Jan. 23, 1951 J. M. COOK ET AL 2,539,060

COOKING RANGE

Filed July 18, 1946 5 Sheets-Sheet 1

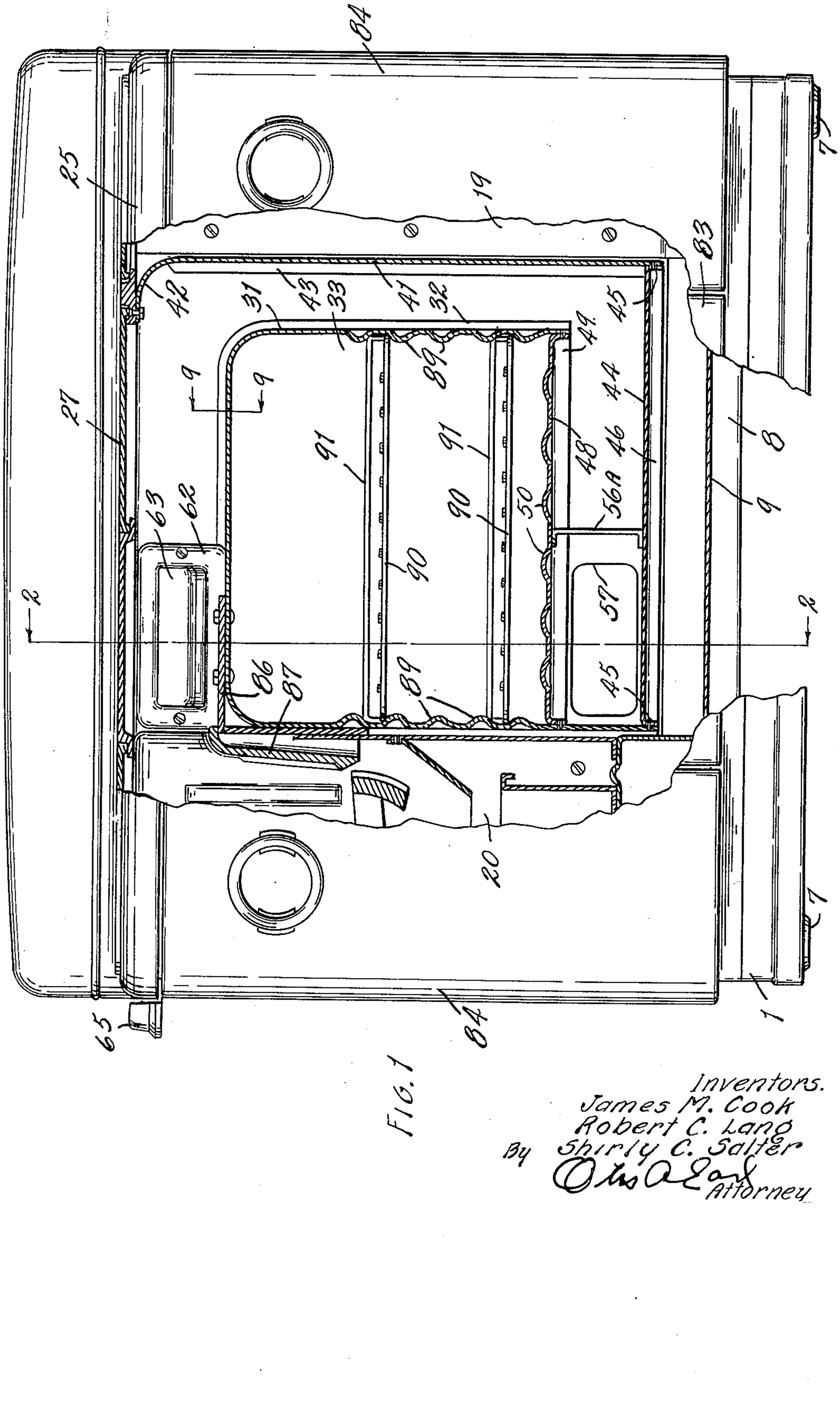

FIG. 1

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COOKING RANGE

Filed July 18, 1946 5 Sheets-Sheet 2

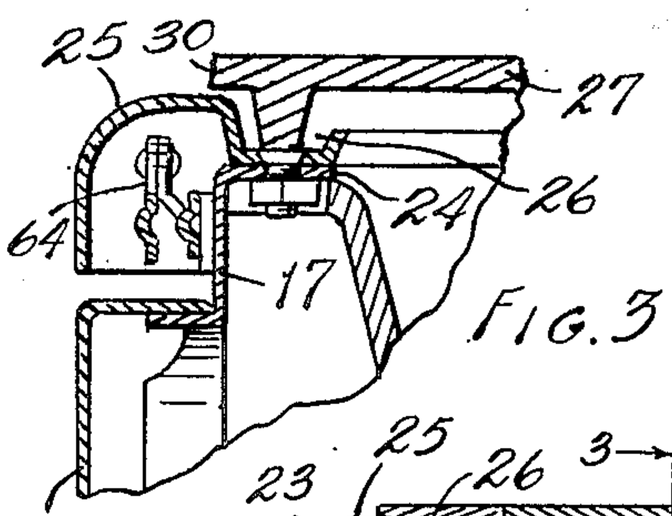

FIG. 3

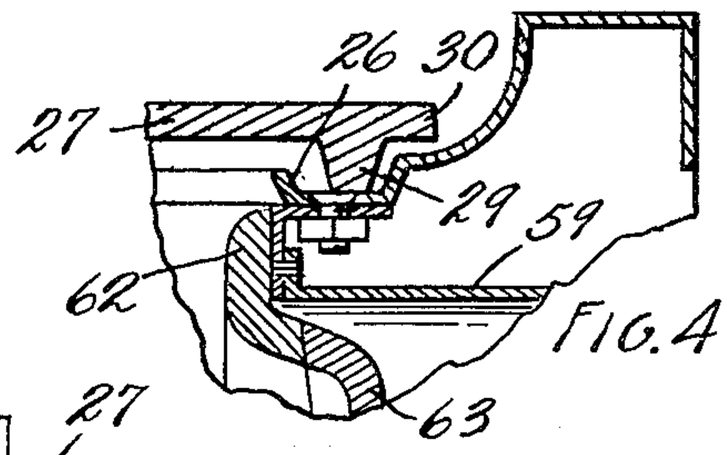

FIG. 4

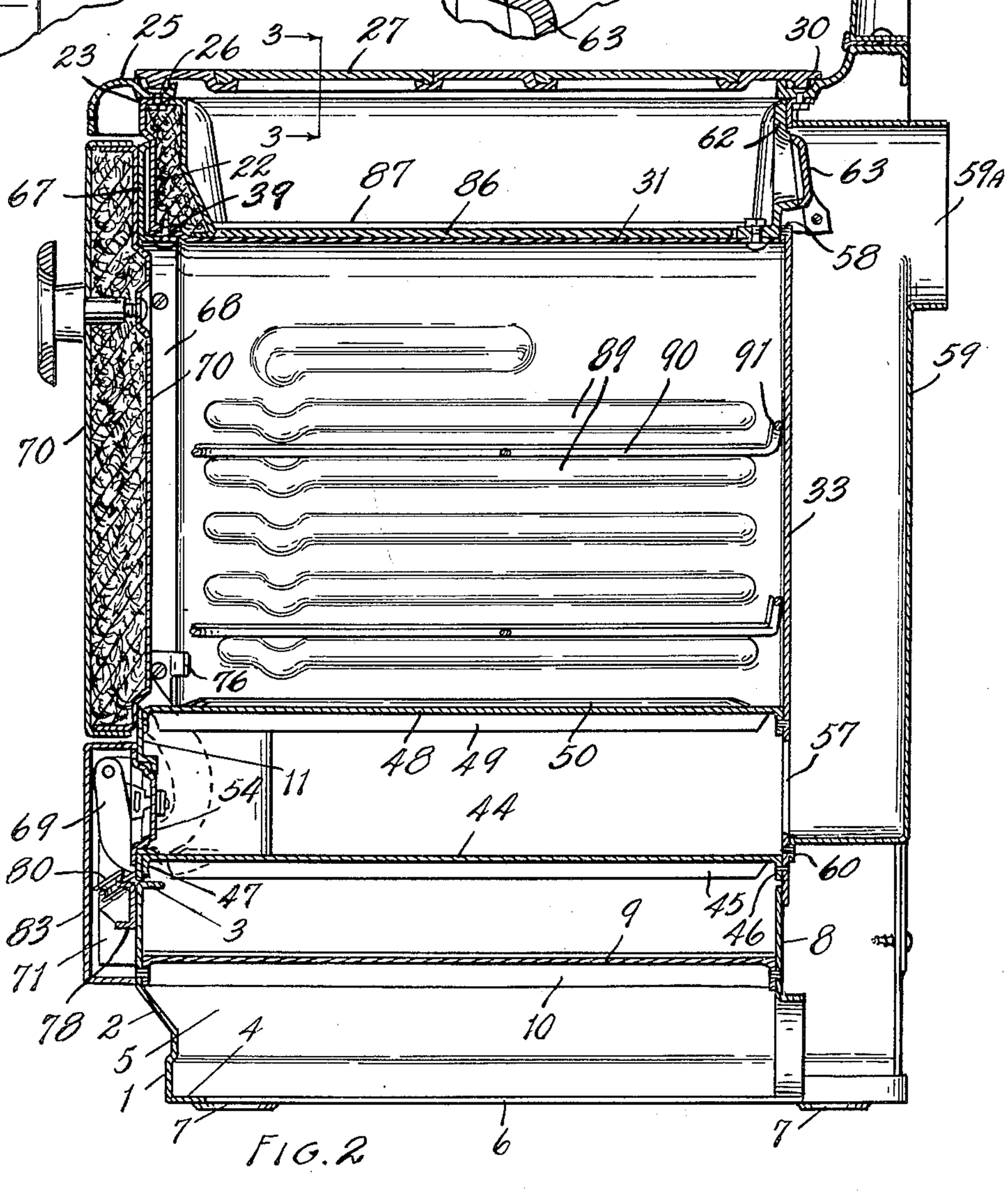

FIG. 2

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Jan. 23, 1951 J. M. COOK ET AL 2,539,060

