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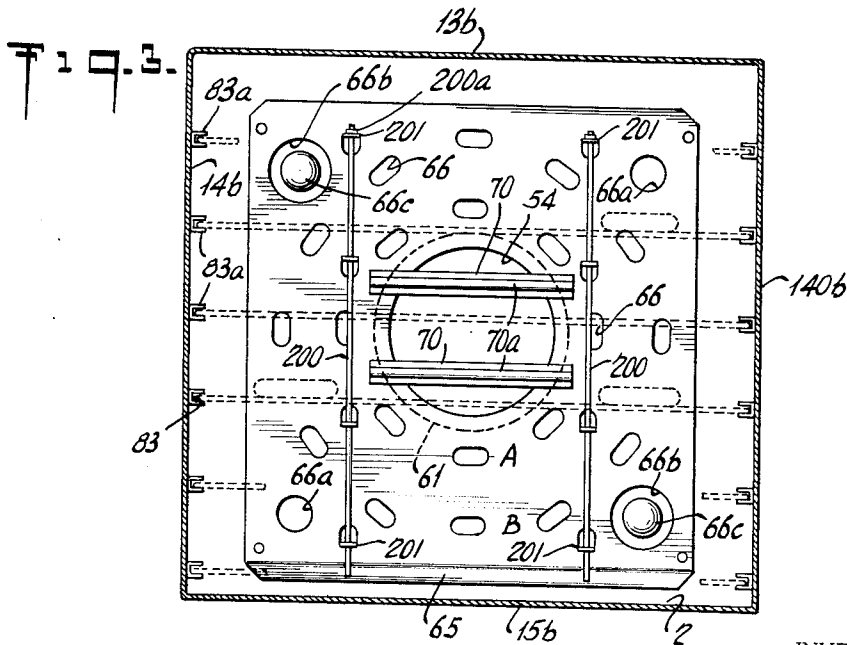
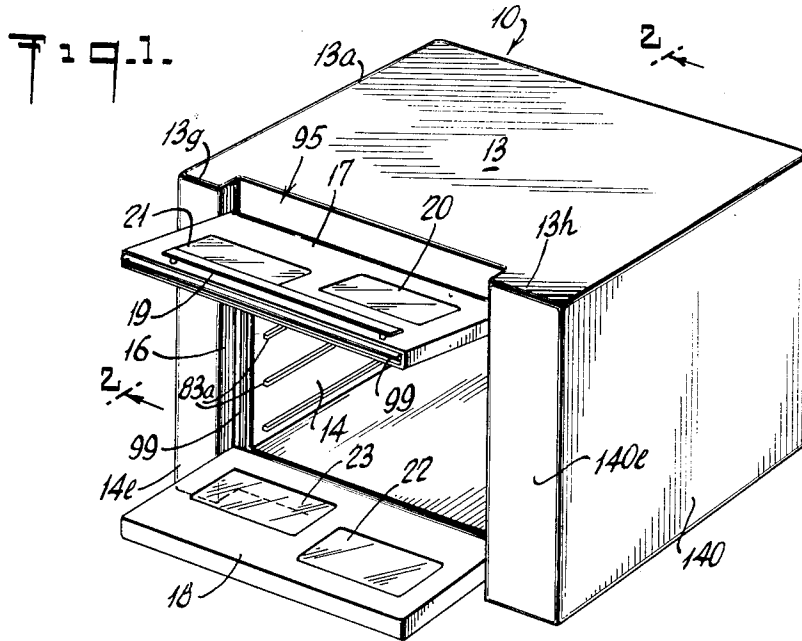
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3,168,642

