

July 21, 1931.

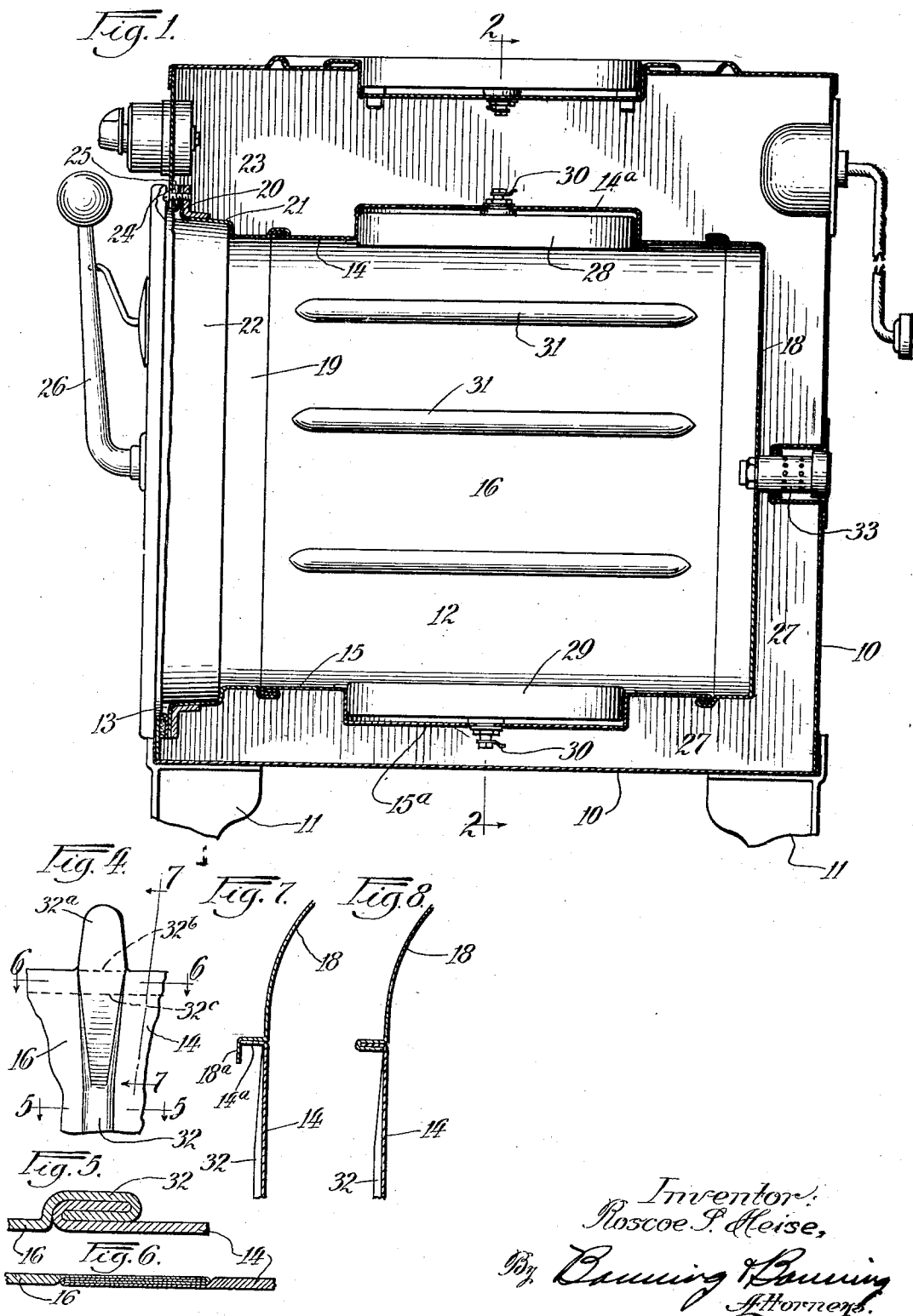
R. S. HEISE

1,815,312

OVEN CONSTRUCTION

Filed July 5, 1928

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

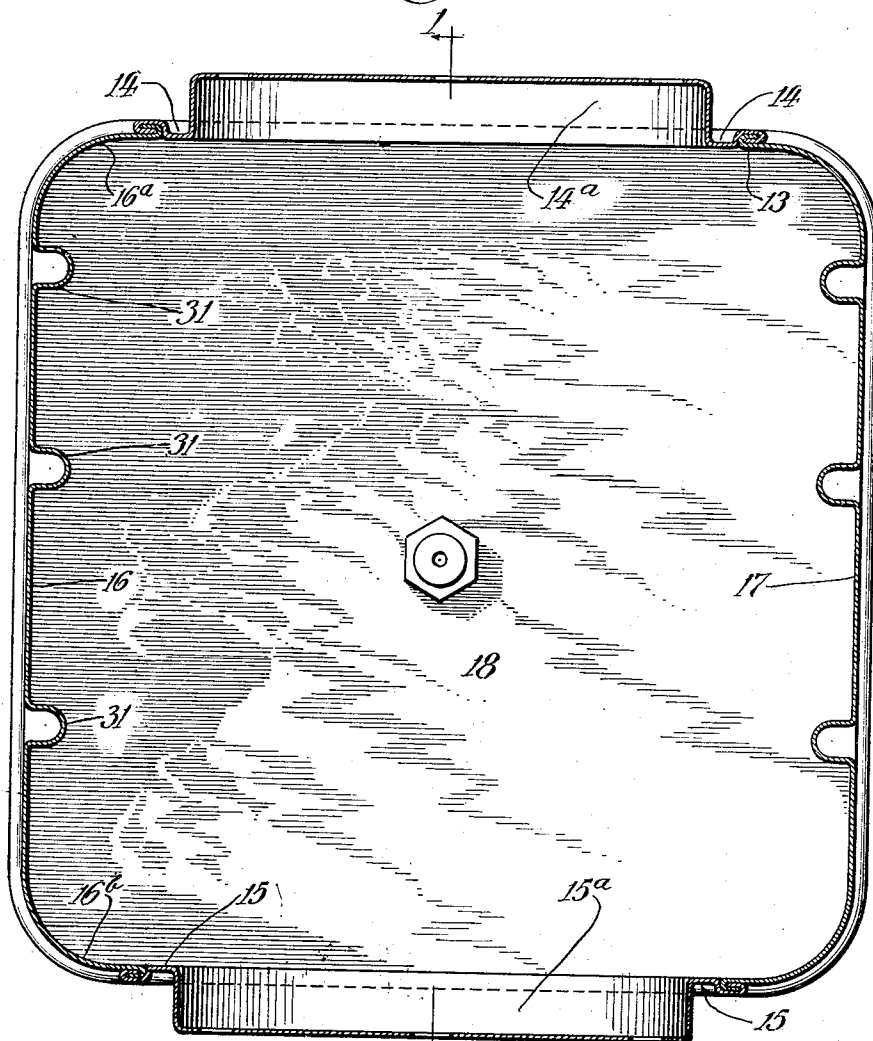
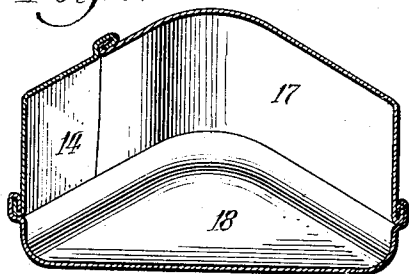


Fig. 3.



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UNITED STATES PATENT OFFICE

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OVEN CONSTRUCTION

Application filed July 5, 1928. Serial No. 290,315.

This invention relates to an improvement in oven construction.

Heretofore it has been considered impracticable to make an oven of the rectangular type of aluminum because of the inherent difficulties incident to working in this metal. Because of the liability of aluminum to crack and break, it has been discarded for other sheet metals where the liability of loss by breakage is not so great. These metals, such as tinned sheet iron, corrode badly, particularly on the outside, under the conditions existing in an electric oven and consequently the oven does not last long.

An object of this invention is to provide a satisfactory lining for such an oven made up entirely of sheet aluminum.

