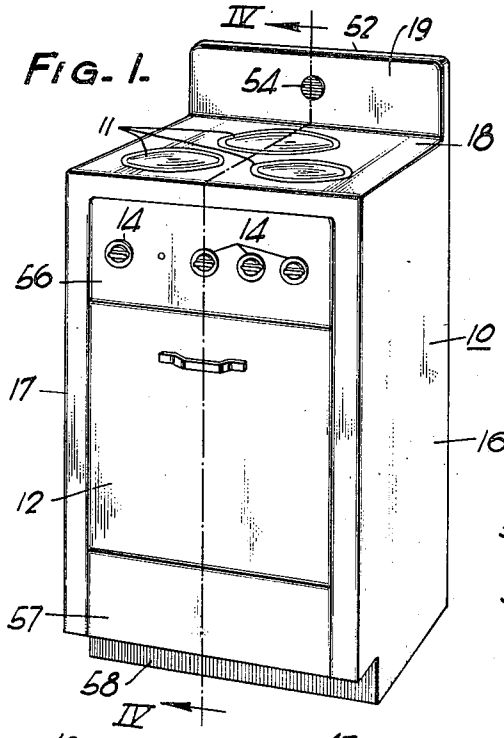
May 8, 1945. E. H. LOCKWOOD ET AL 2,375,242

HEATING APPARATUS

Filed Nov. 11, 1941 2 Sheets-Sheet 1

FIG. 1.



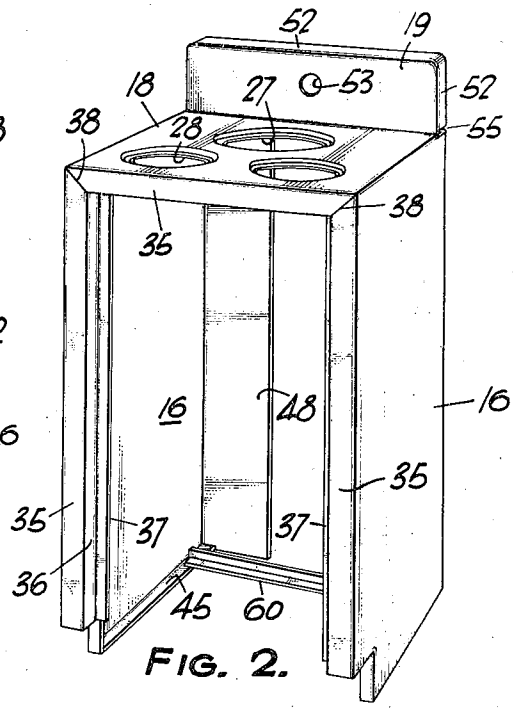


FIG. 2.