ELECTRICALLY HEATED FORCED AIR CIRCULATION OVEN

Filed Jan. 24, 1963

4 Sheets-Sheet 1



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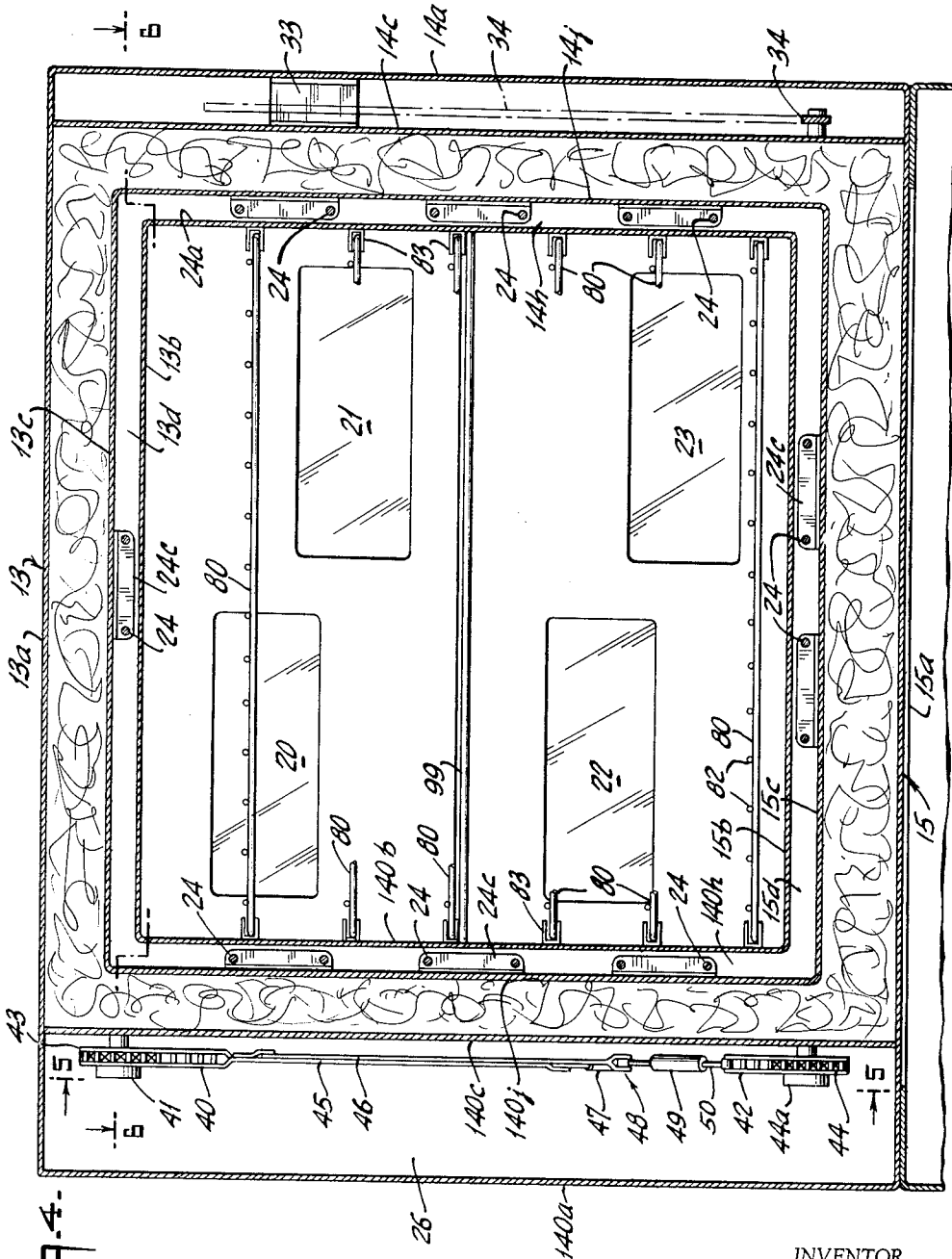
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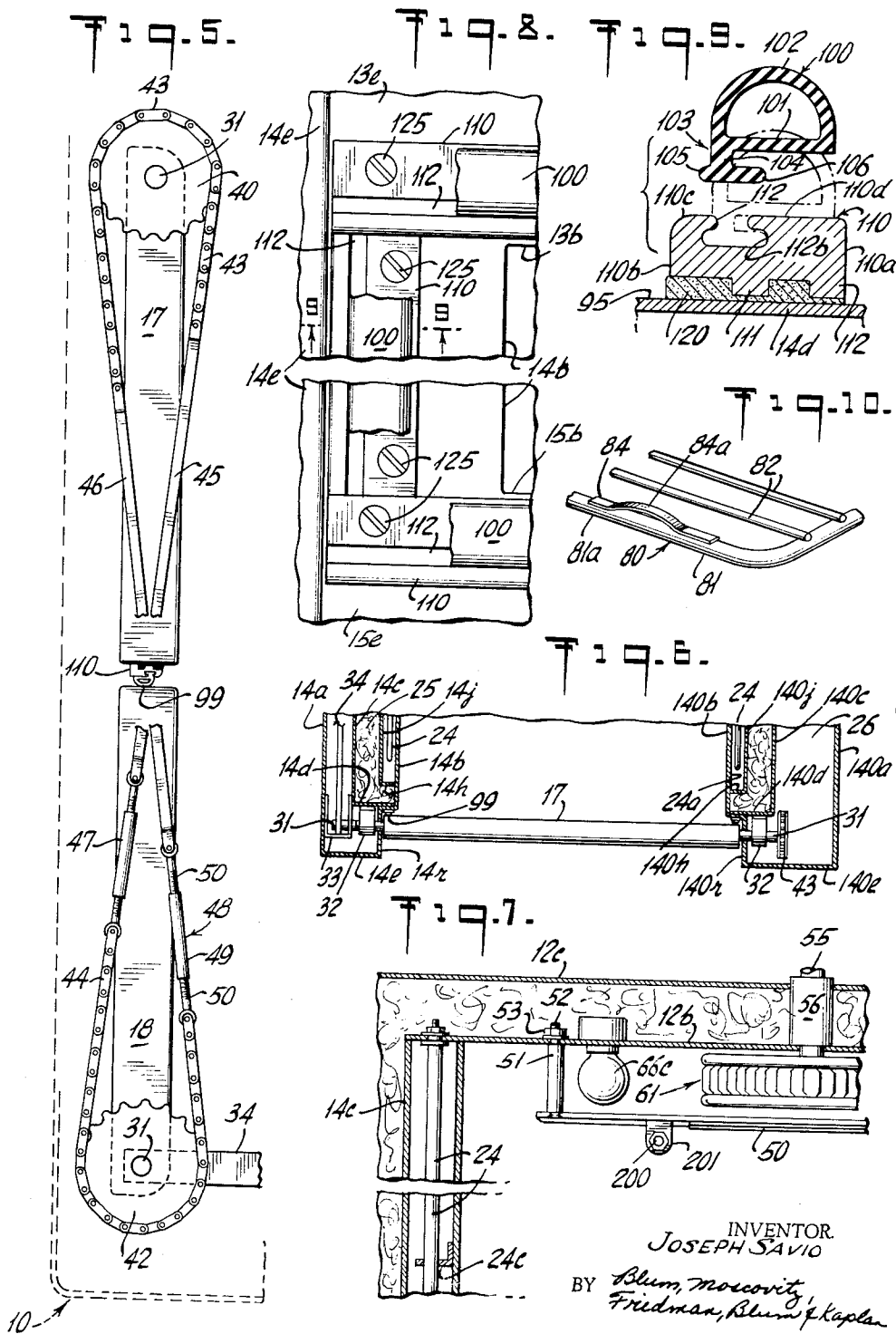
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4 Sheets-Sheet 4



