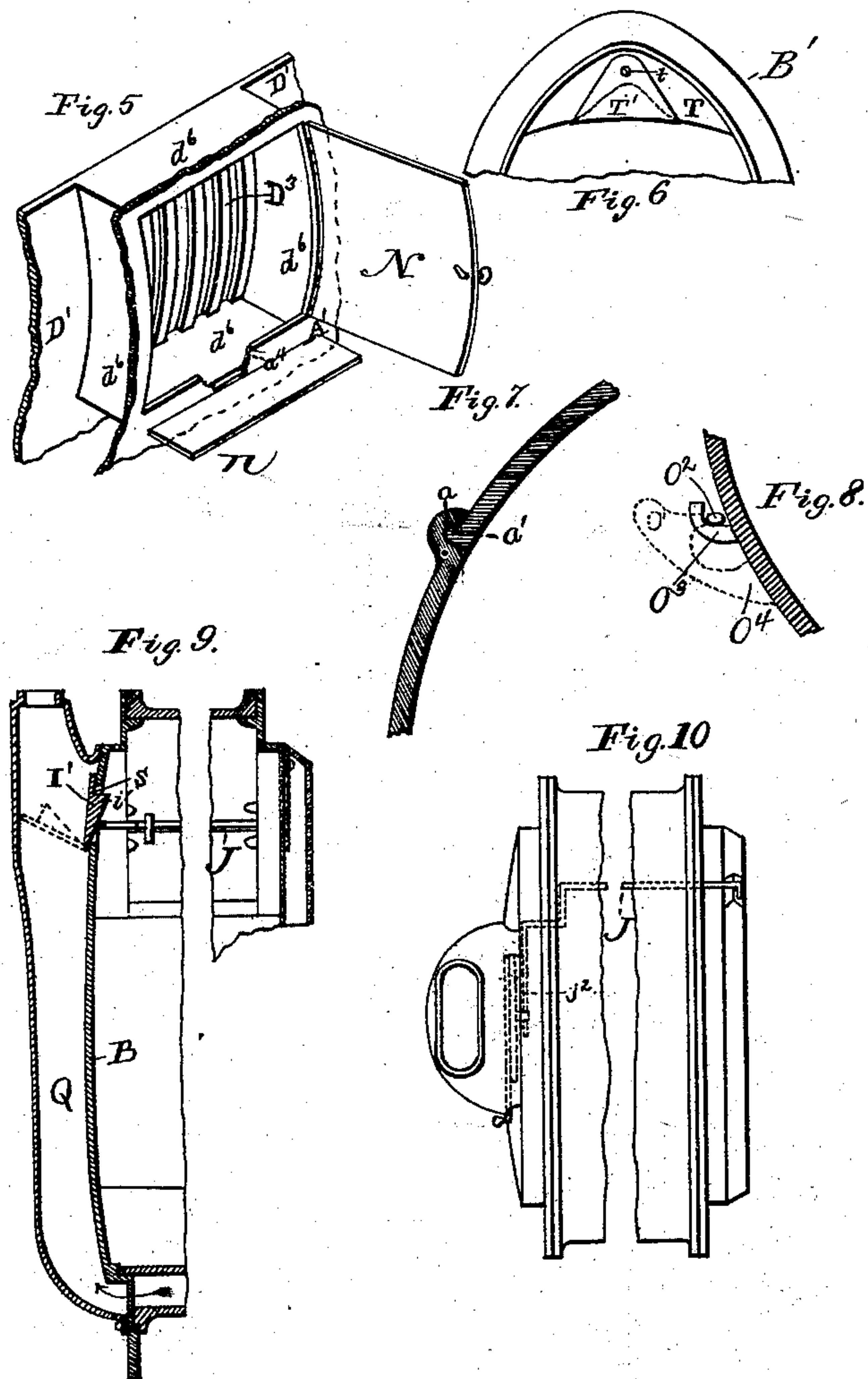
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UNITED STATES PATENT OFFICE.

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STOVE.

SPECIFICATION forming part of Letters Patent No. 223,861, dated January 27, 1880.

Application filed April 5, 1878.

To all whom it may concern:

Be it known that I, ALBERT J. REDWAY, a resident of Avondale, Hamilton county, Ohio, have invented certain new and useful Improvements in Stoves, of which the following is a specification.