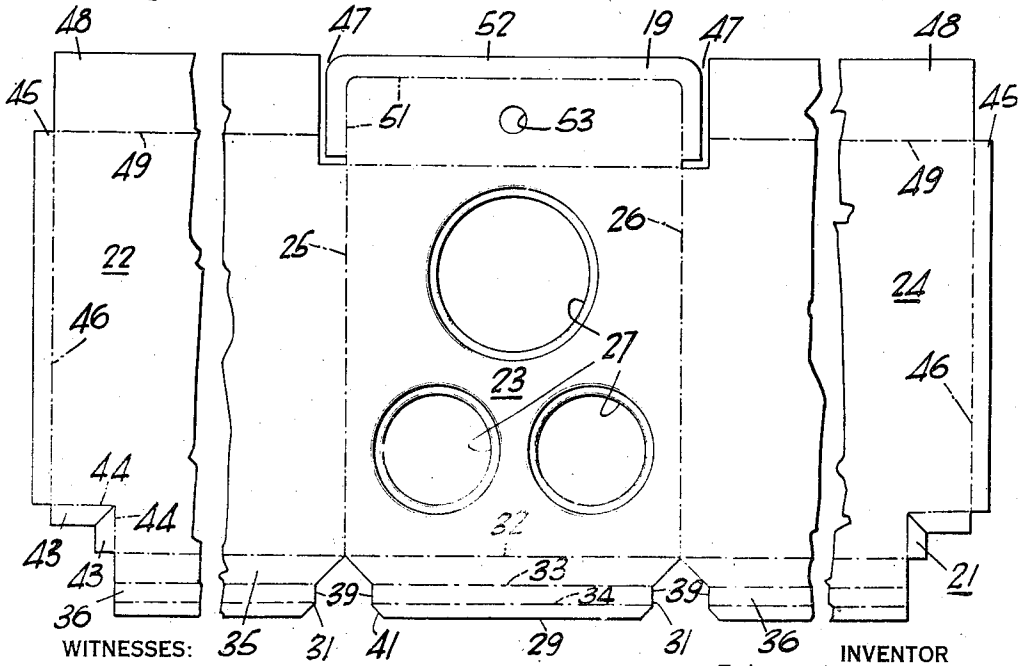


FIG. 3.

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HEATING APPARATUS

Filed Nov. 11, 1941 2 Sheets-Sheet 2

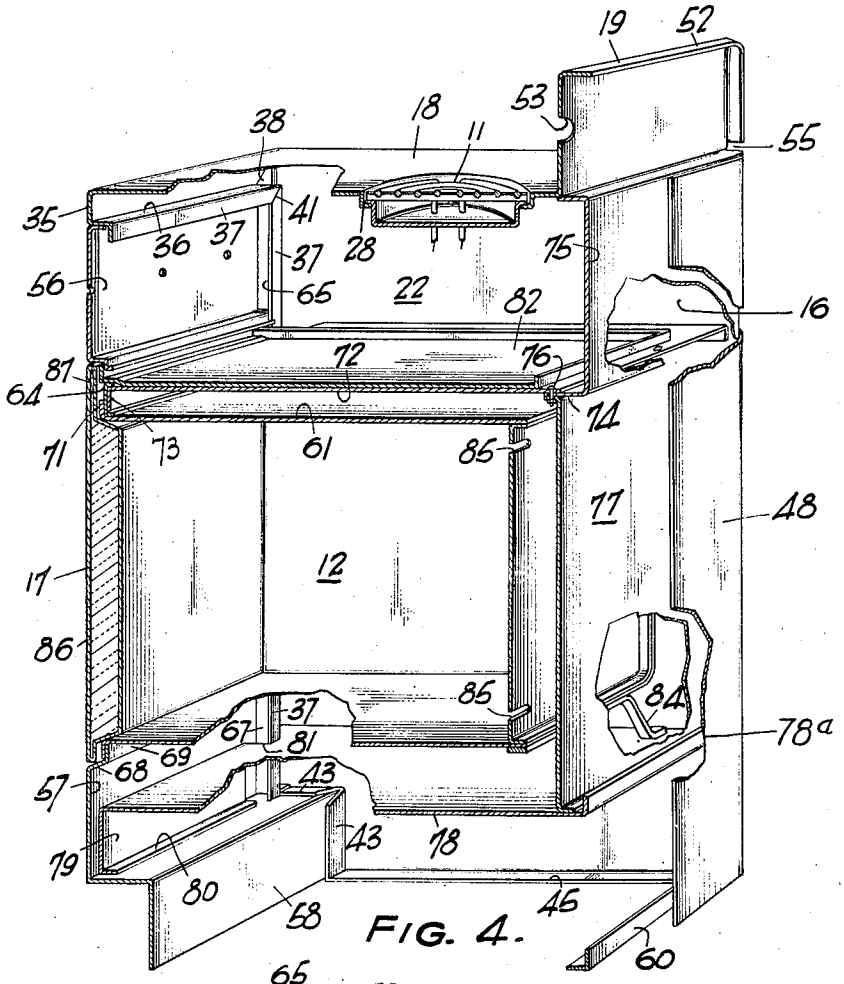


FIG. 4.