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ELECTRICALLY HEATED FORCED AIR CIRCULATION OVEN

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Filed Jan. 24, 1963, Ser. No. 253,625

3 Claims. (Cl. 219-400)

This invention relates to improvements in ovens, and, in particular, relates to an improved electrically heated oven provided with forced air circulation such as disclosed in my pending application Serial No. 222,283, filed September 10, 1962, now Patent No. 3,127,499, granted March 31, 1964, for Electrically Heated Forced Air Circulation Oven.

One object of the invention is to provide an electric oven wherein the heating elements are concealed within the walls, and having improved means for maintaining uniform air flow and uniform temperature throughout the oven.

Another object of the invention is to provide an improved electric oven having improved means for sealing the doors and thereby ensuring uniformity of heat and minimum heat loss.

Another object of the invention is to provide an oven which is economical to use and which produces uniformity of baking, roasting and the like.

In accordance with a preferred embodiment of the invention, the oven comprises a casing having a peripheral wall and end walls, one of the end walls having doors for access. Electric heating means are provided within the peripheral wall of the oven, which transmits the resulting heat into the interior space of the oven. A baffle plate is mounted in the casing in relatively closely spaced parallel relation to the end wall opposite the wall having the doors. The peripheral edge of the baffle plate is relatively closely spaced from the peripheral wall. The baffle plate has a central opening. A high speed convector or fan is positioned and operative to draw air through the central opening of the baffle plate toward the adjacent end wall and then in a counterflow between the baffle plate and the end wall and back around the peripheral edge of the baffle plate. The baffle plate has additional openings which are sized and positioned for flow through them toward the end wall of air drawn by the air flow between the baffle plate and the adjacent end wall. The result is to provide a uniform flow of air through the center of the casing rearwardly and through the baffle plate, with the counterflow being set up around the periphery of the casing.

In accordance with the invention, means are provided in the oven for receiving horizontal racks in parallel relation, for support of food to be cooked. The size of the fan opening is such that in order to ensure maximum use of the oven, with racks at available levels for cooking a maximum amount of food, at least one rack must be positioned opposite the fan opening. The considerable size of the fan opening could then cause an undue current of air to be drawn over the rack and through the fan opening. Therefore, in accordance with the invention, disrupter elements are placed across the fan opening in such relationship to the opening and to the rack opposite the opening as to break up the air flow over such rack and prevent undue cooling of the food on the rack opposite the fan opening.

As another important feature of the invention, an improved door gasket assembly is provided for the face frame of the oven so as to ensure adequate sealing of the door. Further, the gasket element is designed and assembled so that it may be readily replaced when it wears from the heat of the oven. This reduces the need for

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skilled servicing of the oven and reduces the amount of service time of the oven.

Other objects and advantages of the invention will become apparent from the following description, in conjunction with the annexed drawing, in which a preferred embodiment of the invention is disclosed.

In the drawing,

FIG. 1 is a perspective view of the oven in accordance with the invention, the oven doors being shown open;

FIG. 2 is a vertical longitudinal section of the oven, on line 2-2 of FIG. 1.

FIG. 3 is a section on line 3-3 of FIG. 2.

FIG. 4 is a section on line 4-4 of FIG. 2, the doors being shown closed.

FIG. 5 is a fragmentary section on line 5-5 of FIG. 4.

FIG. 6 is a fragmentary section on line 6-6 of FIG. 4.