My invention consists, first, in a device for rendering the joint between the door of the stove and the covering of the ash-box tight; secondly, in an improved joint between the side plates and the end plates of the stove; thirdly, in a peculiar construction of the bottom lining of a stove; fourthly, in a method of uniting the linings to each other and to the external shell of the stove; fifthly, in a device for attaching a foot-rail to the stove.

In the accompanying drawings, Figure 1, Sheet 1, is a front view of the stove. Fig. 2 is a vertical sectional elevation taken through the line X X of Fig. 3. Fig. 3 is a vertical central longitudinal section of a stove embodying my improvements. Fig. 4 is a top view with the portion above line Y Y of Fig. 2 removed. Fig. 5 is an isometrical view of parts about the side door. Fig. 6 is a front view of the top part of the front plate and the swinging apron attached thereto. Fig. 7 shows the method of connecting the side and top plates of the stove. Fig. 8 shows the method of attaching the side bar to the stove. Fig. 9 is a vertical central sectional elevation of a portion of a stove having the pipe attached at the rear. Fig. 10 is a top view of a portion of a stove having the pipe attached at the rear. Fig. 11 is an enlarged view of the parts about swinging sill M, (shown in Fig. 3.) Fig. 12 is an enlarged view, showing the joint between the back plate, B, and the plate A; and Fig. 13, an enlarged view of the joint between the plates D and D' of the lining.

A represents the top plate of the external shell of the stove; A' and A², the side plates, and A³ the bottom plate. The side plates, A' A², are provided along each edge with a curved lip, a, concave on the inside. Into these concave portions fit the ridges a' of the bottom and top plates. The plates A A' A² A³ have flanges a² formed on each end, and a portion, a³, of the body of the plate projects beyond these flanges.

The back plate, B, is preferably made oval

in general outline, and in a central section appears as shown in Fig. 3. The flange b' on the edge of the latter plate overlaps the rear projections, a³, of the plates A, A', A², and A³.

In the joint formed by the rear plate and the top, bottom, and side plates cement is placed, and the plates secured to each other by screws d, passed through the flanges a² and b', thus forming a very tight and firm joint. At the lower portion of the back plate the flange b' is produced downward, forming the legs C. The edge of the front plate, B', of the stove is formed like the edge of the back plate, forming the same kind of a joint with the sides and top and bottom as the back plate. The feet are also formed in the same way as the feet on the back plate. The flange b, extending from the main portion of the back plate, supports the rear ends of the lining-plates. These linings are also supported by a similar flange, b⁶, on the front plate, B'.

A short projection, E, cast on the flange b of plate B, fits into a corresponding notch on the rear end of the bottom lining, D. This projection E guides the lining D into position.

The edges of the lining D are beveled, as shown in cross-section in Fig. 2. The side linings, D' D², are beveled on their lower edges, and thereby overlap internally the edges of the bottom lining, D. They are also provided with two or more lugs, d², which project downward behind the lining D, and, in connection with the beveled edges just described, complete the joint between the lining-plates.

The ash-box G is preferably cast with the lining D. The plate B' is cast with a large opening, over which the front door, L, fits. In the lower part of this opening the casting D G rests, the ash-box G being outside the plate and the lining D inside. The casting D G is secured to the front of the stove by the screw g, which passes through the bottom of box G and screws into the flange b⁶ of plate B'.

At each end of the lining D² is a slot, which is surrounded by a ridge, d³, forming a socket for reception of a small nut, d⁴, into which a bolt, d⁵, is screwed to hold the lining in place.

The slot is made in the linings to allow for the small amount of expansion and contraction, and is surrounded by the ridge d³, to pre-

vent the nut from turning when the bolt d^5 is screwed into it. These bolts d^5 first pass through the flanges b' of plates B and B', and then through the side lining, D², into the nuts d^4 . The lining D' is similarly held in position.

For the purpose of holding the bottom lining more firmly in position the back plate, B, is provided with several lugs, b^2 , placed as shown in Figs. 2 and 3. Lugs b^4 , Figs. 2 and 3, also assist in keeping the outer plates of the stove in position.

In one form of the stove the parts are arranged for the pipe to be placed on the side, and in another form the pipe is placed at the back of the stove. When the pipe is placed at the back a door is put on each side, and when the pipe is placed on one side a door is put on the opposite side.

