

No. 610,260.

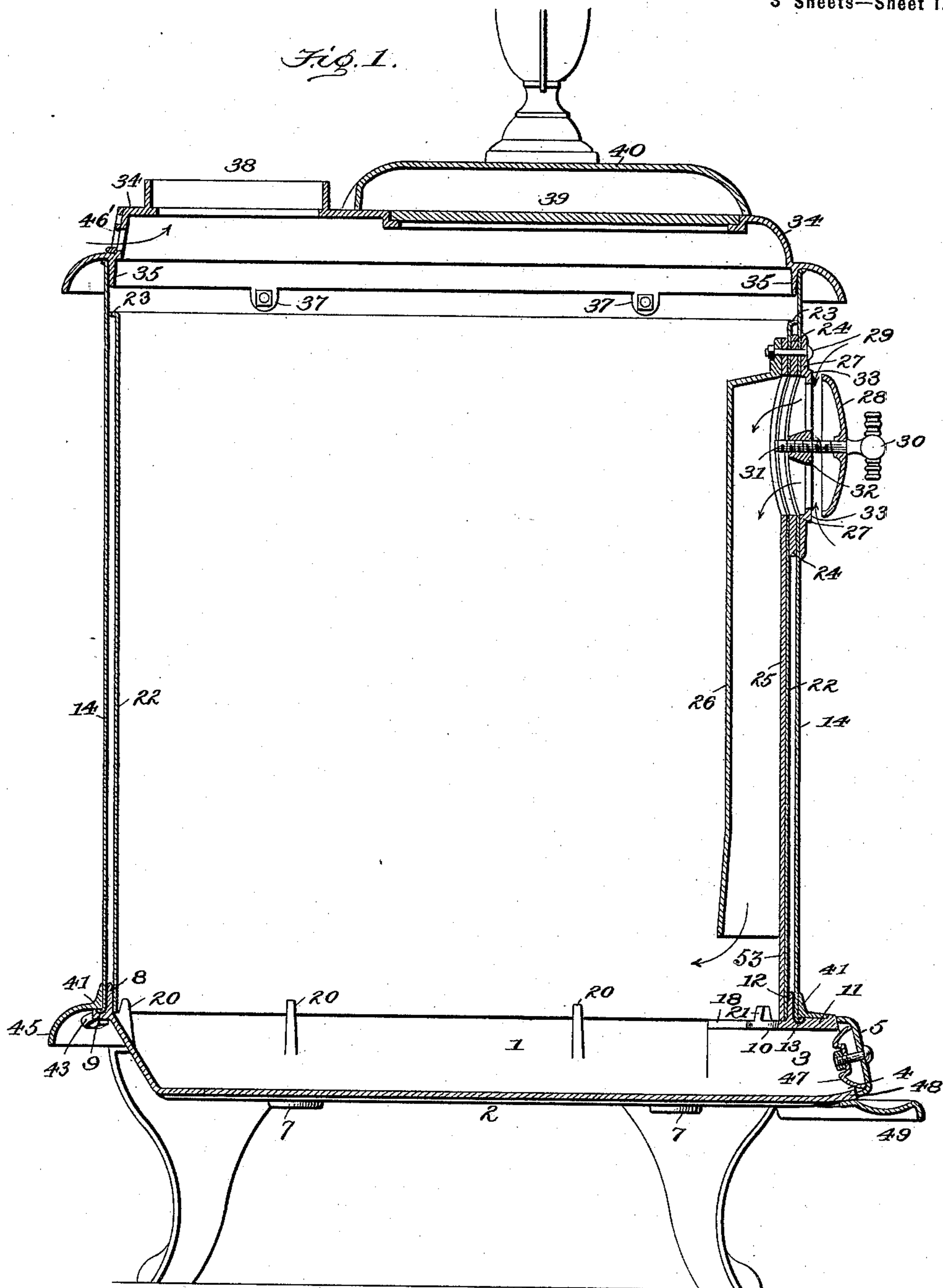
Patented Sept. 6, 1898.

R. A. CULTER.
HEATING STOVE.

(Application filed Feb. 2, 1898.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES

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Fig. 3.