FIG. 7 is a fragmentary section on line 7-7 of FIG. 2.

FIG. 8 is a fragmentary front elevation, broken away and to enlarged scale, of the face frame of the door opening of the oven.

FIG. 9 is a fragmentary exploded section on line 9-9 of FIG. 8.

FIG. 10 is a fragmentary perspective view of a tray for insertion in the oven.

The oven casing

Upon particular reference to FIGS. 1, 2, 4, 6 and 7 of the drawing, it will be noted that they show an oven 10 open at the front and having rear wall 12 and a peripheral wall structure consisting of top wall 13, side walls 14 and 140 and bottom wall 15. Top door 17 and bottom door 18 are normally received within oven front opening 16 against face frame 95. The doors have a coplanar, vertical closing position in which their adjacent edges are sealed by gasket assembly 99 (FIG. 4) and in which the edges of the doors are sealed against further gasket assemblies 99 mounted upon the face frame 95 of door opening 16 (FIG. 7). Said doors 17 and 18 are laterally pivoted respectively at their top and bottom to the side walls 14 and 140, so as to permit them to be pivoted between their opening and closing positions. Handle 19 is fixed to the outside of door 17 for use in opening and closing the door.

Glass windows 20 and 21 are provided in door 17, and glass windows 22 and 23 are provided in door 18. Windows 21 and 23 are in vertical alignment in the door closed position. Windows 20 and 22 are also in vertical alignment, with the windows 20 and 22 being located respectively on the opposite side of the vertical center line of doors 17 and 18 from the windows 21 and 22. Window 20 is located above the level of window 21, although with the lower edge of window 20 extending below the upper edge of window 21. Window 22 is located above the level of window 23, although with the lower edge of window 22 extending below the upper edge of window 23. These windows are optionally rectangular, and the result is to permit viewing of the interior of oven 10 substantially at every vertical level, while at the same time providing a minimum of glass area with resultant dissipation of heat.

Rear wall 12 has a rear wall panel 12a, front wall panel 12b and intermediate wall panel 12c. Wall 13 has upper wall panel 13a, lower wall panel 13b and intermediate wall panel 13c. Wall 14 has outer wall panel 14a, inner wall panel 14b and outer and inner intermediate wall panels 14c and 14j. Wall 15 has lower wall panel 15a, inner wall panel 15b and intermediate wall panel 15c. Wall 140 has outer wall panel 140a, inner wall panel 140b and outer and inner intermediate wall panels 140c and 140j. These wall panels are generally rectangular, and the panels of each wall are parallel to each other. Corresponding panels of adjacent walls are interconnected to

form inner oven chamber 2, heating compartment 24a surrounding oven chamber 2, insulation compartment 25a surrounding heating compartment 140h and outer compartment 94 holding moving parts and providing a dead air space.

Inner oven chamber 2 has rear wall 12b, top wall 13b, bottom wall 15b and side walls 14b and 140b, and is substantially square. The front edges of the top, bottom and side walls are coplanar. Wall 12b extends above wall 13b, below wall 15d and outwardly of walls 140d and 14b respectively. Wall 13d extends upwardly from wall 13b near the front thereof. Wall 15d extends downwardly from wall 15b near the front thereof. Walls 140h and 14h respectively extend outwardly from walls 140b and 14b. The walls 13d, 140h, 15d and 14h are coplanar and join with each other to form the front wall of the heating compartment 24a. Wall 13c extends between the upper edge of wall 13d and the upper edge of wall 12b. Wall 15c extends between the lower edge of wall 15d and the lower edge of wall 12b. Wall 14j extends between the outer side edge of wall 14h and the side edge of wall 12b. Wall 140j extends between the outer side edge of wall 140h and the side edge of wall 12b. The walls 13c, 140c, 15c and 14c meet each other to complete the wall of compartment 24a.

A plurality of electric heating elements 24 are located within the compartment 24a, each of these elements 24 being generally U-shaped with longitudinal legs and a front connection portion 24b. Bracket 24c connects each pair of legs of each heating element to the outer wall of compartment 24a. Optionally, there are three such heating elements in each side of compartment 24a, one in the top and two in the bottom, as best shown in FIG. 4. The legs of the heating elements 24 extend through wall 12b (FIG. 7) and are there connected in any suitable electric circuit (not shown).