The formation of the door or doors is as follows: There is an opening in lining D', and flanges d^6 are cast on the four edges of this opening. These flanges project entirely across the space between the lining D' and the side plate A', thus forming the sides of the door-opening. (See Figs. 2 and 5.) The plate A' rises slightly above the lower flange, d^6 , as shown in Fig. 5, forming the ridge a^4 . The uses of this projection will be explained hereinafter.

The space between the linings and external shell constitutes the flue. The flue has two openings—viz., the open space on each end of the uppermost of the flanges d^6 , and between the top edge of lining D' and plate A'. (Shown in Fig. 5.) The lining D² has its top edge turned over, as shown in Fig. 2, so as to close the flue on its side of the stove. The central portion of the top of lining D² projects upwardly, forming the bonnet F, which latter overlaps the lower half of aperture K, thereby affording an escape for the products of combustion which enter the flue on the opposite side of the stove.

The aperture K is formed in the side of the stove by two semi-oval notches—one on the edge of plate A and one on the upper edge of plate A². Over this orifice K the collar H H' for the stove-pipe is attached. The upper edge of the bonnet F passes horizontally across the center of the orifice K.

The preferred devices for controlling the direct and indirect draft of this stove, and which are now to be described, are not claimed herein, but the subject of a separate application for Letters Patent.

A damper, I, is hinged to this edge of the bonnet F. A rod, i , attached to the damper I, passes through the collar H, and is the means of operating the damper.

It will be observed that this damper controls both the direct draft through the upper half of the orifice K and the indirect draft through the flue.

A projection, a^5 , extends from the inner side of one of the plates of the external shell of the stove and supports one end of the rod J, the

other end of said rod being supported by the front plate, B', through which it passes. The inner end of rod J is bent, as shown in Figs. 2, 3, and 4, forming the projection j . The outer end of the rod is bent at right angles with the main rod, as shown in Figs. 1 and 4, forming the projection j' . The under side of projection j' is beveled from above downward, both internally and externally, so as to make the said projection V-shaped, with the sharp edge pointing downward.

The front door, L, is hung on hinges L'. Projecting from the front of the door, just under the projection j' of rod J, is a protuberance, l . This protuberance l is V-shaped on top, with the sharp edge up, so that it acts as a cam and raises the end of the projection j' when the door is swung open.

When the end of the projection j' is raised it turns the rod J and forces the projection j against the damper I, thereby forcing the damper away from the upper part of orifice K and stopping the draft through the flue. The object of this is to always have the direct draft open when the door of the stove is opened, in order to prevent smoke issuing through the open door.

The ash-box G is covered by a lid, G', which is pivoted at G². Between the cover G' and the door L is a swinging sill, M. From the inner side of this sill a flange, m , projects downward and fits against the inner edge of cover G'. Also, from the inner side of sill M a flange, m' , projects upward, as shown in Figs. 3 and 11. The sill M is pivoted at G². The lower part of the door L is provided with a lip, l' , which projects against the flange m' . On one side is placed a door, N, of any suitable design. Beneath the door N projects a small table, n , on which irons may be placed for heating.

Over the opening in the lining D' is a grating, D³, to prevent the wood and fire from falling out of the stove when the door N is opened.

Along the side of the stove, on front of the door N, and about the same height as the table n , is a rod, O, supported by the arms O'. These arms O' are provided with outwardly-extending pins O², which are held in brackets O³, projecting from the side of the stove, and with feet O⁴, which rest against the side of the stove and brace the said arms. (See Figs. 1, 2, 4, and 8.)

One of the brackets O³ is provided with a hole, through which one of the pins is passed, and the other bracket is provided with a slot, into which the other pin is dropped. The slot and pin in this second case are so arranged as to hold the arm O' securely in position. This arrangement is shown in Fig. 8, where it is seen that the slot in the bracket is wider at the bottom than at the top, and that the pin O² is oval in section, the longer axis lying horizontally when the arm O' is in position—that is, with the foot O⁴ resting against the stove. The opening of the slot is less in width than the greatest width of the pin O². Hence,

to detach the arm O' from the bracket O^3 the rod O must be lifted, thus turning the arm O' on the pin O^2 and presenting the narrow edge of pin O^2 to the opening of the slot, when the pin may be lifted from its bearing. The other pin O^2 may now be drawn from the hole in the other bracket.