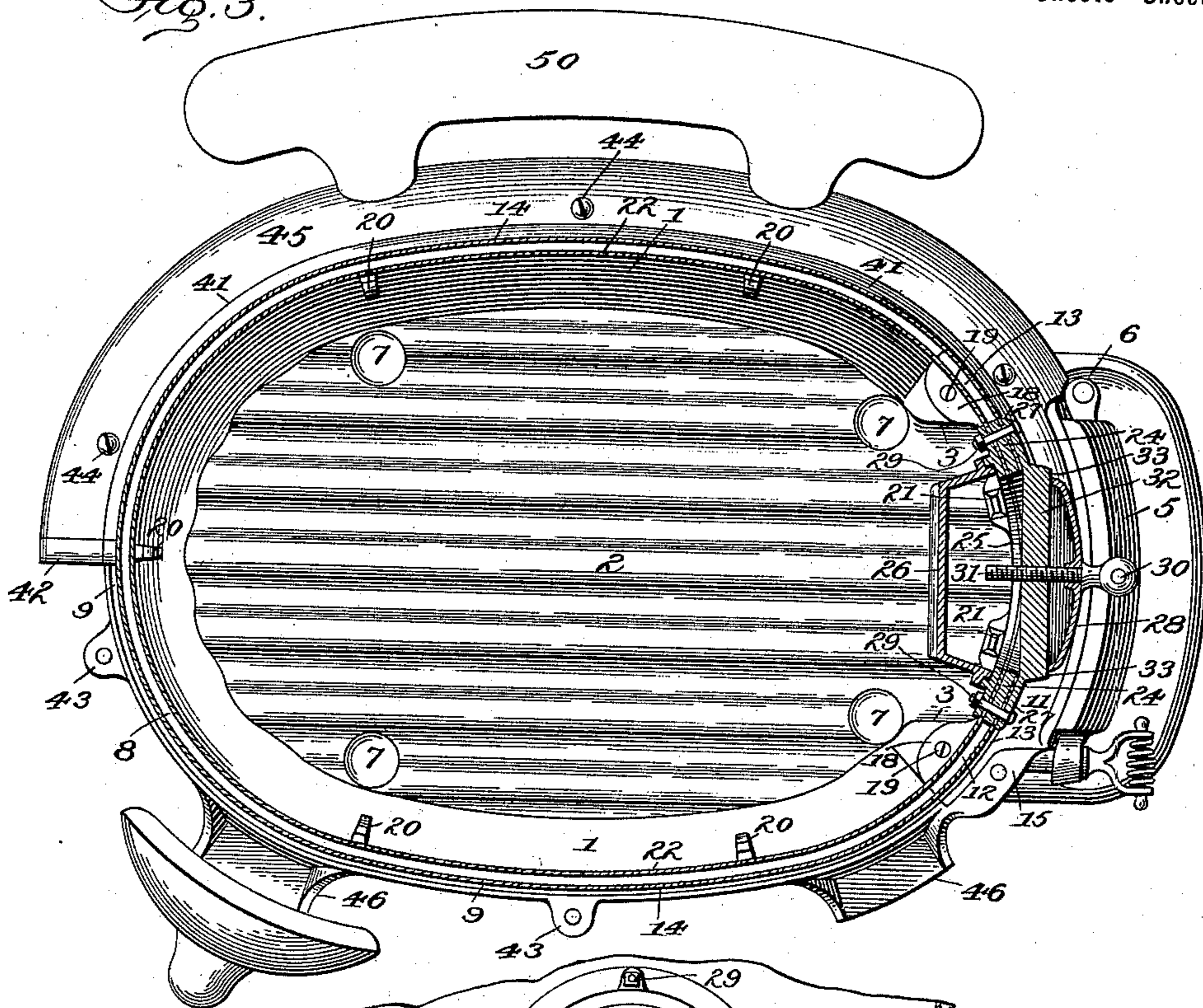
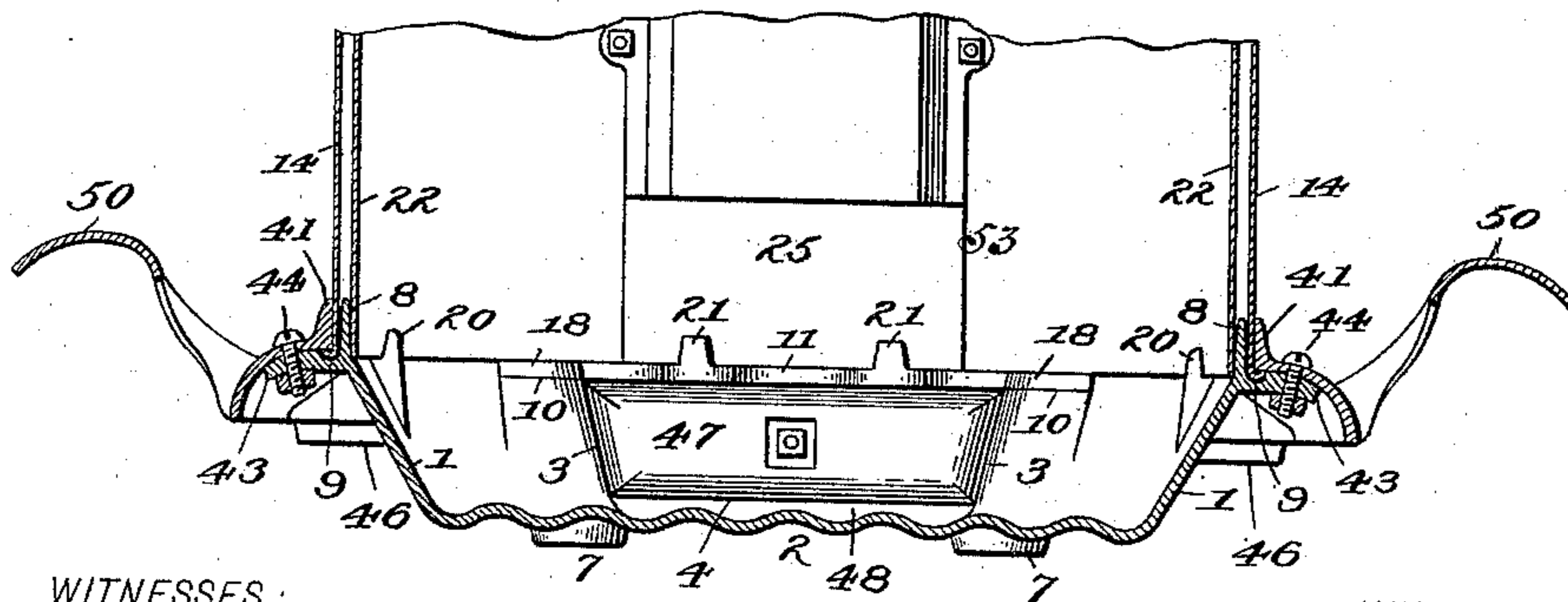