COOKING RANGE

Filed July 18, 1946 5 Sheets-Sheet 3

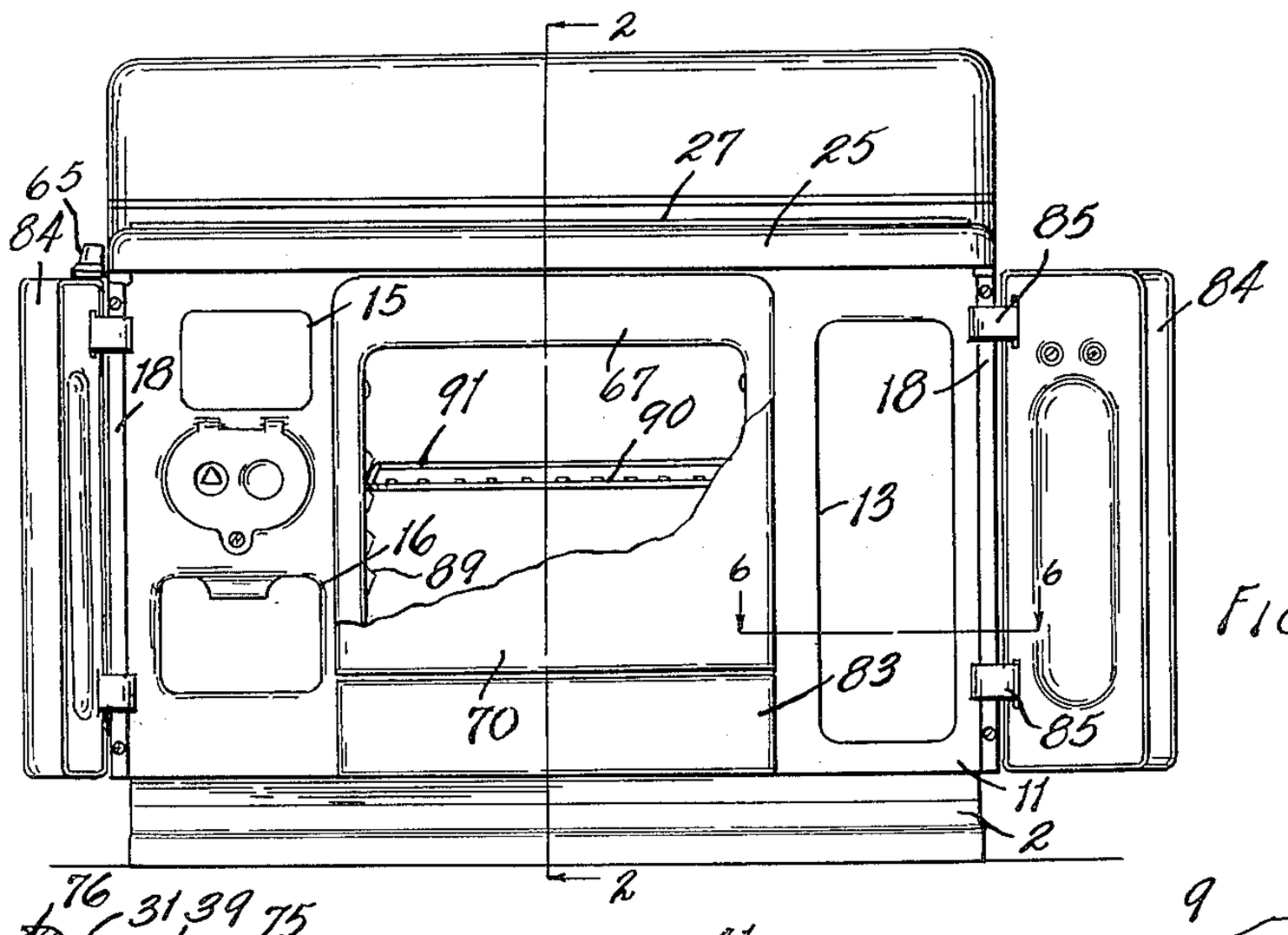

FIG. 5

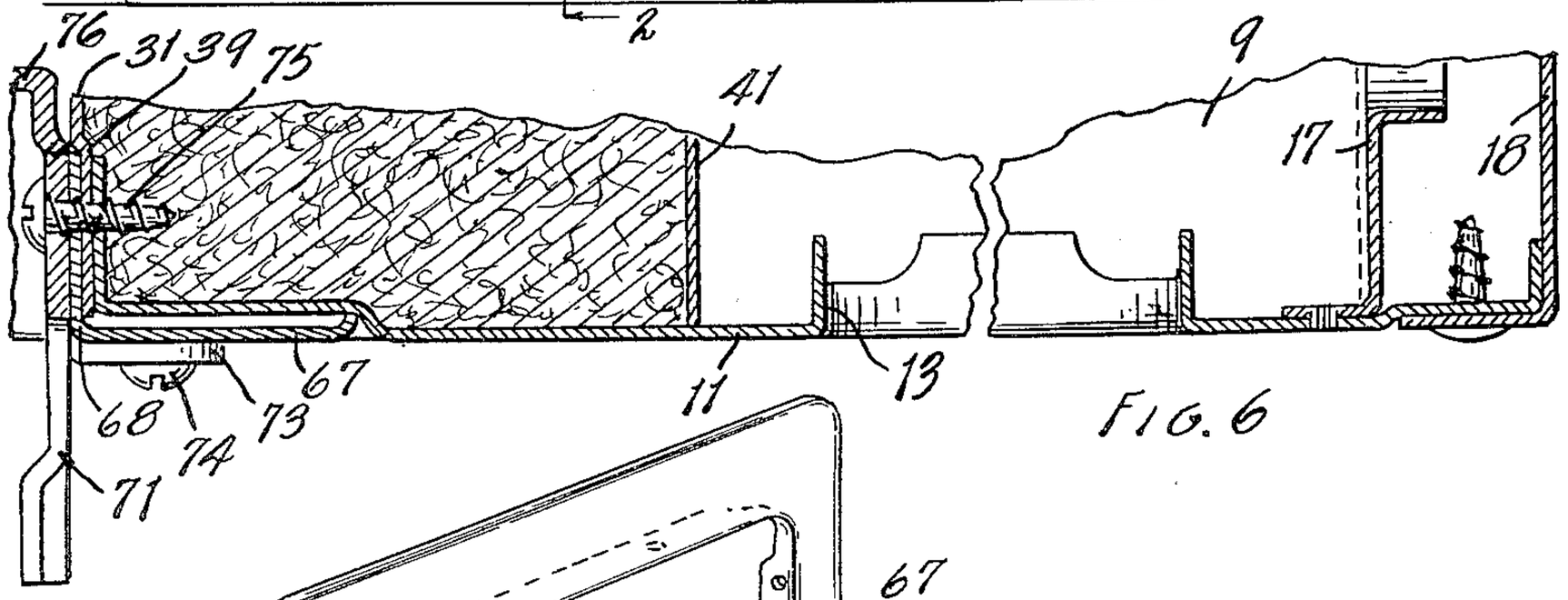

FIG. 6

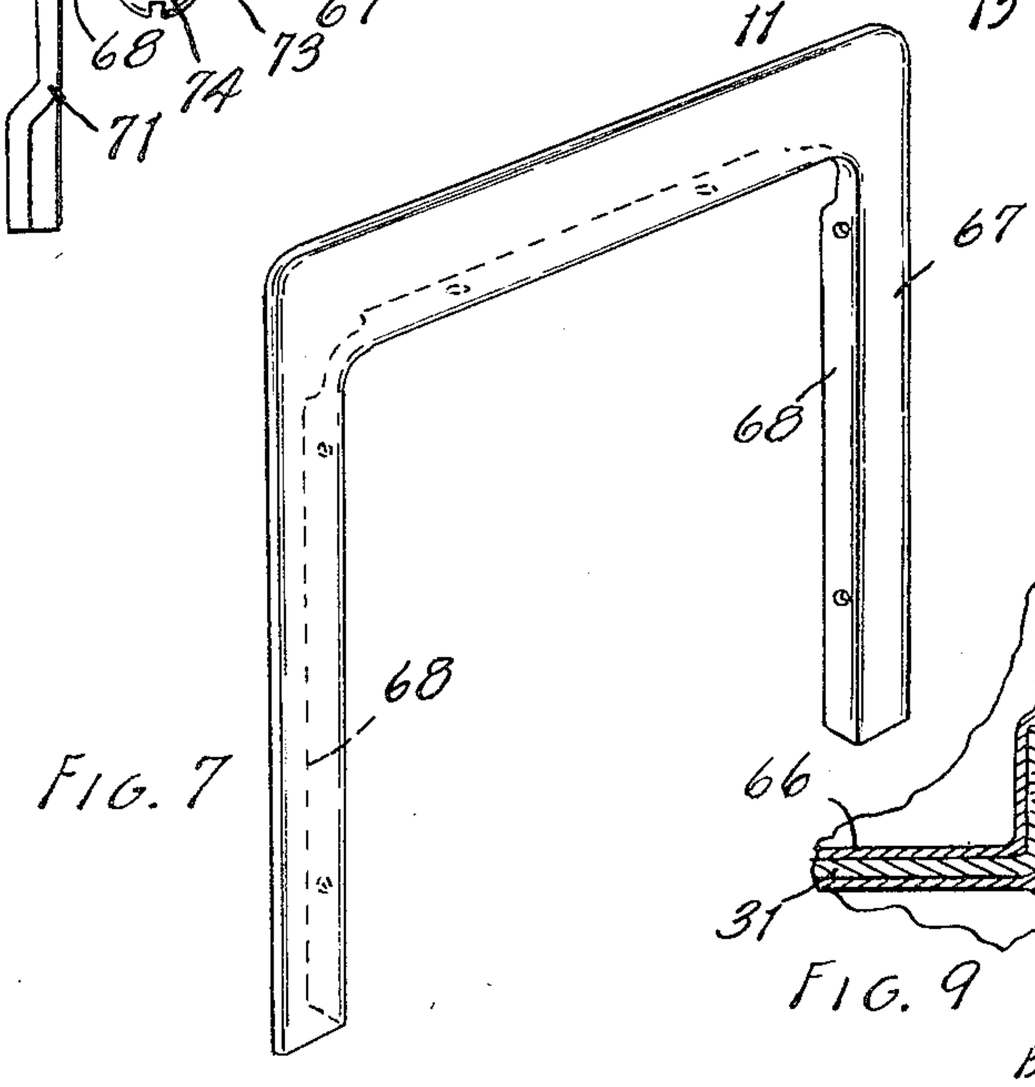

FIG. 7

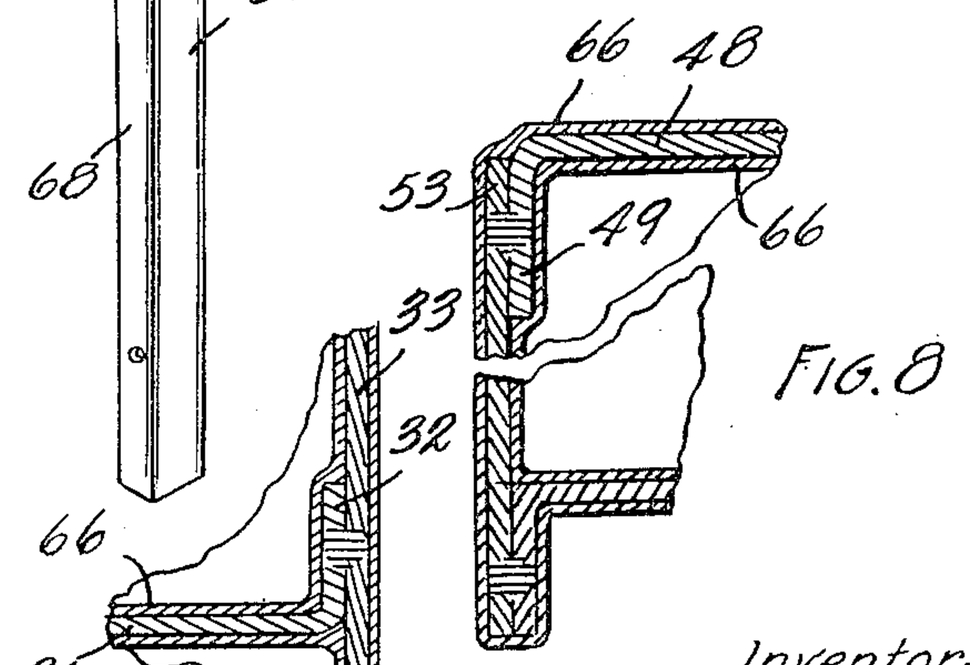

FIG. 8

FIG. 9

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COOKING RANGE

Filed July 18, 1946 5 Sheets-Sheet 4

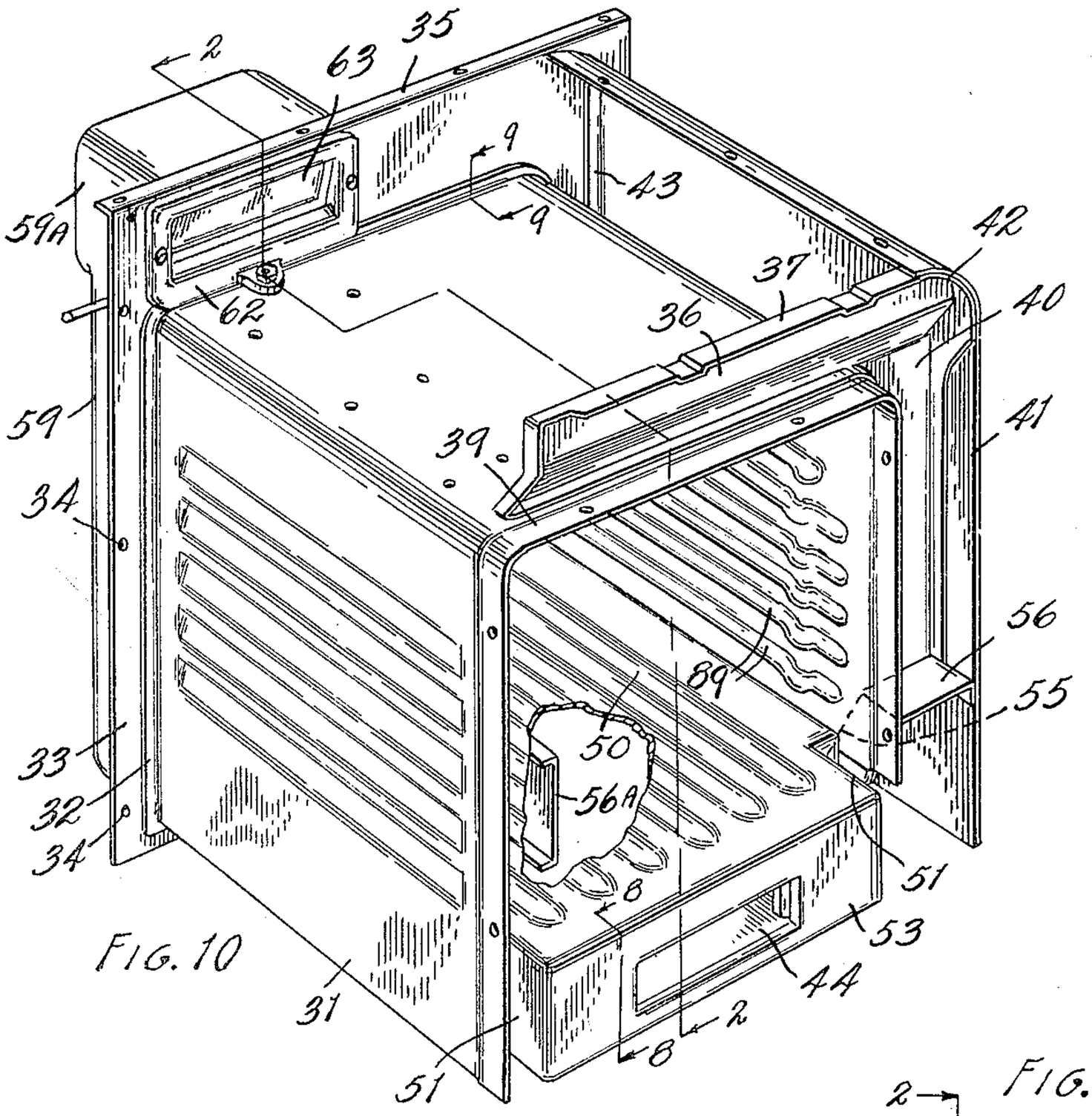

FIG. 10

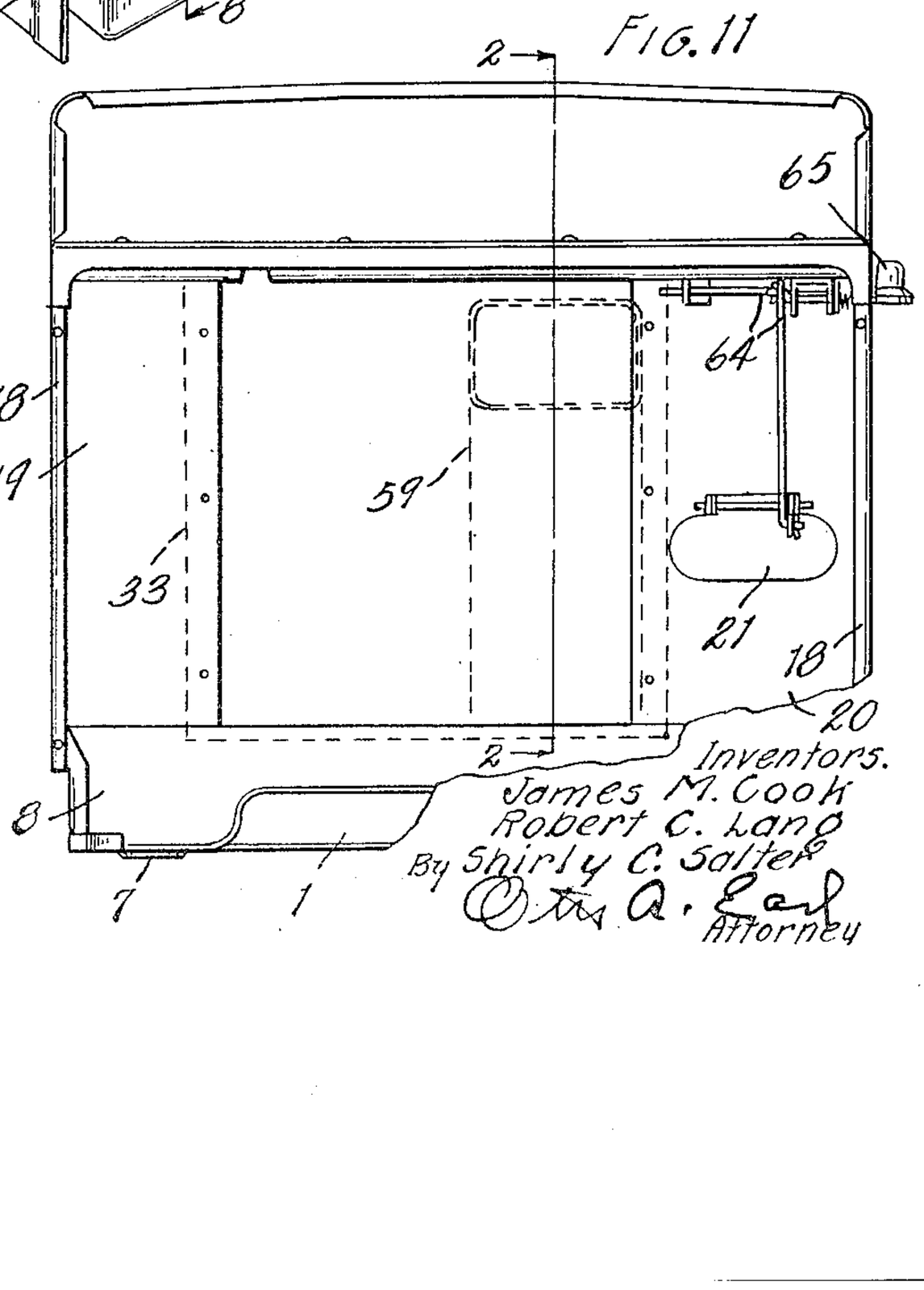

FIG. 11

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COOKING RANGE

Filed July 18, 1946 5 Sheets-Sheet 5

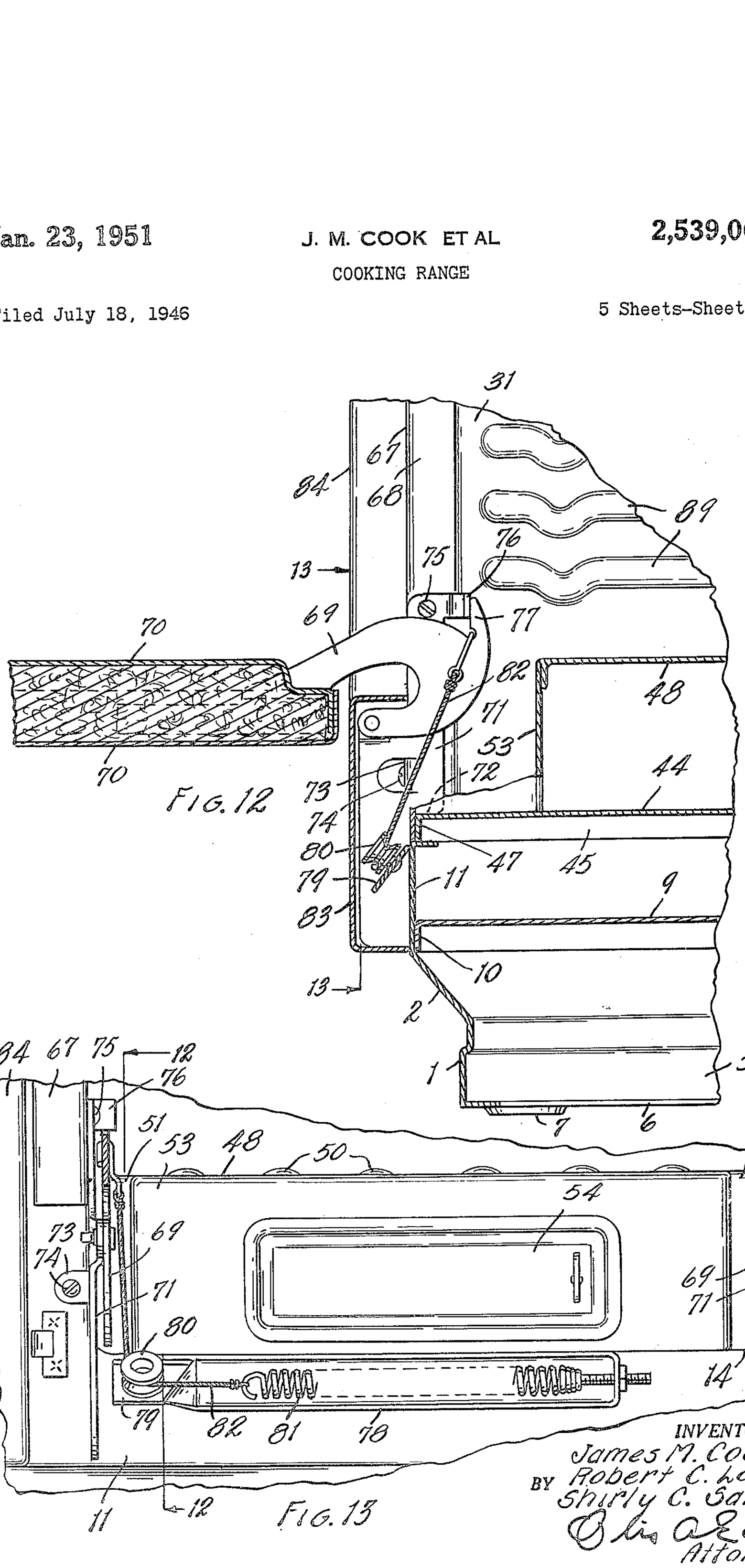