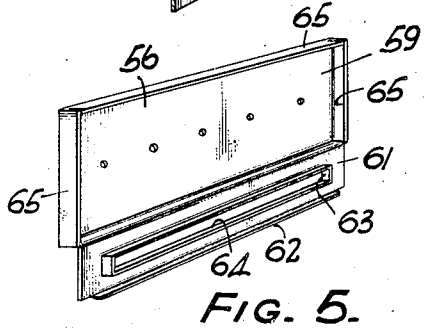


FIG. 5.

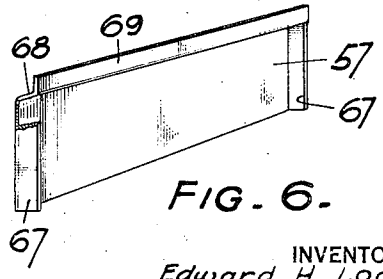


FIG. 6.

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2,375,242

HEATING APPARATUS

Edwin H. Lockwood and Lester E. Lown, Mansfield, Ohio, assignors to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania

Application November 11, 1941, Serial No. 418,624

12 Claims. (Cl. 126—39)

This invention relates to heating apparatus and particularly to cooking ranges and it has for an object to provide an improved range of the character set forth.

It is another object of the invention to provide an improved range made of a minimum of parts which may be readily assembled into a substantially unitary structure.

It is a further object of the invention to provide an improved range which is compact and requires substantially no bracing structure, the manner in which the functional parts of the range are formed and interfit obviating the need for bracing.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a perspective view of a range made in accordance with the present invention;

Fig. 2 is a perspective view, taken from substantially the same angle as Fig. 1, of the outer body or wrapper sheet of the range illustrated in Fig. 1;

Fig. 3 is a plan view of a blank from which the wrapper sheet illustrated in Fig. 2 may be made;

Fig. 4 is a vertical section taken substantially on the line IV—IV of Fig. 1, the range being shown in perspective as viewed from the right and rear of Fig. 1, with certain parts broken away to illustrate details of construction; and

Figs. 5 and 6 are perspective views, looking at the inner sides, of upper and lower panels, respectively, which are attached to the wrapper sheet illustrated in Fig. 2 to substantially complete the outer body of the range of Fig. 1.

Referring to the drawings, there is illustrated an electric range, generally indicated 10, having three surface units 11 and a single oven 12 for the purpose of showing one adaptation of the invention. The operation of the surface units and oven heating units (not shown) is controlled by means of switches or the like (not shown) which are manipulated by means of knobs 14. It is to be understood that the invention is adapted to other types and different style range bodies.

The range 10 is of substantially conventional appearance having side walls 16, a front wall 17, and a cooking surface or platform 18 which is provided with a vertical back splasher 19. It is a feature of the present invention to form the side walls 16, platform 18, and back splasher 19 of a single sheet of metal.

In Fig. 3 there is shown a substantially rectangular blank 21 which is adapted to be bent or folded along fold lines, indicated by dot and dash lines, to provide the outer body or wrapper sheet shown in Fig. 2. The blank is bent or folded at these fold lines to form an angle of substantially 90° between the portions of the blank on opposite sides of each fold line.

The blank is divided into three substantially rectangular sections 22, 23, and 24 by transverse fold lines 25 and 26. The sections 22 and 24 form the side walls 16 of the completed range, while the central section 23 forms the platform 18 thereof.

Prior to folding the blank 21, the central section 23 is preferably provided with one or more openings 27 therein, which in the final assembly of the range receive the surface units 11. The margins of the blank surrounding these openings are preferably formed to provide downwardly offset flanges 28 for supporting these surface units.