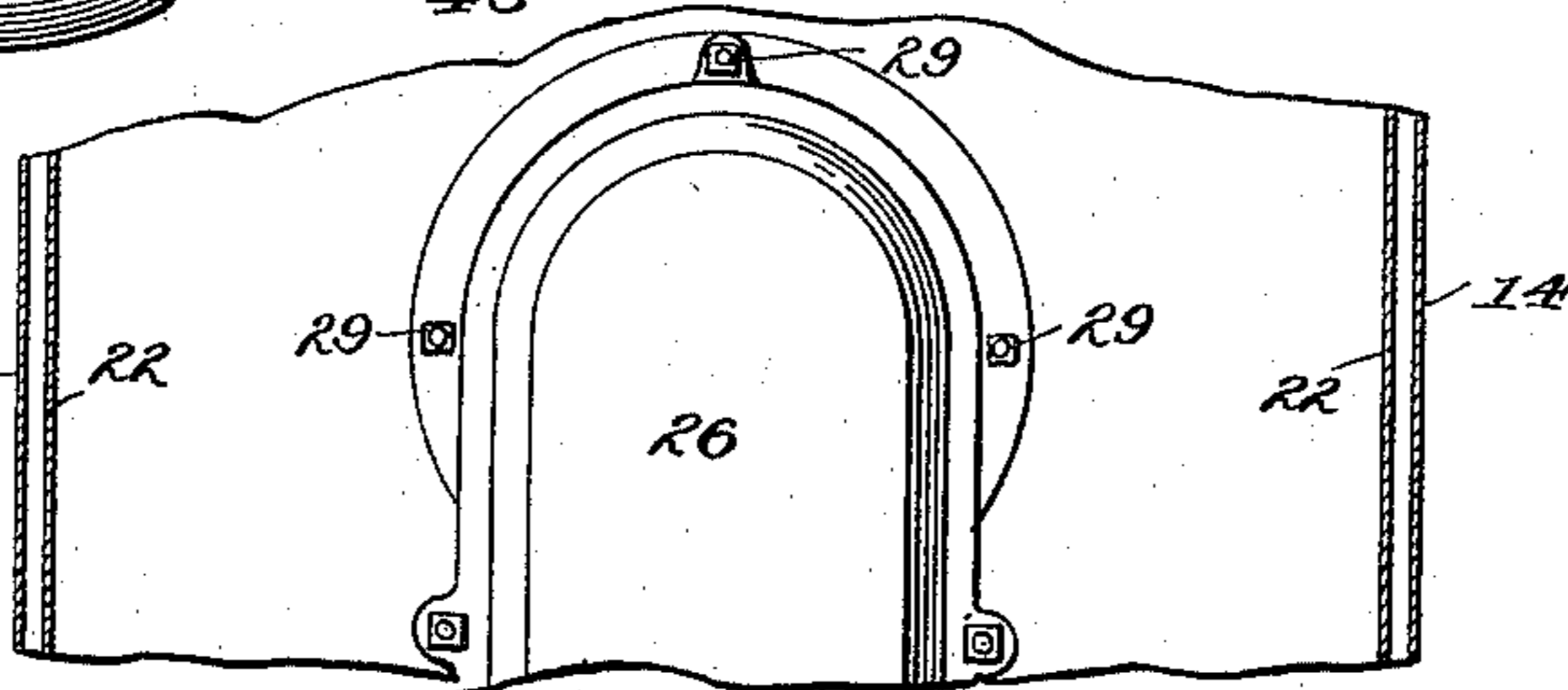