FIG. 12

FIG. 13

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Patented Jan. 23, 1951 2,539,060

UNITED STATES PATENT OFFICE

2,539,060

COOKING RANGE

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Application July 18, 1946, Serial No. 684,560

9 Claims. (Cl. 126—1)

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This invention relates to improvements in cooking range.

The principal objects of this invention are:

First, to provide a cooking range of the coal or wood burning variety in which the oven and the hot gas passages therearound may be completely assembled with a smoke flue and smoke pipe connection for finishing and assembly with the range as a unitary structure.

Second, to provide a cooking range of the coal or wood burning variety with a top structure which may be easily kept clean and which will have edges which are not subjected to high temperatures.

Third, to provide a cooking range of the coal or wood-burning variety with a pressed steel top matching the rest of the range exterior.

Fourth, to provide novel means for counterbalancing the oven door of a cooking range so that the balancing spring is easily accessible and is shielded from the heat of the oven.

Other objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

The drawings, of which there are five sheets, illustrate a preferred form of the invention.

Fig. 1 is a front elevational view partially in cross-section of a range embodying our invention.

Fig. 2 is a transverse cross-sectional view on a plane indicated by the line 2—2 in Figs. 1, 5, and 10.

Fig. 3 is a fragmentary cross-sectional view along the line 3—3 in Fig. 2.

Fig. 4 is an enlarged cross-sectional view showing in greater detail the construction at the back edge of the range illustrated generally in Fig. 2.