The face frame 95 includes wall 13e which extends upwardly from the front edge of wall 13b and wall 15e which extends downwardly from the front edge of wall 15b. Face frame 95 further comprises side wall 14d which extends outwardly from the front edge of 14b and side wall 140d which extends outwardly from the front edge of wall 140b. Walls 13e, 15e, 14d and 140d are coplanar. Insulation compartment 25a includes the aforesaid walls of face frame 95. Insulation compartment 25a also includes side walls 14c and 140c respectively connected to the outer side edges of walls 14d and 140d. Further, insulation compartment 25a includes top wall 13a which extends rearwardly from the top edge of wall 13e, and bottom wall 15a which extends rearwardly from the bottom edge of wall 15e. Wall 12c serves as the rear wall of compartment 25a and extends between walls 13a and 15a near the rear ends thereof. It will be apparent, without extended showing, that wall 12c similarly extends to walls 14c and 140c to complete the enclosure of compartment 25a. Compartment 25a is filled with any suitable insulation 25, which, by way of example, may be conventional fiberglass insulation. Walls 15a and 13a extend rearwardly of wall 12c and are connected by rear wall 12a, which serves as the rear wall of air insulation compartment 94. Although not shown, it will be readily apparent that wall 12a also connects side walls 14a and 140a of compartment 94. To complete compartment 94, wall 14r extends forwardly and perpendicularly from wall 14d intermediate the side edges thereof. Wall 140r extends forwardly and vertically from wall 140d intermediate the side edges thereof. (The face frame 95 includes the portions of walls 14b and 140d inwardly of walls 14r and 140r.) Wall 13 has side front extensions 13g and 13h, as shown in FIG. 1. Wall 14r connects with the inner edge of wall 13g. Wall 140r connects with the inner edge of extension 13h. Front wall 14e connects with the front edges of extension 13g and wall 14r. Front wall 140e connects with the front edges of extension 13h and wall 140r. Walls 140e and 14e respectively

extend outwardly of walls 140c and 14c. Wall 140a extends between the outer side edge of 140e and a side edge of wall 12a. Wall 14a extends between the side edge of wall 14e and the other side edge of wall 12a. Wall 140 extends between walls 13a and 15a. Wall 14a also extends between walls 13a and 15a. Although not shown, it will be apparent that wall 15 has extensions corresponding to extensions 13g and 13h extending to walls 14e and 140e respectively and between walls 14r and 14a on the one hand and 140r and 140a on the other hand.

Any suitable base 89 underlies and supports bottom wall 15 and in turn rests upon any suitable horizontal support.

It will be understood that the panels can be formed and connected by any suitable means, for example, in some instances by bending of sheet metal and in other instances by welding or other securing of sheet metal.

The door construction

As shown in FIGS. 1, 2 and 4, each door 17 and 18 is of hollow core, rectangular metal construction. The interior space of each door is filled with insulation 30 of fiberglass and the like. Handle 19 is in the form of a laterally extending bar connected by studs 19a adjacent the respective ends thereof to the front panel of upper door 17. Lateral pivots 31 extend out of the sides of the respective doors 17 and 18, adjacent the remote lateral edges thereof. As shown in detail in FIG. 6 for the upper door, the construction being similar for the lower door, the pivot pins 31 extend through suitable openings in walls 14r and 140r respectively, and extend through bearing blocks 32 respectively mounted upon the front faces of walls 14d and 140d respectively. Pins 31 further extend outwardly of panel 14c and 140c respectively. One of the pins 31 of lower door 18 extends into the space between panels 14a and 14c, where one end of arm 34 is mounted on said pins 31 (FIG. 4). When door 18 is opened, the free end of arm 34 strikes block 33 mounted between panels 14a and 14c as shown in FIG. 6.

On the other side, the respective pins 31, which extend laterally outwardly of panel 140c, are coupled for movement in unison by means best shown in FIGS. 4 and 6. Sprocket wheel 40 is fixedly mounted upon upper pin 31, outwardly of partition panel 140c, by means of hub 41. Sprocket wheel 42 is mounted upon the corresponding lower pin 31, by means of hub 41a. Said sprocket wheels 40 and 42 are in general vertical alignment. Upper sprocket chain 43 extends around the top of upper sprocket wheel 40. Bottom sprocket chain 44 extends around the bottom of bottom sprocket wheel 42. Metal tape 45 is connected at one end thereof to one end of chain 43. Metal tape 46 is connected at one end thereof to the other end of upper sprocket chain 43. Turnbuckles 47 and 48 respectively connect the other ends of the tapes 45 and 46 to the respective ends of chains 44 in cross-over relation. As a result, if the upper door 17 is moved by means of handle 19 from its closed position, toward its open position, sprocket 40 is moved in counterclockwise direction, the sprocket 42 is correspondingly moved in clockwise direction, so that the lower door 18 is also opened. Conversely, closing of door 17 causes closing of door 18. Arm 34 extends generally rearwardly when the doors are closed. Opening of door 18 moves arm 34 until it extends generally upwardly and strikes stop 33, stopping further opening movement. At this point, optionally, door 18 is horizontal.

