Jan. 3, 1956 J. J. PIRZ 2,729,160

COMBINED ROTISSERIE AND BROILER

Filed Feb. 12, 1954

3 Sheets-Sheet 1

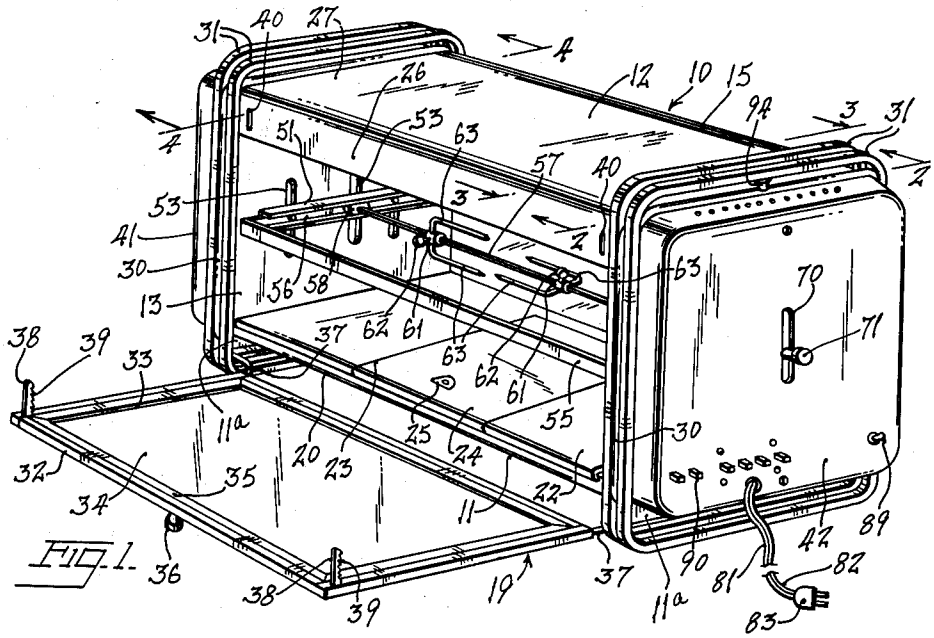


FIG. 1.

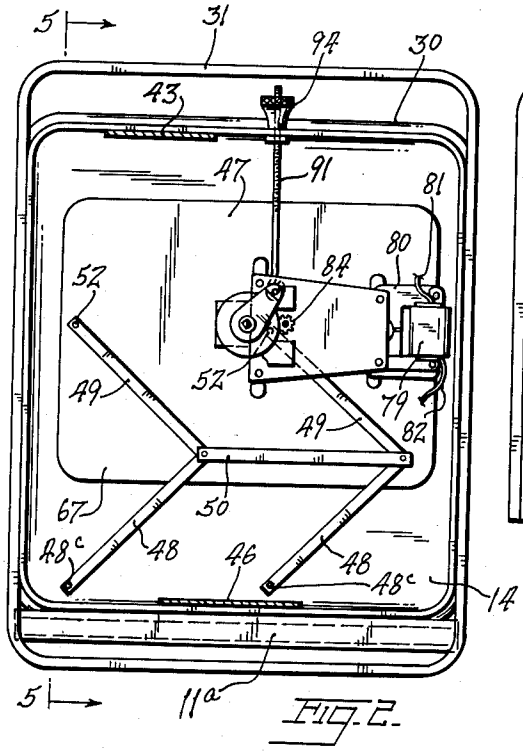


FIG. 2.

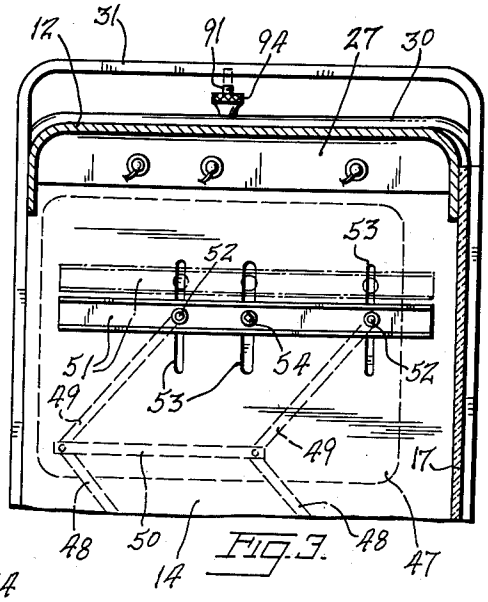


FIG. 3.