Fig. 5 is a front elevational view of the range with the decorative front doors and oven door in opened or cut-away position.

Fig. 6 is a fragmentary cross-sectional view along the line 6—6 in Fig. 5.

Fig. 7 is a perspective view of the decorative trim panel used around the oven opening.

Fig. 8 is a fragmentary cross-sectional view of the lower front edge of the oven structure taken along the line 8—8 in Fig. 10.

Fig. 9 is a fragmentary cross-sectional view of the upper rear edge of the oven structure taken along the line 9—9 in Fig. 10.

Fig. 10 is a perspective view of the oven assembly used in the range.

Fig. 11 is a rear elevational view of the range before the oven unit is installed.

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Fig. 12 is a fragmentary cross-sectional view showing the oven door hinge construction and taken along the broken line 12—12 in Fig. 13.

Fig. 13 is a fragmentary front elevational view of the lower portion of the oven with the front decorative panels removed.

In the drawings, the reference character 1 refers to the base portion of the range front member which is offset inwardly of the range as indicated most clearly at 2 in Figs. 2 and 12. The base portion 1 is flanged rearwardly at 4 along its lower edge. The ends of the base portion are welded to side base members 5 which are provided with the inturned lower flanges 6 cooperating with the flanges on the front base member. Downwardly embossed pads 7 form feet for supporting the range. The end base members 5 are connected by a rear base panel 8 and the four base members are further connected by a bottom panel 9 which is provided with a downturned flange 10 welded to each of the base members.

The main body portion 11 of the range front panel defines a vertically elongated opening 13 near its righthand end, opening into a storage compartment and an inturned flange 12 along the bottom of a large central opening 14 opening into the oven of the range. The left-hand end of the range front 11 defines a fuel door opening 15 and ash door opening 16. Near each end, the range front panel is welded to end frames 17, one of which is most clearly illustrated in Fig. 6. The end edges of the front panel are offset and flanged rearwardly and arranged to support decorative end panels 18 which are preferably coated with vitreous enamel and are secured to the ends of the range front panel in spaced relation with the end frames 17.

A rear panel 19 closes the back of the range behind the storage compartment (see Fig. 11) and a rear panel 20 closes the rear of the range behind the fire chamber and defines a draft opening controlled by the damper 21. The space between the rear panels 19 and 20 is closed by the rear wall of the oven in a manner which will be described more particularly later.

The top front portion of the range front panel 11 is offset inwardly as indicated at 22 in Fig. 2 and provided with inturned flanges 23 at the top and bottom thereof. The upper flange 23 and the cooperating inturned flanges 24 on the end frame members 17 (see Fig. 3) serve to support the top panel 25. The top panel is formed as a stamping from sheet metal and is preferably finished with vitreous enamel. The top is formed

with an upwardly opening U-shaped groove 26, the bottom of which is secured to the inturned flanges 23 and 24. The outer edges of the top panel are bent into downwardly curved flanges to form a substantially flush surface with the decorative end panels 18 and the doors on the front of the range.

Key plates or top panels 27 are formed of cast iron with depending flanges 29 near the edges thereof which are arranged to rest in the U-shaped groove 26 of the top panel. The edges of the key plate are spaced vertically above the top panel and overhanging the edges of the groove 26 as is indicated at 30 so that there is an air space between the key plate and the downturned flange around the edge of the top panel. This prevents the edges of the range top from becoming heated to as high a temperature as the key plate which forms the cooking surface of the range. The overhang of the key plates also prevents food from spilling into the groove around the top panel so that the range is easy to keep clean.

The oven structure for the range consists of a body panel 31 which is bent into a downwardly opening U-shape with out-turned flanges 32 along the rear edge thereof. It should be noted that the left side of the panel 31 extends downwardly further than the right side. The flanges 32 are welded to the oven back panel 33 which extends beyond the edge of the body panel and defines apertures 34 through which screws are passed to secure the rear of the oven to the rear panels 19 and 20. A rearwardly turned flange 35 along the top of the oven rear panel is also provided with bolt holes for securing the oven to the range top 25 as is most clearly illustrated in Fig. 4.

A front flue panel 36 is provided with forwardly turned flanges 37 on its upper and lower edges, the lower flange being spaced back from the front of the oven and welded to the top of the oven body panel 31. The forward flue panel is offset along its upper portion toward the front of the oven so that its upper flange 37 will abut against and cooperate with the inturned flange 23 on the range front panel to form an insulating space 38 over the front of the oven (see Fig. 2). The forward edge of the oven body plate 31 is offset outwardly as indicated at 39 to abut against the under side of the lower flange 23 of the range front panel and is pierced to receive screws for attaching the oven to the range front panel. Insulating material is packed between the front flue member and the top of the range front panel as indicated.

The front flue member extends beyond the right hand side of the oven and has the side extension panel 40 welded to its under edge and extending downwardly along the side wall as is indicated in Fig. 10. The forwardly turned flange 37 is welded to a side flue panel 41 which extends in spaced relationship along the right hand side of the oven. The side flue panel 41 is curved inwardly over the oven as indicated at 42 along its upper edge and is arranged to be bolted to the range top panel. An inwardly turned flange 43 along the rear edge of the side flue member is welded to the rear panel 33 of the oven. The side flue panel extends downwardly beyond the bottom of the right wall of the body panel to even with the left wall of the body panel.

A bottom flue panel 44 is provided with downturned flanges 45 on its sides which are welded

to the bottom of the side flue member 41 and to the bottom of the left-hand wall of the oven body panel. A rear flange 46 on the bottom flue panel is welded to the rear panel of the oven and a downturned flange 47 on the front of the bottom flue member is arranged to rest upon the rearwardly turned flange 3 on the top of the front base member 1.

An oven bottom panel 48 is provided with downturned flanges 49 on the sides and rear thereof which are welded to the inside of the oven body panel 31 and the rear panel 33. The bottom panel 48 is provided with embossed ribs 50 and extends forwardly to the front of the oven. Cut-out portions 51 at each front corner of the bottom panel are provided to make room for the oven door hinges. A depending flange 52 is formed along the front of the oven bottom panel and the edges of the cut-outs 51. A lower flue member 53 is welded to the flanges 52 and to the bottom flue panel 44. The lower flue member 53 defines a clean-out opening closed by a door 54 through which soot may be removed from the flue formed between the bottom flue panel 44 and the oven bottom panel 48. An extension plate 55 provided with a forwardly turned flange 56 along its upper edge connects with the lower edge of the front flue member 40 and slopes backwardly and downwardly to the bottom flue panel 44 to complete the closure of the side flue formed between the side flue panel 41 and the right side of the oven body panel. A baffle plate 56A extends forwardly from the rear panel 33 between the oven bottom and the bottom flue panel to direct hot gases to the front of the bottom flue.