An important feature of this construction is that it is possible to have different sprocket and chain ratios, so that selected movement of the lower door requires a different movement of the upper door. Specifically, the teeth of the sprockets may bear such ratios, with corresponding ratios of the chain openings, that movement of the upper door more than 90 degrees is required to produce the optional 90 degree opening movement of

the bottom door, as shown in FIG. 3. Thus, the ratios may be selected so that the upper door moves about 105 degrees in order to bring the lower door to its final 90 degree movement. This can be accomplished because there is not a continuous chain, the chains instead being connected by the tapes and turnbuckles. The tapes can be secured to the chain ends and turnbuckles by any suitable pivot means which need not be described in detail. The turnbuckles 47 and 48 are conventional and need not be described in detail. Generally speaking, any suitable turnbuckle may be employed, but by way of example, the turnbuckle 48 may have a central collar 49 into which screws 50 extend, these screws 50 being respectively connected to the chain end and tape end. As a result, by appropriate turning of collar 49, the tension may be adjusted.

Forced draft fan and baffle construction

Generally planar, generally square baffle plate 50 is mounted in the interior of oven 10 in relatively closely spaced parallel relation to the rear vertical end wall panel 12b. As best shown in FIG. 7, headed studs 52 are fixed to plate 50 adjacent the corners thereof, by any suitable means, and extend rearwardly thereof. A spacer collar 51 is mounted on each stud 52 and spaces the baffle plate 50 from wall 12b. Stud 52 extends through any suitable opening in wall 12b, and retaining nut 53 is screwed upon the threaded rear end of stud 52 against wall 12b.

Panel 50 has a central circular opening 54. Longitudinally extending drive shaft 55 is aligned axially with the center of hole 54 and extends through a sleeve bearing 56 which extends through and is mounted in an opening of wall 12c. Sleeve bearing 56 is secured at its front end to wall 12b. Shaft 55 extends through an appropriately located opening of wall 12b and forwardly thereof. Shaft 55 also extends rearwardly of wall 12c into the space between walls 12c and 12a, where pulley 57 is mounted upon shaft 55. Fan belt 58 on pulley 57 extends downwardly through a bottom opening of wall 15 and hence below wall 15. Electric motor M, which may be connected to any suitable source of electric power (not shown) is mounted by a bracket 58a on the bottom of wall 15. Motor M has an output shaft 58b, and pulley 58c is mounted upon shaft 58b. Belt 58 also extends around pulley 58c, so that the motor M drives shaft 55.

Squirrel cage fan or pump 61, which has a diameter slightly greater than that of opening 54, is mounted upon shaft 55 between baffle plate 50 and wall 12b and may have any suitable peripheral wall 63 with slots 64 and fins 64a so as to suck in air through the front opening and through opening 54, and to exhaust said air between the fins outwardly of the periphery of the fan.

The bottom peripheral edge portion of baffle flange 50 may optionally be bent forwardly slightly at 65a. The free edges of baffle plate 50 are relatively closely spaced from the respective panels 14b, 140b, 13b and 15b, which may together be considered as the peripheral wall of the inner chamber 2 of oven 10.

The effect of the above-described arrangement is to cause the air movement means (the fan) to draw air through the central opening 54 towards the end wall panel 12b and then in a counterflow between baffle plate 54 and end wall panel 12b and back around the peripheral edge of a baffle plate 50. Baffle plate 50 has additional openings 66 sized and positioned for flow through said additional openings 66 toward said end wall panel 12b of air drawn by the air flow between baffle plate 50 and end wall panel 12b. Put in other terms, these openings 66, located radially outwardly of opening 54, result in a suction being produced through said openings by the above-mentioned counterflow of the air, thereby drawing air rearwardly through the openings 66. This diffuses the air movement rearwardly through the baffle plate and prevents it from being concentrated centrally. The effect is

to produce a more uniform air movement, both the main movement rearwardly through the main portion of the oven and the counterflow around the periphery thereof.

Preferably, the openings 66 are arranged in concentric rings A and B. The openings of each ring are substantially equally spaced circumferentially. In the embodiment illustrated, ring A has eight openings respectively located at 12:00, 1:30, 3:00, 4:30, 6:00, 7:30, 9:00 and 10:30. Ring B has twelve openings, including four respectively at 12:00 o'clock, 3:00, 6:00 and 9:00 o'clock and eight other openings located so that the twelve openings are equally spaced circumferentially, as clearly shown in FIG. 3. Openings 66 of ring A are located slightly outwardly of opening 54. Openings 66 of ring B are located adjacent the outer periphery of baffle plate 50. At the four corners of baffle plate 50, at which the openings of ring B are more spaced from the periphery, additional openings 66a and 66b are provided. These openings are circular, the openings 66a at two diagonally opposed corners being smaller than the intermediate corner openings 66b. This is because an optional electrical lamp 66c is mounted in a socket in wall 12b and extends forwardly thereof in line with opening 66b, as shown in FIGS. 3 and 2. The electrical connections of the lamp socket are omitted.

Reference is made to FIG. 3, which is substantially to scale of a working model, to show the particular arrangement of the holes in baffle plate 50.

In order to disrupt the air flow, and further improve the uniformity of air flow, horizontal bars 70 are mounted upon the front face of baffle 50, extending across opening 54. Said bars are secured to the baffle plate by any suitable means. Each said bar 70 is substantially T-shaped in vertical cross section and has a front laterally co-extensive rib 70a to produce the T-shape. As shown in FIG. 3, the bars 70 extend chordally with respect to opening 54, and are approximately equidistant from the center of the opening.