The front edge 29 of the blank illustrated in Fig. 3 is provided with reentrant notches 31 of the configuration shown, which notches are symmetrical with respect to the fold lines 25 and 26. Three lines of fold 32, 33, and 34, extend substantially parallel to the front edge 29 of the blank, the fold line 32 passing through the inner end of the notches 31. The portion of the blank lying between lines 32 and 33 provides, when the blank is bent into the form shown in Fig. 2, front wall portions 35, while the portion of the blank between the fold lines 33 and 34 provides rearwardly-extending flanges 36, and the portion between the fold line 34 and the front edge 29 provides flanges 37 which are offset rearwardly from the front wall portions 35.

The edges of the blank, at each notch 31, which extend between the fold lines 32 and 33 define an angle of substantially 90°, so that when the blank is folded about the lines 25 and 26, these edges will abut as shown at 38 in Fig. 2 to provide a smooth joint. The edges 39 of the blank, which extend between the fold lines 33 and 34, are substantially normal to the front edge 29 of the blank, so that when the flanges 36 are folded at right angles to the front wall portions 35, these edges will abut.

The edges 41 of the blank at the notches 31, which extend between the fold line 34 and the front edge 29 of the blank, are disposed at substantially right angles to each other, so that on folding the blank in the manner shown in Fig. 2, the edges 41 will be in substantially abutting relation.

A toe space is provided at the lower end of the front of the range by cutting out the lower front corners of the blank 21, flange portions 43 being defined by fold lines 44. The flange portions 43 are folded at substantially right angles to their respective sections 22 and 24, as shown in Fig. 4.

Flanges 45 are defined at each end of the blank by the mold lines 46 and, when folded at right angles to their respective sections 22 and 24, form

the bottom of the range and are adapted to rest on the floor.

The rear edge of the blank of Fig. 3 is provided with spaced reentrant cut-out portions 47 which define the back splasher 19 and two rear panels 48 of the range body. The panels 48 are bent back along fold lines 49. The margin along the free edge of the back splasher 19 is adapted to be bent back along the line 51 to provide a flange 52. An opening 53 may be provided in the back splasher to receive an oven vent pipe (not shown). This opening may be covered by a grille 54.

The manner of folding the blank of Fig. 3 along the several fold lines will be clear from Figs. 2 and 4. The joints formed by the abutting edges of the blank at the notches 31 are preferably welded so that the resulting body will be rigid and obviate the need for internal bracing. The small openings 55 between the flange 52 of the back splasher and the side walls 16 may be closed by means of gusset plates welded to the wrapper sheet so that after enameling, the outer body has the appearance shown in Fig. 1.

The outer body of the range is completed by means of two front panels 56 and 57, shown in Figs. 5 and 6, and an angle or toe plate 58. If desired, an angle iron strip 60 may be secured to the lower flanges 45, as by spot-welding, in order to maintain the lower rear portions of the side walls 16 in fixed relation. The panel 56, shown in Fig. 5, supports the surface unit and oven heating element control knobs 14 and comprises a substantially rectangular trough-like portion 59 having a depending extension 61 along the lower edge thereof.

The trough-like portion 59 is provided with a series of openings through which the shafts actuated by the knobs 14 are adapted to extend. The switches or the like actuated by these knobs may be mounted on the rear face of the panel 56 in any suitable manner. The depending extension 61 terminates in an inwardly-extending horizontal flange 62 and, substantially midway between this flange and the portion 59, is provided with an elongated rectangular opening 63 through which a crumb tray 82 is insertable. The margin surrounding this opening 63 is bent inwardly to provide a flange 64. The panel 56 is secured to the wrapper sheet in the position shown in Fig. 1, as by spot-welding its flanges 65 to the flanges 36 of the wrapper sheet. The height of the flanges 65 is substantially the same as that of the flanges 36, so that the outer flat face of the panel 56 will be substantially flush with the front wall portions 35 of the wrapper sheet.

The lower panel 57, illustrated in Fig. 6, is provided with opposed end flanges 67 which are adapted to be secured, as by spot-welding, to the flanges 36 to support the panel 57 with the lower edge thereof substantially aligned with the lower end of the front wall portions 35. The upper margin of the panel 57 is bent back to provide an inclined flange 68 which terminates in a vertical flange 69.