Fig. 2.



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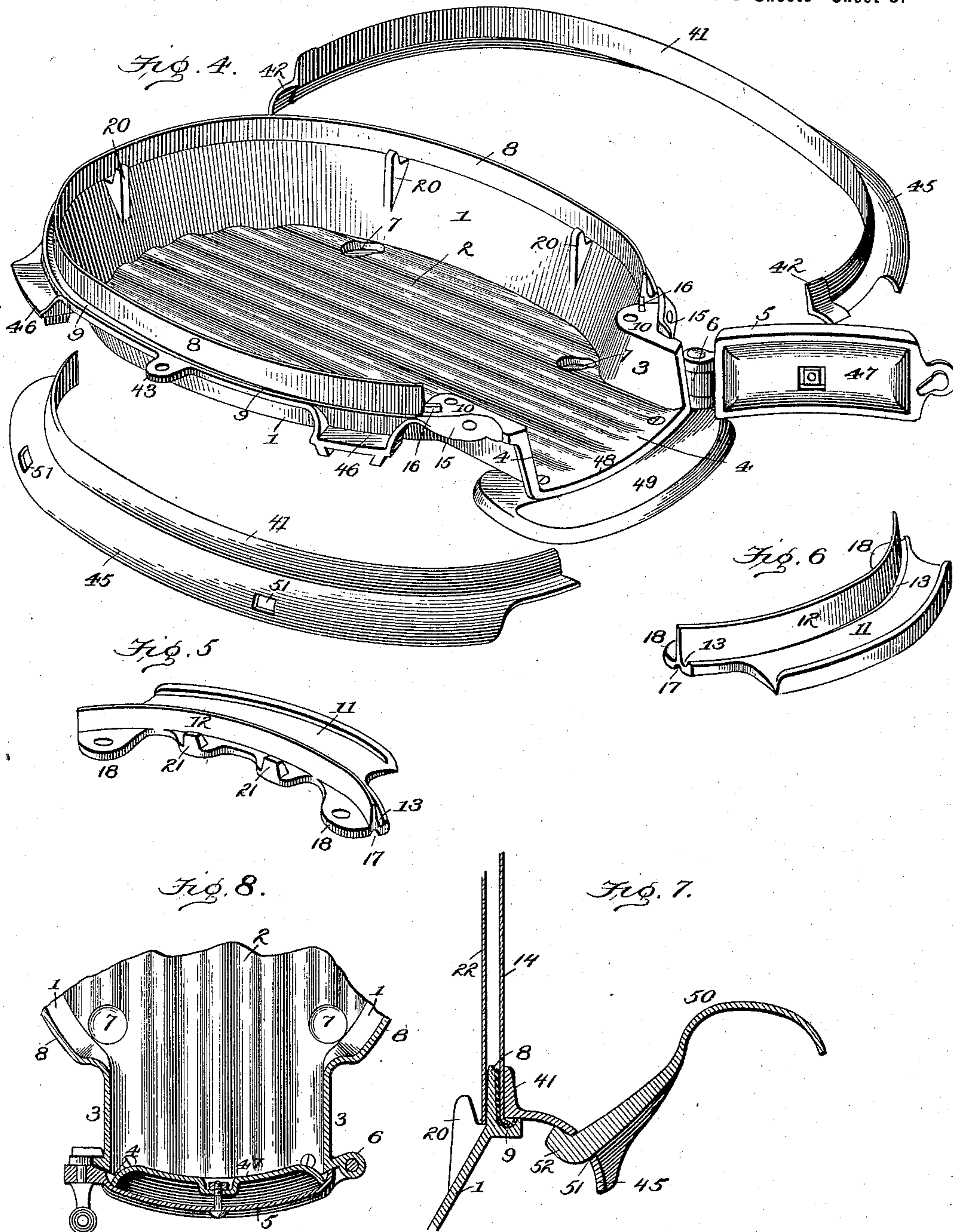
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UNITED STATES PATENT OFFICE.