On each side of opening 54, plate 50 has vertically spaced and aligned, apertured lugs 201 struck forwardly therefrom. A vertical rod 200 passes through the apertures of each set of lugs on the respective sides of opening 54, the lugs being suitably aligned to permit this construction. Any suitable retaining nuts 200a may be threaded upon the correspondingly threaded upper ends of rods 200, above and below the upper lug 200, in each instance, to retain the rods in place.

The racks

As shown in FIG. 10, rack 80 is defined by a peripheral, generally rectangular tubing frame 81. A series of longitudinally extending rods 82 are laid over the front and rear sides of the tubing frame 81 and secured thereto by any suitable means. The side legs 81a of frame 81 are received in channels 83 fixed to the respective side panels 14b and 140b. There are two such channels 83 in coplanar relationship at each level upon which it might be desired to place a rack. Each channel 83 has a side portion fixed to the wall and upper and lower arms 83a. The side tubing leg 81a is slidably received between the arms 83a, with the width of frame 81 being sufficient to ensure that the respective frame sides 81a will be received in the respective channels. One or more spring clips 84 are fixed to the top of each tubing side 81a. As shown in FIG. 10, said clip 84 is made of a strap of flexible and resilient metal having its ends fixed by any suitable means to the frame and having its center portion 84a upwardly bowed. When the rack is inserted in place, spring clip 84a frictionally engages the upper channel arm 83a, thereby ensuring that the rack is held frictionally in place without possibility of rattling under the high velocity of air flow within the oven. Rods 200 serve as stops to rearward rack movement to maintain it spaced from baffle plate 50.

As shown in FIGS. 2 and 3, the spacing of the channels 83 is such as to ensure maximum utilization of the interior chamber 2 of the oven, when all trays are in place.

Preferably, the lowest pair of channels 83 is located just above the bottom wall 15b of chamber 2. There is preferably uniform spacing between successive rack levels, with the spacing between the top rack and the top chamber wall 13b being approximately equal to the spacing between successive lower racks. Preferably, the spacing between successive racks is less than the diameter of opening 54.

It will be noted that with all racks in position, one of the racks is located at approximately the level of the center of hole 54, with the rack immediately above being located just above the upper level of hole 54, and with the rack immediately below being located at approximately the level of the bottom of hole 54. Accordingly, each of the disrupter bars 70 is located between successive racks and bridges the opening 54 between successive racks. It will be apparent, therefore, that when food is placed upon a respective rack below a respective bar 70, the food is horizontally opposed by a respective bar 70. Without the bar 70, a considerable draft would be created directly over the food causing a high volume flow of air over the food and through the opening 54. The effect of the bar 70 is to break up the air flow, creating eddies and reducing the effective opening size, so as to prevent excessive air flow directly over the food upon the rack in question. The effect of this is to prevent undue cooling or other unsatisfactory effect upon food located upon a rack opposite the large opening 54. The ultimate effect, accordingly, is to ensure even baking of all of the contents of the oven. The effect of the flange or rib 70a is to tend to cause deflection of air above and below the bar 70, rather than mere reverse flow which would occur if the surface of the bar were completely flat.

The gasket assembly

The gasket assembly 99, shown generally upon door 17 and upon face frame 95 in FIGS. 1, 2 and 7, shown in detail in FIGS. 8 and 9.

As previously stated, the oven has a front opening 16 with a face frame 95 within that opening. The doors 17 and 18 are received within the opening 16 and in closed position lie against the front of the face frame 95. A gasket assembly 99 extends along each side of the face frame 95, against the front face thereof, so that four gasket assemblies 95 together extend completely around the face frame and provide a complete seal against the rear faces of doors 17 and 18 when they are closed. The further gasket assembly 99, as previously stated, is mounted upon the lower edge of door 17 so as to provide a seal against the upper edge of door 18.

Each gasket assembly 19 consists of a bar 110 for attachment to the surface to be sealed, by means of a sealant 120, and a gasket 100 removably mounted upon bar 110. For convenience, the description will be with reference to the face frame, but it will be apparent that essentially the same description applies with respect to door 17.

Bar 110 is elongated so as to run the full length of the edge portion which is to be sealed, and is generally rectangular in shape. Bar 110 has two depending parallel bosses 111 and 112 coextensive in length and spaced from each other. The boss 112 extends to one side 112a of bar 110. The boss 111 is spaced from boss 112 and intermediate boss 112 and the other side 110b of bar 110. Boss 111 is spaced from side 10b. Side 110b is preferably given a coextensive radius 110c at the junction of side 110b and the upper surface or face 110d of bar 110. Groove 112 is formed in the upper face 110d of bar 110 and extends the full length thereof. Groove 112 is of inverted T-shape in cross section. In other words, the upper portion 112a of groove 112 is of reduced width, and the bottom or base portion 112b of groove 112 is widened. The groove portion 112a is centered with respect to the side edges of groove 112b. Groove 112 is located adjacent the block side 110b, or in other words, is offset with respect to the center line of block 110.