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3 Sheets-Sheet 2

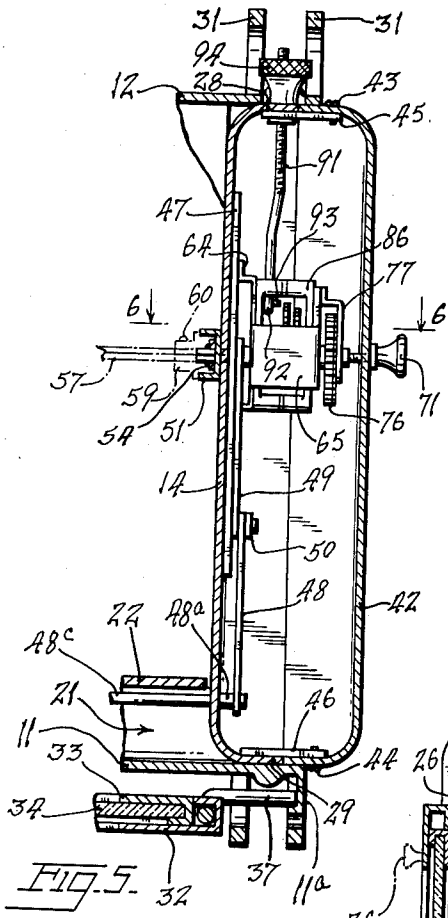


FIG. 5.

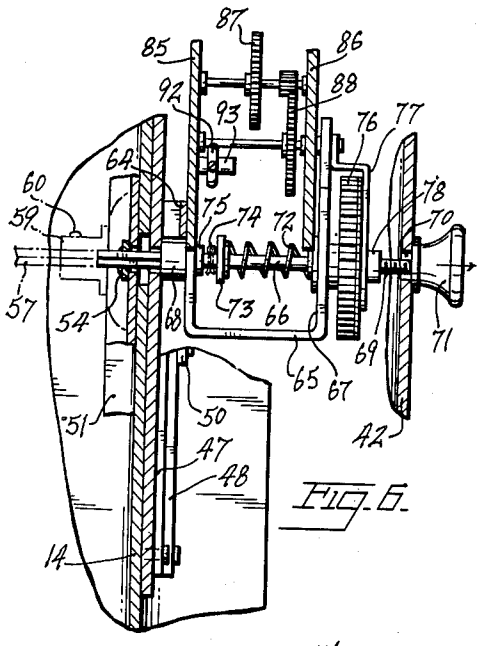


FIG. 6.

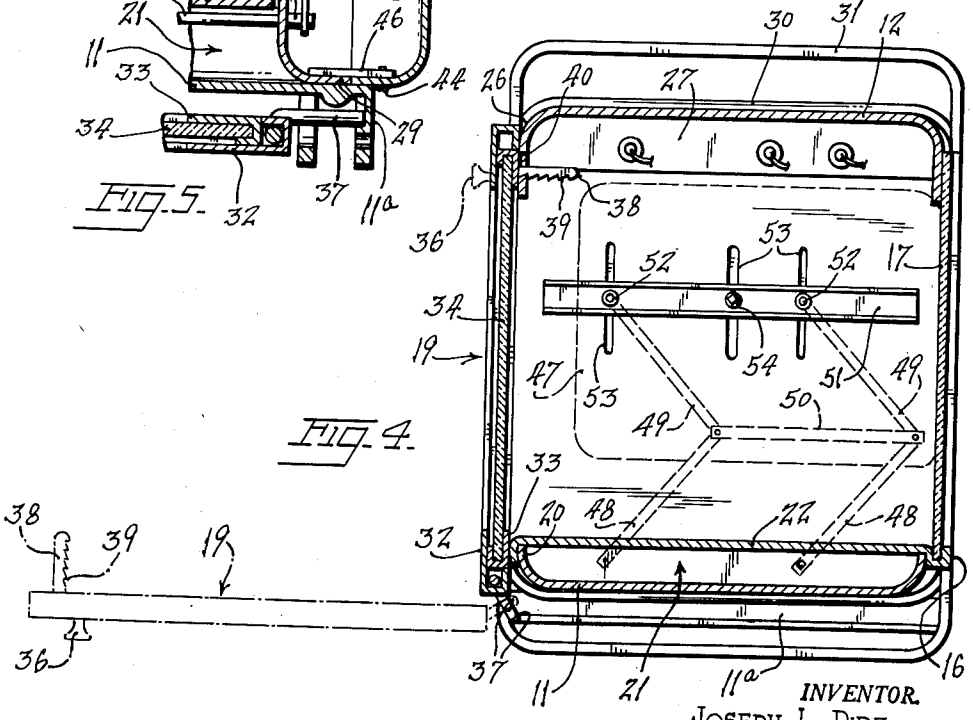


FIG. 4.