RICHARD A. CULTER, OF PEORIA, ILLINOIS.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 610,260, dated September 6, 1898.

Application filed February 2, 1898. Serial No. 668,862. (No model.)

To all whom it may concern:

Be it known that I, RICHARD A. CULTER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Heating-Stoves, of which the following is a specification.

The stove which I have improved is of the wood heating-drum type; and my improvements are directed to several features of novelty in construction and of combinations which will be specifically set out in the claims concluding this specification.

In the accompanying drawings are illustrated all my improvements, in which—

Figure 1 is a vertical longitudinal section of the stove. Fig. 2 is a transverse section, and Fig. 3 is a horizontal section, of the stove, taken through the draft-regulating valve. Fig. 4 is a view of the base-casting in perspective, showing the ash-pit and its open-neck ash-door opening. Figs. 5 and 6 show the separate cap-casting which forms the cover crossing the top of the ash-pit opening and forming a continuation of the base-casting curb. Fig. 7 shows in vertical section the base-binding ring with the foot-rail supported in the ring-jacket. Fig. 8 shows the ash-pit-door end of the base with the airtight door and its convex inner facing standing within the ash-pit opening. The ash-pit neck is open at the top and, being also open at the end, forms three sides of the joint-forming edge of the doorway, the outer end surface joining the floor and inner sides of the neck to form said edges, as in Fig. 4.