The rear oven panel 33 defines a lower smoke passage 57 (see Figs. 1 and 2) which opens from the bottom flue between the oven bottom and bottom flue plates and an upper smoke passage 58 which opens over the top wall of the oven near the left-hand edge thereof. An elongated smoke flue 59 of generally channel-shaped cross-section provided with out-turned flanges 60 is welded to the back of the oven rear panel to enclose both of the smoke openings 57 and 58. The flue 59 terminates at its upper end in a smoke outlet collar 59A arranged to be connected to a smoke pipe. A damper collar 62 is formed of cast iron and positioned in the upper smoke opening 58 and secured to the oven assembly by bolts as shown, after the oven assembly has been enameled. The collar 62 supports a damper door 63 by means of which the flow of smoke and hot gases through the upper smoke opening may be controlled. The damper door 63 and draft door 21 are arranged to be controlled by a system of linkage generally indicated at 64 in Fig. 11 and operated by control knobs 65 on the side of the range. The details of construction and operation of the draft and damper doors are more particularly described and claimed in the patent to Robert C. Lang, No. 2,469,121, issued May 3, 1949, for Range Draft Control.

The oven assembly including the smoke flue is so designed that it may be completely assembled and welded into a unit. The assembly may then be hung from a suitable fixture attached to the upper rear flange 35 and passed along a conveyor line through the necessary pickling, washing, and enamel vats, and then into a baking oven to coat the entire assembly with a continuous surface of vitreous enamel which is indicated at 66 in Figs. 8 and 9.

When hung by the upper rear flange 35 the oven assembly will form no air pockets or liquid traps as it is carried through various dipping and drying operations. Air trapped within the lower flue may escape up the smoke flue 59 or side flue, and any air trapped in the top of the oven may escape through the hole provided for bolting the damper collar to the top of the oven, so that all surfaces of the assembly will be wetted and coated with the material in the bath. On removal of the assembly from a treating bath all liquid will drain from the outer surfaces and from within the lower flue through the cleanout opening in the front of the oven assembly. This procedure eliminates a great many handling operations of the assembly and further assures that no portion of the oven will be unprotected from the action of the hot gases around its outer surface or from cooking smokes and greases within the oven. The oven assembly will therefore be easy to keep clean and will last indefinitely.

In assembling the oven to the rest of the range, the assembly is passed through the rear of the range between the rear plates 19 and 20 until the forward flange 39 mates in lapping relationship with the inturned flanges on the top and sides of the range front panel around the oven opening, and the overhanging portion of the oven rear panel 33 abuts against the rear panels 19 and 20 of the range body. The inverted U-shaped front decorative panel 67 is then placed around the top and sides of the oven opening with the inturned flange 68 lapped upon the inside of the oven. The oven assembly and the decorative panel may then be fastened to the range body by the metal screws as is indicated in the drawings.

The oven door hinges consist of U-shaped pivot members 69 which are secured within the spaced walls 70 of the oven door and the fixed hinge members 71 which are most clearly illustrated in Figs. 12 and 13. The fixed members 71 consist of a vertical plate notched at 72 to fit over the front of the front base member 1 on each side of the oven opening and outwardly pressed ears 73 which are folded over the front of the range front panel 11 and secured thereto by the bolts 74. The tops of the vertical pieces 71 are secured to the inturned flanges of the decorative front panel and the range front panel by the screws 75 and are further provided with inturned ears 76 which form stops for limiting the downward movement of the oven door. Ears 77 formed on the movable pivot members 69 cooperate with the stops 76.

A bar 78 of U-shaped cross-section is welded to the front base member 1 immediately below the oven assembly and in the center of the door opening. The end of the U-shaped member is bent into a sloping section 79 which pivotally supports a pulley 80. A coil spring 81 positioned in the U-shaped member 78 is connected by means of a cable 82 to the left movable pivot member 69 and adjustably anchored to the end of the U-shaped member 78. The spring is thus arranged to counter-balance the weight of the oven door. It will be noted that the U-shaped member 78 and the spring 81 are easily accessible on the front of the range and are spaced from the interior of the oven so that the spring will not be subjected to high temperatures. Thus the spring is not apt to deteriorate in use. A lower decorative panel 83 is arranged to fit over the spring and the lower portions of the door hinges and to cooperate with the oven door in forming a completely enameled

front surface for the range. Doors 84 supported on the ends of the range by hinges 85 enclose the storage section of the stove and the fuel and ash doors at the other end of the stove to complete the front of the range.

Heavy baffle plates 86 are bolted to the upper left hand corner of the oven where it will be subjected to the hottest portion of the fire and fire pot liners 87 are hung from the baffle plates. Suitable grates 88 are supported from the range front panel 11 and the rear panel 20. The side walls of the oven are embossed to form guide and support rails 89 for the oven shelves 90. The rails 89 are so spaced that they will engage the upturned rear ends 91 of the shelves and prevent the shelves from tipping when they are drawn out of the oven. Downwardly curved stops 92 in the rails 89 prevent the shelves from being drawn entirely out of the oven without first lifting the front of the shelves.

The invention has been described in an embodiment which has been found to be highly satisfactory. No attempt has been made to show other possible adaptations, as it is believed that this disclosure will enable those skilled in the art to adapt the invention as may be desired.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A solid fuel burning range comprising stamped sheet metal frame members shaped to provide a continuous rail along the top thereof and defining central openings in the front and rear of said range, the opening in the rear of said range being larger than the opening in the front thereof, an integral oven assembly secured to the edges of said openings and having walls forming a flue along a side and bottom thereof, a door for closing said oven supported on said frame, end doors closing flush with said oven door for concealing substantially all the front of said frame, decorative end panels covering the ends of said frame and positioned flush with the end edges of said end doors in the closed position thereof, a stamped sheet metal top panel having an upwardly opening channel section supported on said rail and an outwardly and downwardly turned rim terminating in substantially flush relationship with said doors and end panels, a key plate of heavy metal having a depending flange around the outer portion thereof positioned in said channel section, said key plate cooperating with said oven assembly to form a flue along the top of said oven, a smoke flue integrally formed with said oven assembly and on the back thereof, said smoke flue communicating with said flue at the top of said oven and said flue at the bottom of said oven, and means positioned in said range at the opposite end thereof from said side flue on said oven for defining a fire chamber, said oven assembly and top panel each having a continuous vitreous enamel finish.

2. A solid fuel burning range comprising stamped sheet metal frame members shaped to provide a continuous rail along the top thereof and defining central openings in the front and rear of said range, an integral oven assembly secured to the edges of said openings and having walls forming a flue along a side and bottom thereof, a door for closing said oven supported on said frame, end doors closing flush with said oven door for concealing substantially all the front of said frame, decorative end

panels covering the ends of said frame and positioned flush with the end edges of said end doors in the closed position thereof, a stamped sheet metal top panel having an upwardly opening channel section supported on said rail and an outwardly and downwardly turned rim terminating in substantially flush relationship with said doors and end panels, a key plate of heavy metal having a depending flange around the outer portion thereof positioned in said channel section, said key plate cooperating with said oven assembly to form a flue along the top of said oven, a smoke flue integrally formed with said oven assembly and on the back thereof, said smoke flue communicating with said flue at the top of said oven and said flue at the bottom of said oven, and means positioned in said range at the opposite end thereof from said side flue on said oven for defining a fire chamber.