By reference to Fig. 4, it will be noted that the flange 69 is located in substantially the same vertical plane as the extension 61 of the panel portion 59. The flange 69 and extension 61 are also in substantially the same plane as the flanges 37 of the wrapper sheet so that these members may be engaged by an outwardly-turned flange 71 of the oven liner 12.

The angle plate 58 is spot-welded to the flange 43 formed on the side walls of the range, as will be clear from an inspection of Fig. 4. If desired, the angle plate 58 may be formed integral with the panel 57.

After the panels 56 and 57 and the angle plate 58 have been spot-welded or otherwise suitably secured to the wrapper sheet (Fig. 2), the outer surface of the range body may then be enameled and prepared for final assembly.

As shown in Fig. 4, a horizontal sheet member 72, which extends substantially from one side wall of the range to the other, is provided with a downwardly-turned flange 73 at its forward edge which is received between the rearwardly-turned flanges 62 and 64 of the upper panel 56. The rear end of this member 72 is supported on a lower horizontal flange 74 of a channel-shaped member 75 which may be secured, as by spot-welding, to the rear vertical flanges 48 extending along the rear edge of the side walls 16.

The member 72 is secured to the mentioned lower horizontal flange 74 as by means of bolts 76, which also secure a vertical panel 77 to the under surface of this flange. The vertical panel 77 preferably extends between the side walls 16 and, if desired, may be attached to the rear vertical flanges 48 while its lower end supports and is secured to a second horizontal sheet member 78. As shown in Fig. 4, the upturned rear flange 78a of the sheet member 78 engages the flanges 48 and may be secured thereto to provide additional support for the sheet member.

The forward end of this second sheet member 78 is folded to provide a vertical flange 79 and a rearwardly-extending horizontal flange 80 which rests on the angle plate 58. The forward edge of the sheet member 78 is preferably notched to receive the vertically-extending flanges 36 and 37 of the wrapper sheet, as indicated at 81 in Fig. 4.

The upper horizontal sheet member 72, together with the channel-shaped member 75, defines an enclosed space in which the conductors for the surface units 11 are receivable. This sheet member also supports a crumb tray 82 which is removable through the elongated opening 63 provided in the upper panel 56.

The oven liner 12, which may be of known construction, is insertable in the space between the upper and lower panels 56 and 57, and is provided with an outwardly-turned vertical flange 71 which is adapted to engage the flanges 37 of the wrapper sheet, the flange 69 of the lower panel 57, and the lower edge of the depending extension 61 of the panel 56. The rear end of the oven liner may be supported by means of an inverted U-shaped bracket 84 which rests on and is secured to the lower horizontal sheet member 78.

As is well known in the art, the oven liner may have heating elements (not shown) supported therein, the conductors therefor extending through openings 85 provided in the rear wall of the oven liner.

As particularly shown in Fig. 4, the walls of the oven liner are spaced from the upper and lower sheet members 72 and 78 and the vertically-extending panel 77, as well as from the side walls 16 of the range body. These spaces are preferably filled with suitable heat insulation material.

The front of the oven is closed by means of an insulated door 86 which may be hinged, in any suitable manner, to the range body. The

upper flange 87 of this oven door is of sufficient height to cover and conceal the front edge of the crumb tray when the door is closed.

While we have shown our invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and we desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What we claim is:

1. A range comprising an outer body including a one-piece wrapper sheet forming the lateral side walls and platform of said range, marginal portions of said wrapper sheet along the front edge of the side walls including portions extending at an angle to the plane of said side walls and serving to reinforce the same, an oven within said body, a pair of vertically-spaced panels secured to said marginal portions of said wrapper sheet and forming at least a part of the front wall of said range, the space between said panels providing access to said oven, and a door for closing said space.