The stove is preferably of oval drum form, and the base-casting forms a deep ash-pit. The base has the shape somewhat of a tray, with quite deep sides 1 1, and its bottom 2 is preferably corrugated longitudinally to prevent warping and cracking. The base is formed with a contracted part or neck 3 at one end, which has the opening 4, through which to withdraw the ashes, and which opening is controlled by a door 5, preferably hinged to a lug 6 on the vertical wall at the end of the neck. The base-casting is formed with bottom bosses 7 to give the base a firm seating in setting up the stove upon it, the sides of the casting having rising from its top a comparatively thin curb 8, at the base of

which, on its outer side, is a groove 9, both the curb and the groove terminating at each side of the open neck in a top surface thereof. 55

In casting the base the neck-opening 4 is left uncovered in Fig. 4 and the curb 8 does not cross it, but terminates in a seat or surface 10 at each side of the opening, whereby to form a seating for a separate cap 11, which spans the opening and has a curb 12 and a groove 13, fitting and rendering the base-curb 8 and its groove 9 continuous. When seated, it forms a continuation of the top of the base at its ash-door opening. At its outer edge said cap-plate is formed with a vertical facing the curve of which corresponds with the circle of the base-top and, forming the fourth side of the doorway-joint, makes thereby the facing-joint for the door symmetrical and continuous, as in Figs. 4, 5, and 6. This construction is devised to render it practicable to cast the base with the neck-opening and bridge the opening with a separate casting as a section of the base-curb, so that the outer drum 14 and the inner drum will be fitted upon an uninterrupted curb. 65 70 75

The flat neck parts 10 have joint-forming risers 15, and coincident with the curb at the end thereof are tooth-like projections 16, which enter recesses 17, Figs. 5 and 6, in the under sides of the ends of the cap, thereby symmetrically seating and locking it with the base-curb and making a close joint at said seating. At each end the cap has ears 18, through openings in which nutted screws 19, Fig. 3, pass to secure it to the base, the nuts engaging the screws on the under outer side of the neck part and the ears being at the inner side of the segmental curb. 80 85 90

The sides of the bottom casting are preferably flaring and have studs or tooth-risers 20 on its inner wall standing a little above the base of the curb at the inner side thereof, the cap 11 having corresponding tooth-risers 21, the purpose of which will be presently stated. 95

The drum-body is of sheet-steel and is seated over and against the base-curb into the groove 9, surrounding it, while upon the studs or tooth-risers 20 a sheet-iron lining 22 is seated against the inner side of said curb, so that there will be about one-quarter of an inch space between the two drum-bodies, the 100

edge of the lining forming a closed joint with the base-curb by the action of said studs or tooth-risers.

The lining preferably extends to near the top of the outer drum and there joins it by a lip 23 to form a dead-air space, and thereby prevent the drum from becoming red-hot and from being discolored and burned out.

Near the top, vertically above the base-neck opening, the drum and its lining have coincident openings, and between the drum-bodies there is a metal ring-packing 24, Figs. 1 and 3, surrounding the openings to prevent the entrance of cold air between them at this opening and to form a solid wall for fastening a downdraft-flue casting.

On the inner wall of the lining is secured a downdraft-flue receiving air at the drum-opening and delivering it in a heated condition into the fire-chamber above the base-opening 4. This draft-flue is a casting of two plates 25 26, screwed together, one of the plates, 25, being secured at its upper end upon the lining-drum, as I shall presently state, so that this flue is fixed upon the lining-wall and supplies air for the combustion.

At the flue-opening the outer drum has secured thereto a separate ring-casting 27, which forms a seat for a draft-regulating screw-valve 28, and the screws 29, which secure this ring-seating, pass through the drum-bodies, the packing-ring 24, and through the draft-flue plates and are nutted on their inner ends. The screw-valve 28 is a circular cap with a central handle 30 and a screw-stem 31, and the ring-seating 27 has a cross-bar 32 in a threaded opening, in which the valve screw-stem 31 engages. While the screws 29 serve to secure the cast flue to the lining, the plate 25 of said flue may rest upon the cap-plate 11, as in Fig. 1, and thereby relieve the screws from the weight of said flue-casting. The part 26 of this flue is trough-shaped in cross-section and secured to the wall part by nutted bolts, as in Fig. 2, while nutted bolts 29 fasten together the flue-plates and the drums, and this construction makes it convenient in casting the separate flue parts and in applying and removing the flue. To remove and replace the flue, the screw-bolts 29 only are taken out.

Referring to Figs. 2, 3, and 5, the studs or tooth-risers 21 of the cap 11 are seen as forming incline abutments for holding the back part 53 of the flue hard against the lining-drum to bind the latter to the curb.