At selected intervals, holes may be formed through

block 110 and screws 125 may be extended through such holes and screwed into appropriate holes in the face frame so as to secure block 110 to the face frame. For example, screws 125 may be self-tapping screws. The head of screw 125 is countersunk in the usual way so as to be flush with surface 110d. The sealant 120 is interposed between block 110 and face frame 95, in such a way as to maintain block 110 spaced from the face frame, and to fill in all the space between block 110 and face frame 95. Sealant 120 may be putty or any other suitable sealant material and may be applied by any suitable means. The sealant material extends under both of the bosses 111 and 112 and extends to the undersurface of the main portion of the block 110, and also extends completely between the side edges of the block. The material 120 has low thermal conductivity for minimum conduction of heat to gasket 100.

Gasket 100 is in the form of a flattened tube coextensive in length with block 110. Gasket 100 is flexible and resilient and may be made of any suitable synthetic rubber material or the like. Gasket 100 has a flat bottom wall 101 and a convex upper wall 102, the bottom of which is closed by wall 101. A generally T-shaped flange 103 depends from wall 101 adjacent one side edge thereof. Specifically, the flange 103 includes a leg 104 which depends from wall 101 and which is slightly thicker than wall 101. At the bottom of leg 104, further flanges 105 and 106 extend outwardly therefrom in coplanar relationship. The width of flange 105 is less than the width of flange 106, and is approximately equal to the increase in width on one side between groove 112a and groove 112b. The total width of flanges 105 and 106 is about equal to the width of groove 112b. The width of flange 104 is slightly less than the width of groove 112a. The total height of flange 103 is approximately equal to the total height of groove 112.

In assembly, the T-flange 103 is received within the T-groove 112, with the bottom surface of wall 101 overlying and resting against surface 110d. In the assembly, the flanges 105 and 106 are lockingly received within groove 112b, with this being the main locking action between the two parts. The flange 104 then extends freely through groove 112a. It will be apparent that in use, the door striking the convex wall 102 compresses same, to ensure a tight seal.

It will be apparent that the gasket 100 may be readily readily disassembled from block 110 and replaced when worn, it being only necessary to grasp the main portion of gasket 100 and to pull the T-flange 103 from the T-groove 112.

Conclusion

The action of the fan and of the doors having been described under their respective headings, the overall operation of the oven need not be further summarized. It will be sufficient to point out that the uniform air flow through the interior of the oven results in a uniformity of temperature throughout the oven. It has been found possible to cook meat satisfactorily at a low temperature of 200-225° F. with a pan of water maintained in the oven, with a roast shrinkage as low as five to six percent. At the same time, the oven is highly more efficient and economical to operate than a convection gas oven. Because of the construction features, including the gasket construction, the oven has been found to be particularly durable under service conditions, and to require a minimum of service time.

While a preferred embodiment of the invention has been disclosed, and various possible changes, omissions and additions have been indicated, it will be apparent that various other changes, omissions and additions may be made in the invention without departing from the scope and spirit thereof.

What is claimed is:

1. In a electric oven of the type described, a chamber having a rear wall and a peripheral side wall, a baffle

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plate in said chamber adjacent and parallel to said rear wall and spaced from said peripheral wall and having a relatively large central opening, a blower behind said baffle operative to cause air to flow rearwardly through said central opening and to counterflow around said baffle plate and forwardly, means releasably supporting racks in said chamber in horizontal spaced relation with each rack extending across said chamber, each rack adapted to receive food thereon for cooking, at least one rack positioned for food thereon to oppose and be aligned with said central opening, and a horizontal bar on said baffle across said central opening and opposing said food, said bar sized and shaped to block and reduce air flow over said food.

2. In an electric oven of the type described, a chamber having a rear wall and a peripheral side wall, a baffle plate in said chamber adjacent and parallel to said rear wall and spaced from said peripheral wall and having a relatively large central opening, a blower behind said baffle operative to cause air to flow rearwardly through said central opening and to counterflow around said baffle plate and forwardly, means releasably supporting racks in said chamber in horizontal spaced relation with each rack extending across said chamber, one rack at about the level of the lower edge of said central opening, another rack across approximately the center of said central opening,

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another rack approximately at the upper level of said central opening, each rack adapted to receive food thereon for cooking, and a pair of horizontal bars on said baffle across said central opening and respectively between respective ones of the aforesaid designated three racks, each said rack bar sized and shaped to block and reduce air flow through said central opening between the racks adjacent thereto, each said bar thereby preventing undue cooling of food on a rack in opposition to said central opening.

3. In an electric oven according to claim 2, each said bar having a coextensive boss of reduced height across the front thereof, said boss being centered between the upper and lower edges of said bar.

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