When it is desired to keep a sad-iron warm the door N may be thrown open and the back edge of the iron laid on table n , with the handle resting on the rod O ; or the back edge of the iron may be placed upon the flange d^6 and the handle rest upon the edge of the table n , the ridge a^4 preventing the iron from falling off. This ridge a^4 is also useful in retaining any ashes which may fall through the grating D^3 .

The edge of the front plate, B' , projects considerably below the top edge of the front door, L , forming the apron T . This apron T is for the purpose of assisting in preventing smoke passing into the room when front door, L , is opened. While the apron T will answer the purpose, it is preferable to have a large triangular notch cut in the bottom of the apron T , and to attach to the apron T , just above the notch referred to, a supplementary swinging apron, T' , by means of a pivot, as t . The purpose of this swinging apron is to enlarge the front opening, when necessary, by throwing it to one side for the purpose of passing the linings in and out more conveniently, and to admit of larger sticks of wood being put into the stove.

When the pipe proceeds from the rear end of the stove several modifications are made in the construction. The two side linings are made the same and the rear openings on each side closed. A diaphragm, P , (shown in dotted lines in Fig. 2,) extends from end to end of the stove in the flue along the center of the bottom. This diaphragm prevents the currents of air descending through the side flues from mixing with each other, forming an eddy, and thereby retarding the draft. A bonnet, Q , is attached to the back plate, and two orifices, R , in the back plate connect it with the flue. The pipe is attached to the top of bonnet Q . At the top of the back plate is an orifice, S .

When the direct draft through the orifice S is not desired, it may be closed by means of the damper I' , and when the direct draft is desired the flue formed by bonnet Q and back plate, B , is closed by damper I' .

The device for automatically opening the direct-draft flue is also slightly changed in this style of stove. The front side of the damper I' is provided with a beveled projection, i' . (Shown in Fig. 9.) The rod J is produced to the rear end of the stove, and an arm, j^2 , projects inwardly from and at right angles to it. When the front door of the stove is closed and the direct-draft flue is open, the end of the arm j^2 is immediately beneath the projection i' ,

so that when the front door is opened the rod J is turned outwardly on its axis, the arm j^2 is lifted, thereby forcing the damper I' back and opening the direct draft.

The modes of operation of the various devices have all been clearly set forth in the foregoing description.

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

1. The swinging sill M , substantially as and for the purposes set forth.

2. The combination of the swinging sill M and the ash-box cover G' , swung from the same pivot, substantially as and for the purposes set forth.

3. The combination of the door L , swinging sill M , and ash-box cover G' .

4. A stove provided with a bottom lining whose front end extends forward and is so shaped as to form the ash-box, substantially as and for the purposes set forth.

5. The joint between the plates A and B , as formed by ridge a^3 , flange a^2 , flange b' , bolts d , and the cement, substantially as and for the purposes specified.

6. A stove provided with table n and rod O , the latter extending parallel to the table, as herein specified, and for the purposes set forth.

7. The combination of table n , ridge a^4 , and lower flange, d^6 , substantially as and for the purposes set forth.

8. The recess in the stove, provided at the back with the grating D^3 , bounded at the side with the pieces a^6 , and provided at its front with edge a^4 and door N , substantially as and for the purposes set forth.

9. The device for holding and locking the rod O in position on the stove, and for allowing the rod to be removed from the stove at will, and consisting of the bracket O^3 , with a peculiarly-shaped slot, as hereinbefore specified, for the reception of the pin O^2 , oval in section, the longer axis thereof lying horizontal when the foot O^4 of arm O' rests against the stove.

10. In combination, the rod O , arms O' , and pins O^2 , shaped as specified, brackets O^3 , one of which is slotted, as specified, substantially as and for the purposes set forth.

11. The lining D' , provided with lugs d^2 at its edge, the latter being beveled away so as to form with each lug a V-shaped groove for the reception of the oppositely-beveled edge of the lining D , substantially as and for the purposes specified.

12. The lining D' , provided with beveled edges, lugs d^2 , and flanges d^3 , substantially as and for the purposes set forth.

Cincinnati, Ohio, January 21, 1878.

ALBERT J. REDWAY.

Attest:

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