While providing for sealing and covering the joining of the drum around the outer side of the base-curb, it is also important to provide for sealing the joining of the lining-drum around the inner side of the base-curb to render it tight against the sifting of ashes under the drums and to keep the joint tight. The buckling of the lining-drum at its lower edge would tend to bulge it inward, and thereby expose such open edge to the direct action of the fire and hasten its destruction. To

prevent this, the studs or incline risers 20 21 are cast on the inner side of the curb, the edge of each riser next to the curb inclining upwardly and inwardly above the top of the base-casting, so that the lining being seated upon the inclined edges of the risers the latter thereby act as jam abutments, forcing the lining outward and holding it tightly against the curb. This jamming action of the inclines is only rendered active by driving the lining-drum down upon the incline risers, and in this respect the inclines form a skeleton conical seat placed so as to force and jam the lining outward against the curb, as in Fig. 1.

The lining-drum is prevented from slipping up on the inclines by the screws 29, Figs. 1 and 2, which secure the flue-plates to the drums, so that the cast flue and the stove-drum serve to hold the lining-drum down.

The ring-seating has an annular ground surface 33, upon which the screw-valve 28, when driven home by a corresponding ground surface, forms an air-tight joint, and by this valve the air can be regulated to supply and control the combustion. The hot-air draft-flue being secured in place upon the inner wall of the lining-drum, the top casting 34 is then fitted upon the outer drum. For this purpose the top casting has a depending curb 35, which is driven down tight within the inner drum. Ears 37, depending from this curb, serve to receive screws to secure the top to the drum.

The top has the usual stovepipe-collar 38 and inside cast swing-cover 39, which is supplemented with an ornamental open swing-top 40.

At the base-joining of the drum I provide a binding-ring made in two equal parts 41 41 and adapted to encircle and cover the base-groove 9 and edge of the outer drum and bind it upon the base-curb, and thereby prevent any warping or buckling of the drum at the joint. To render this binding-ring effective for preventing leakage of ashes and the entrance of cold air into the ash-pit, the joint is sealed by putting asbestos cement on the curb and into the base-groove and driving the drum tight on the base-curb, forcing the asbestos into the groove, as in Fig. 7. The asbestos is then smoothed off and the binding-ring put on and secured, covering the sealed joint.

The ring parts join by lapping end joints 42 at the back and at the front, and at the latter their ends are narrowed and formed and adapted to fit over and upon the cap 11, which forms the top of the base at its neck-opening, as in Fig. 3. The sides of the base outside of the drum have ears 43, Fig. 4, to which the binding-ring parts are secured by screws 44, and the ring parts have jackets 45, which overhang the base grooved part. Feet-sockets 46 are also formed on the sides of the base, which are covered by the jacket-forming parts 45 of the binding-ring.

Back of the stove-collar the top has a reg-

ister-slide 46', Fig. 1, the purpose of which is to prevent condensed vapor forming in the smoke-pipe, which is liable in burning green wood, and for this purpose the register should
5 be slightly open all the time.

The draft of the stove is furnished by the downflue, and the base-pit door should be kept closed. To prevent the ashes sifting through the joints of this door and to prevent the
10 warping of the door, it is provided with a convex push-face 47, standing sufficiently into the opening to keep the ashes back from the edge. The bottom is slightly raised toward and at the edge 48 of the opening, which edge
15 stands above the hollows of the corrugations and forms a ridge, as in Figs. 1 and 4. A separate hearth-plate 49 is screwed to the under side of the base-neck to hold ashes that may pass the ridge 48 of the opening. This
20 construction renders it advantageous to use the base-casting as the ash-pit; but it will be understood that in using the stove the neck-opening should be kept closed by drawing the ashes into the neck to the front opening.

25 The divided base-ring while serving the purposes stated serves also as the means for supporting the foot-rails 50 at the sides of the stove, and for this purpose the ring-jacket 45 is provided with openings 51 for the engagement of the claws 52 of the foot-rails, as
30 in Fig. 7.

Preferably the body is made of smooth refined steel and the lining of refined iron, which can be easily replaced at little cost
35 when burned out.