This and other objects, as will hereinafter appear, are accomplished by the invention which is fully described in the following specification and shown in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through an oven embodying my invention;

Fig. 2 is a transverse vertical section on the line 2—2 of Fig. 1;

Fig. 3 is a partial perspective view of the corner construction showing the junction of two seams;

Fig. 4 is a partial enlarged elevation of a seam between the side and top or bottom sections showing the seam thinned out;

Figs. 5 and 6 are enlarged sections on the line 5—5 and 6—6 of Fig. 4; and

Figs. 7 and 8 are partial sections on the line 7—7 of Fig. 4, showing two stages in making the same.

This is a continuation in part of my application Serial No. 121,145 which issued as Patent No. 1,717,605.

The embodiment illustrated comprises an electric oven having a sheet metal housing 10 of box-like construction. This housing is supported on suitable legs 11 which are secured thereto in any desired manner, and which are of sufficient length to maintain the housing at the desired height above the floor. Within the housing 10 is a hollow sheet metal oven 12 which is adapted to be secured within the housing 10 and immediately in

front of the opening 13 in the side of the housing.

The oven 12 is preferably made up of six sections of aluminum, namely, top and bottom sections 14 and 15 which are similar, side sections 16 and 17, a back section 18, and a front section 19. These sections, which will hereinafter be described in detail, are secured together by means of suitable lapped seams so as to be substantially air and steam tight at moderate pressures.

The oven is supported at the front by a connection between the front section 19 and the front portion of the housing 10. This is accomplished by providing the front section 19 with an outwardly flaring flanged edge 20. Just inside this flanged edge I have provided a tapered portion 21 which is adapted to receive a similarly tapered door 22, the operation of which will later be described. The door 22 and the tapered portion 21 are substantially rectangular in cross section, its round corners being similar to the cross section of the oven itself shown in Fig. 2.

A heavy sheet metal member or ring 23 is fitted snugly about the tapered portion 21 of the oven. A series of screws 24 pass through the housing 10, through an insulating material 25, through the flange 20 and are tapped into the metal member or ring 23.

Within the tapered door 22 is an expanding mechanism similar to that described in my pending application above referred to. This mechanism is operated by the operating crank 26 which, when turned, operates the mechanism (not shown) to expand the door 22 outwardly against the tapered portion 21, thereby forcing it firmly against the metal ring 23. I prefer to form this ring from sheet metal stamping. The space 27 between the oven 16 and the housing 10 is preferably filled with a heat insulator, such as mineral wool and the like.

The top and bottom sections 14 and 15 are provided with depressions 14^a and 15^a which are adapted to receive suitable heating elements 28 and 29 which are supplied with electric current through wires 30. The wiring system forms no part of the present invention and accordingly is not shown in detail.

The side sections 16 and 17 are provided with inwardly formed ridges 31 adapted to receive suitable racks (not shown), but upon which containers may be placed for holding the food which is to be cooked. The upper and lower portions 16^a and 16^b are preferably turned inwardly at substantially right angles to the main portion of the body. These meeting edges are joined in a double-lock joint 32 shown closed in Fig. 5, while in Fig. 7 is shown a similar joint before being closed, and in Fig. 8 is shown the same partly closed but not bent down.

After the joint is closed throughout its length, as shown in Fig. 5, the ends of the joint or seam are flattened as shown in Figs. 4 and 6 by hammering or rolling until the section 6—6 at the joint is of substantially the same thickness as the sections 14 and 16. This causes the material of the joint 32 to extend outwardly beyond the edges of the sheets 14 and 16 forming an extension 32^a which is removed by shearing along the dotted line 32^b. The front and back sections 19 and 18, respectively, are then secured to these sections as follows: The edges of the sections 14, 15, 16 and 17 are bent outwardly along this dotted line 32^c forming a flange 14^a on the section 14 (Fig. 7) and the section 18 has a cup-like flange 18^a made to fit thereover. This flange 18^a is then bent down as shown in Fig. 8, and the whole is then folded by hammering or rolling to the dotted line position of Fig. 8.