2. A range comprising a one-piece wrapper sheet providing integral top and side walls for said range, marginal portions of said wrapper sheet along the front edge of the side walls including portions extending at an angle to the plane of said side walls and serving to reinforce the same, spaced front panels extending between and attached to said marginal portions of said wrapper sheet, and a movable panel supported on said range between said spaced panels to complete the front of said range.

3. A range comprising a one-piece wrapper sheet forming the lateral side walls, platform, and back splasher of the range, marginal portions of said wrapper sheet along the front edge of the side walls including portions extending at an angle to the plane of said side walls and serving to reinforce the same, a pair of spaced panels secured to said marginal portions of said wrapper sheet to complete the front wall of said range, and a movable panel for closing the space between said panels.

4. A range comprising a one-piece wrapper sheet forming the side walls and platform of the range, marginal portions of said wrapper sheet along the front edge of the side walls extending at an angle to the plane of said side walls and serving to reinforce the same, means for closing the front of said range, a horizontal sheet member supported by said wrapper sheet and dividing the interior of said range into two compartments, and an oven liner supported by said wrapper sheet within one of said compartments.

5. A range comprising a one-piece wrapper sheet forming the lateral side walls and platform of said range, the front edge of the side walls of said range having vertical, rearwardly-extending flanges thereon, a pair of vertically-spaced panels having vertical, rearwardly-extending flanges thereon, said flanges on said panels being secured to said flanges on said wrapper sheet, and a movable panel for closing the space between said panels.

6. A range comprising a one-piece wrapper sheet providing integral top and side walls for said range, vertically-spaced front panels extending between the front edges of said side walls, said front edges and panels having complementary flanges thereon, means for securing the flanges of said panels to said flanges on said side walls, and means for closing the space between said panels to complete the front of said range.

7. A range comprising an outer body including continuously-extending lateral side walls and a top, at least one panel extending between and secured to the front edge of said lateral side walls to provide a front wall for said range, said lateral side walls each having a vertically-extending flange along the rear edge thereof, a member extending across the rear of said range and supported by said flanges, and a horizontal partition disposed within said range and supported at its rear end by said member and at its forward end by said front panel.

8. A range comprising a wrapper sheet providing integral lateral side walls and a top for said range, a pair of vertically-spaced panels extending between and secured to said lateral side walls at the front thereof, the opposed edges of said panels being disposed in substantially the same plane, and an oven liner having outwardly-turned flanges at its front end, said oven liner being receivable within said range with the flanges thereof in engagement with said opposed edges of said spaced panels.

9. A range comprising a one-piece wrapper sheet forming the lateral side walls and platform of the range, means for closing the front of said range, a horizontal partition within said wrapper sheet and extending substantially between the lateral side walls thereof in spaced relation to said platform, vertically-extending flanges along the rear edge of said side walls, means carried by said flanges for supporting the rear end of said horizontal partition, the front end of said horizontal partition being supported by said front closing means.

10. A range comprising a wrapper sheet providing lateral side walls and a platform for said range, means for closing the front of said range, the lower front corners of said side walls having cut-out portions to provide a toe space, a plate extending between said side walls and receivable in said cut-out portions, a horizontal partition disposed within said range and supported at its front end on said plate, and means carried by said wrapper sheet for supporting the rear end of said partition.

11. A range comprising a one-piece wrapper sheet providing lateral side walls and a cooking platform for said range, spaced panels secured to the front edge of said wrapper sheet, means for closing the space between said panels to complete the front of said range, a pair of spaced horizontal partitions within said range, said partitions being supported by said wrapper sheet and dividing the range into a plurality of compartments, and an oven liner disposed in one of said compartments.

12. A range comprising a one-piece wrapper sheet forming the side walls and platform of the range, marginal portions of the wrapper sheet along the front and rear vertical edges of each side wall extending at an angle to the plane of the side wall and providing opposed flanges at the front and at the rear of the range, said flanges serving to reinforce said side walls.

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