The base is designed to be used with ashes filled up so as to close the opening in the neck of the base for the double purpose of preventing the burning of the floor and to aid in preventing a base-draft.
40

Fuel is introduced into the stove through the swing tops, and in doing this the screw-valve should be opened to prevent the smoke coming out of the top.

45 I claim as my improvement—

1. In a sheet-iron-drum stove and in combination with the drum and an ash-pit casting having the top curbing, a side doorway-opening extending across the top, and a ledge
50 or seat at the top of each side of said opening, of a separately-cast plate constructed to connect at its ends the said side ledges or seats whereby to form a bridge for the ash-pit-door opening and a continuation of the top of said base and its seating for the drum.
55

2. The stove-base having the open ash-pit and the top, the base formed with a side opening for the ash-pit doorway extended across the top, a ledge or seat at the top of
60 each side of said doorway-opening and a curb rising from the top around the walls of the ash-pit, in combination with the drum and a separately-cast top plate forming a segment of the base-top adapted to connect and span the top of the doorway-opening and having a
65 curb which when said separate plate is connected to bridge said doorway will be in cir-

cular alinement with the top curb and form a continuation thereof.

3. The combination with the stove-base 70 having the open ash-pit formed with an open side neck for the ash-pit doorway a ledge or seat at the top of each side of said open neck a curb around the walls of the ash-pit and terminating at each side of said open neck, of a
75 separate plate adapted to connect the sides of and span the open neck at its top and formed with a curb corresponding with and forming a continuation of the curb of the base and the stove-drum whereby the ash-pit neck is
80 bridged to form the doorway and the seating of the stove-drum made continuous.

4. The combination with the stove-drum and the base formed with a neck projecting from its side the floor of the ash-pit and the
85 floor of the neck on a level both open at the top of the base and forming the ash-pit doorway, of a separate plate adapted to span the neck-opening and connect at its ends the side walls of the neck to form the top of the
90 ash-pit doorway and a continuation of the top of the base, the said base and the said bridge-plate having a continuous curb for the seating of the drum over the neck-bridge.

5. The combination with the stove-drum, 95 of the ash-pit casting having the drum-joint forming-curb, and a lining-drum on the inner side of the curb, of studs or risers arranged around the ash-pit walls on the inner side of the curb and having their sides next
100 the curb inclined therefrom whereby the drum being fitted in place upon the studs or risers, and driven home upon their inclined sides is caused to be forced or jammed outward all around its seating edge, to form a
105 close joining with the inner wall of the base-curb for the purpose stated.

6. The combination, with the stove-drum, a base-casting and a lining-drum, of a down-draft-flue casting upon the wall of said lining-
110 drum a packing-ring between the drums, a valve-seat on the wall of the stove, and a draft screw-valve, the said flue-casting, packing-ring and the valve-seat being secured by the same screw-bolts to the double drum-bodies.
115

7. The stove-base formed with the ash-pit and the open-top neck at the side thereof each side of the neck at its top having a seat-forming surface and risers 15 and studs 16 upon
120 said surface, in combination with a separate bridge-plate having its ends formed to engage the risers and the studs and secured in symmetrical seating with the top of said base the said bridge-plate making the upper joint-forming edge of the doorway-opening and
125 forming the edge of said opening continuous for the doorway-joint.

8. The stove-base formed with the ash-pit and with the neck open at the top and end the latter forming three sides of the joint-
130 facing of the neck-opening, in combination with a separate bridge-plate for said open-top neck arranged in symmetrical seating with the top of the base and means for se-

curing said bridge-plate in such relation to said neck-opening as to complete the fourth side of and form the doorway-joint.

9. The combination with the stove-drum
5 and a base and a lining-drum, of the air-inlet flue the back plate thereof rests upon said base and a packing-ring at the air-inlet between the drums the said flue back plate, the packing-ring and the drums being clamped
10 together at the said packing-ring.

10. In combination with the stove-drum,

the ash-pit casting having the side opening forming the bottom and side joint-forming faces for the door, of a separate bridge-plate seated and spanning said opening and completing the joint-forming facing of the doorway and the seating for the drum. 15

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