Thus it will be seen that I have provided a neat and satisfactory method of uniting a plurality of sheets of aluminum to form an oven lining, the end sheet or section being cupped and the lateral seams between the side, top and bottom sections being placed not at the corners but at one side, so that any three sheets meet in the same plane. An automatic pressure valve 33 is provided at the back of the oven to relieve either a pressure or vacuum within the oven.

The arrangement of oven sections which has been described is found in actual practice to provide a very efficient means of making an oven of the character described. It enables the operator to use sheet aluminum in an oven of this size and shape which manufacturers have heretofore been unable to employ because of the difficulties incident to the manufacture of an oven of this kind. Should splitting of the aluminum of one of the sections now occur during its manufacture, the entire oven does not have to be thrown away, but only that section in which the split occurs.

While I have shown and described but a single embodiment of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made which do not depart from the spirit and scope

of the invention as covered by the appended claims.

I claim:

1. In an oven lining of sheet aluminum, front, back, top, bottom and side sections, the top, bottom and side sections being secured together by longitudinal body seams, and the front and back sections being secured to the top, bottom and side sections by transverse body seams, the meeting sections lying in substantially the same plane.

2. In an oven lining of sheet aluminum, front, back, top, bottom and side sections, the top, bottom and side sections being secured together by longitudinal body seams, and the front and back sections being secured to the top, bottom and side sections by transverse body seams, the meeting sections lying in substantially the same plane, said top, bottom and side sections having protuberances formed therein.

3. In an oven lining of sheet aluminum, front, back, top, bottom and side sections, the top, bottom and side sections being secured together by longitudinal body seams, and the front and back sections being secured to the top, bottom and side sections by transverse body seams, the meeting sections lying in substantially the same plane, the top and bottom sections being recessed to accommodate heating units.

4. In an oven lining of sheet aluminum, front, back, top, bottom and side sections, the top, bottom and side sections being secured together by longitudinal body seams, and the front and back sections being secured to the top, bottom and side sections by transverse body seams, the meeting sections lying in substantially the same plane, the side sections having inwardly extending protuberances formed therein adapted to support oven racks.

5. In an oven lining of sheet aluminum, front, back, top, bottom and side sections, the top, bottom and side sections being secured together by longitudinal body seams, and the front and back sections being secured to the top, bottom and side sections by transverse body seams, the meeting sections lying in substantially the same plane, said front sections being annular in form and having an outwardly flaring rim whereby the front is secured to a housing.

6. In an electric oven of sheet aluminum, a sheet metal housing having an opening in one side, and an oven lining adapted to be secured in said housing, said lining being made up of a plurality of sections secured together by lapped body seams, one of the said sections forming the front of said lining and being outwardly flared to enable it to be secured to said housing.

7. A sheet metal oven lining comprising, top, bottom and side sections secured together by longitudinal body seams, a back section having an integrally cupped rim, and an

outwardly flaring front section having an integral rim, the rims of the front and back sections being secured to the ends of the connected top, bottom and side sections by transverse body seams which embrace and enclose the ends of the longitudinal seams, whereby all meeting sections lie in substantially the same plane spaced from the corners of the oven.

8. A sheet metal oven lining comprising, top, bottom and side sections secured together by longitudinal body seams, and a back section having an integrally cupped rim secured to the ends of the connected top, bottom and side sections by a transverse body seam, whereby all meeting sections lie in substantially the same plane spaced from the corners of the oven.

9. In an electric oven, a sheet metal housing having an opening in one side, an oven lining of sheet aluminum of nearly rectangular cross-section having a one-piece aluminum outwardly tapered opening member, and a tapered door adapted to move into and out of said opening member, said one-piece opening member being secured to the adjacent lining by a continuous double-lapped seam.

10. In an electric oven, a sheet metal housing having an opening in one side, an oven lining of sheet aluminum of nearly rectangular cross-section having a one-piece aluminum outwardly tapered opening member, and a tapered door adapted to move into and out of said opening member, said one-piece opening member being secured to the adjacent lining by a continuous double-lapped seam, the back of the oven lining being closed by a one-piece cup-shaped aluminum back member which is fastened to the adjacent lining members by a continuous double-lapped seam.

In testimony whereof, I have hereunto set my hand this 15th day of June, 1928.

ROSCOE S. HEISE.