3. In combination with a solid fuel burning range having a front panel member of stamped sheet metal defining an inwardly flanged oven opening and rear frame members on each end of the back thereof, an oven unit comprising a rear panel secured between the adjacent edges of said rear frame members, a continuous U-shaped body panel welded to said rear panel and extending forwardly into lapping relationship with the flange on said front panel, one side of said body panel extending lower than the other side thereof, a top flue panel welded to the top of said body panel and having a forwardly turned flange along the top thereof abutting against said front panel, a side extension panel welded to the side of said body panel and merging with said top flue panel, insulating material positioned between said top flue panel, said side extension panel, and said front frame member, a side flue panel welded to said rear panel and to the side of said side extension panel and positioned in spaced relationship with the short side of said body panel and extending thereabove and therebelow, a bottom flue panel welded to said rear panel, side flue panel, and the bottom edge of the longer side of said body panel, an oven bottom panel welded to said rear panel and the sides of said body panel in spaced relationship with said bottom flue panel, a front flue panel closing the opening between said bottom flue panel and said oven bottom panel and welded thereto along the front of said oven, a closure panel welded to said side flue panel and to the side of said body panel and said front flue panel, said rear panel defining a lower smoke outlet opening into the space between said bottom flue panel and said oven bottom panel and a second smoke outlet opening above the top of said body panel, and a smoke flue panel having a generally U-shaped cross-section welded to the back of said rear panel and enclosing said smoke outlets, said smoke flue panel being adapted to be connected to a smoke pipe, said oven unit having a continuous vitreous finish.

4. In combination with a solid fuel burning range having a front panel member of stamped sheet metal defining an inwardly flanged oven opening and rear frame members on each end of the back thereof, an oven unit comprising a rear panel lapped upon the adjacent edges of said rear frame members, a U-shaped body panel welded to said rear panel and extending forwardly into lapping relationship with the flange on said front panel, one side of said body panel

extending lower than the other side thereof, a top flue panel welded to the top of said body panel and near the forward edge thereof in spaced relationship with said front panel member, a side extension panel welded to the side of said body panel and merging with said top flue panel and spaced from said front panel, a side flue panel welded to said rear panel and to the side of said side extension panel and positioned in spaced relationship with the short side of said body panel and extending therebelow, a bottom flue panel welded to said rear panel, side flue panel, and the bottom edge of the longer side of said body panel, an oven bottom panel welded to said rear panel and the sides of said body panel in spaced relationship with said bottom flue panel, a front flue panel closing the opening between said bottom flue panel and said oven bottom panel and welded thereto along the front of said oven, and a closure panel welded to said side flue panel and to the side of said body panel and said front flue panel, said rear panel defining a lower smoke outlet opening into the space between said bottom flue panel and oven bottom panel and a second smoke outlet opening above the top of said body panel, said front flue panel defining a clean-out aperture, the lower edge of which is flush with said bottom flue panel.

5. In combination with a solid fuel burning range having a front panel member of stamped sheet metal defining an inwardly flanged oven opening and rear frame members on each end of the rear thereof, an oven unit comprising a rear panel lapped upon the adjacent edges of said rear frame members, a U-shaped body panel welded to said rear panel and extending forwardly into lapping relationship with the flange on said front panel, one side of said body panel extending lower than the other side thereof, a top flue panel welded to the top of said body panel and spaced from forward edge thereof, a side extension panel welded to the side of said body panel and merging with said top flue panel, a side flue panel welded to said rear panel and to the side of said side extension panel and positioned in spaced relationship with the short side of said body panel and extending therebelow, a bottom flue member welded to said rear panel, side flue panel, and the bottom edge of the longer side of said body panel, an oven bottom panel welded to said rear panel and the sides of said body panel in spaced relationship with said bottom flue panel, a front flue panel closing the opening between said bottom flue panel and said oven bottom panel and welded thereto along the front of said oven, and a closure panel welded to said side flue panel and to the side of said body panel and said front flue panel, said rear panel defining a lower smoke outlet opening into the space between said bottom flue panel and said oven bottom panel and a second smoke outlet opening above the top of said body panel.

6. In combination with a solid fuel burning range having a front panel member of stamped sheet metal defining an inwardly flanged oven opening and rear frame members on each end of the rear thereof, an oven unit comprising a rear panel lapped upon the adjacent edges of said rear frame members, a U-shaped body panel welded to said rear panel and extending forwardly into lapping relationship with the flange on said front panel, one side of said body

panel extending lower than the other side thereof, a side flue panel welded to said rear panel and extending forwardly in spaced relationship with the short side of said body panel and extending thereabove and therebelow, a bottom flue panel welded to said rear panel, side flue member and the bottom edge of the longer side of said body panel, an oven bottom panel welded to said rear panel and the sides of said body panel in spaced relationship with said bottom flue panel, a front flue section closing the opening between said bottom flue panel and said oven bottom panel and welded thereto along the front of said oven, and a closure flue section welded between said side flue panel and the side of said front flue section and the side of said body panel and extending along the top of said body panel in spaced relationship with said front panel, said rear panel defining a lower smoke outlet opening into the space between said bottom flue panel and said oven bottom panel and a second smoke outlet opening above the top of said body panel.

7. A solid fuel burning range comprising frame members forming a rectangular generally flat sided body with a flat upper stamped sheet metal rail, door members rearwardly flanged to be of substantial thickness mounted on the front of said range and terminating below said rail, decorative end panels supported upon said frame in substantially spaced relationship therewith, a stamped top panel having an upwardly opening channel-shaped portion supported on said rail and defining a central opening substantially co-extensive with the top of said body and an outwardly and downwardly curved rim portion terminating in substantially flush but vertically spaced relationship with said door members and end panels, and a cast metal sectional key plate having depending flanges supported in said channel portion of said top panel, the edges of said key plate extending outwardly beyond said depending flange and said channel portion and in vertically spaced relationship above the top of said rim portion, said door members, end panels, and top panel being finished with a vitreous enamel.

8. A solid fuel burning range comprising frame members forming a rectangular generally flat sided body with an upper stamped sheet metal rail, door members rearwardly flanged to be of substantial thickness mounted on the front of said range, decorative end panels supported upon said frame, a stamped top panel having an upwardly opening channel-shaped portion supported on said rail and defining a central opening substantially co-extensive with the top of said body and an outwardly and downwardly curved rim portion terminating in substantially flush nontouching relationship with said door members and end panels, and a key plate having a depending flange supported in said channel portion of said top panel, the edges of said key plate extending outwardly beyond said depending flange and said channel portion and in spaced relationship above the top of said rim portion, said top panel being finished with a vitreous enamel.

9. A solid fuel burning range comprising a generally flat sheet metal front frame member defining an inwardly flanged oven opening, an integral oven member defining oven space with a flue along the side and bottom thereof and having its forward edge secured to the flange around said opening, a decorative trim panel extending along the top and sides of said oven opening and having an inturned flange secured to said front frame member and the front of said oven member, said front frame member being inwardly recessed around said oven opening whereby said trim panel is substantially flush with the front of said frame member, decorative end doors for concealing the end portions of said front frame member up to the sides of said trim panel, an oven door having a decorative finish for closing the front of said oven and covering said trim panel in the closed position of said oven door, and a bottom trim panel for covering said front frame between said end doors and below said oven door, said bottom trim panel concealing means for balancing said door, said end doors, oven door, and bottom trim panel having approximately the same thickness.

JAMES M. COOK.
ROBERT C. LANG.
SHIRLY C. SALTER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
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1,954,182	Rasmussen	Apr. 19, 1934
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