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Jan. 3, 1956 J. J. PIRZ 2,729,160

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Filed Feb. 12, 1954 3 Sheets-Sheet 3

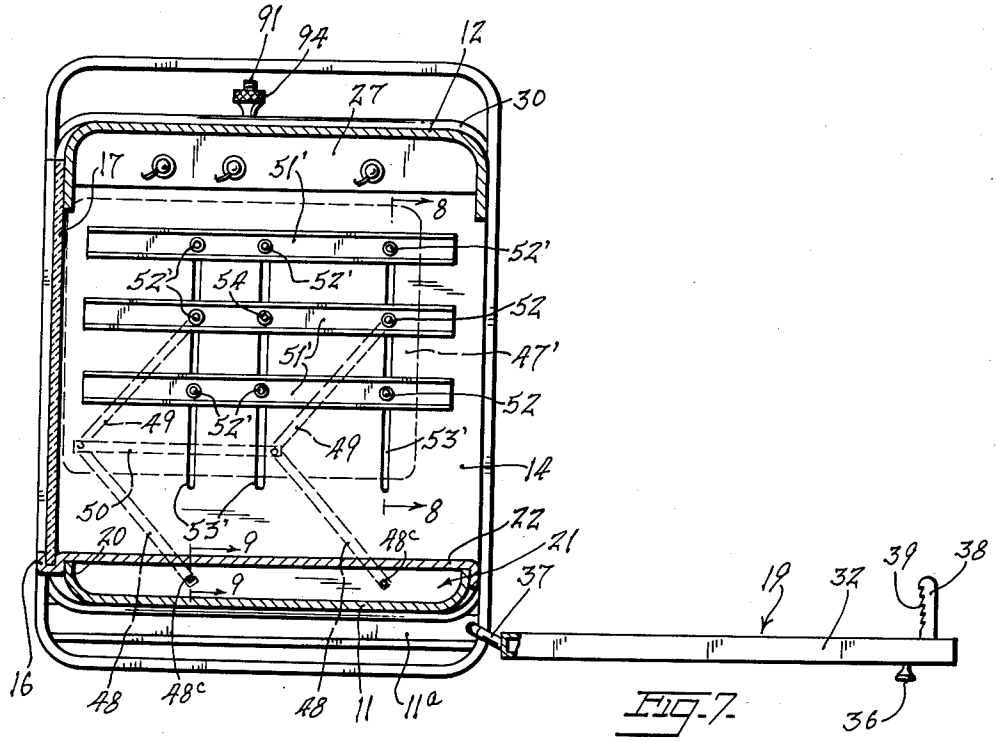


Fig. 7.

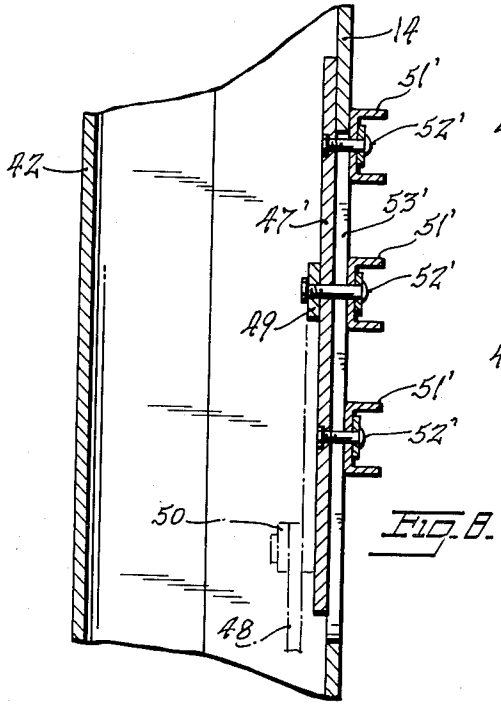


Fig. 8.

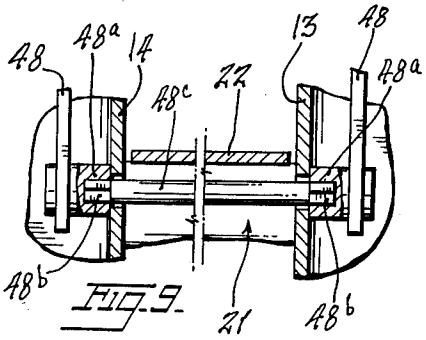


Fig. 9.

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United States Patent Office 2,729,160 Patented Jan. 3, 1956

2,729,160

COMBINED ROTISSERIE AND BROILER

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Application February 12, 1954, Serial No. 409,989

7 Claims. (Cl. 99—421)

This invention relates to new and useful improvements in cooking apparatus and, more particularly, to a combined rotisserie and broiler.

A principal object of the present invention is to provide a combined rotisserie and broiler with improved means for adjustably mounting the spit assembly support.

Another object of the invention is to provide a cooking apparatus of this kind with a single adjustable track support for the spit assembly, and with means for guiding the adjusting movement of the track support.

A further object of the invention is to provide apparatus of this kind with improved means for adjustably and removably supporting the spit and for rotating the same.

Yet another object of the invention is to provide a hinged and slidable closure for the front of the apparatus, with means for holding the closure in partly closed position.

Still another object of the invention is to provide a slidable and removable closure for the rear of the apparatus.

A still further object of the invention is to provide a combined rotisserie and broiler which is sanitary and which is highly efficient in operation.

For further comprehension of the invention and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

On the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a combined rotisserie and broiler embodying the invention, showing the front closure in open position.

Fig. 2 is a cross-sectional view taken on the plane of the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary cross-sectional view taken on the plane of the line 3—3 of Fig. 1.

Fig. 4 is a cross-sectional view taken on the plane of the line 4—4 of Fig. 1, showing the door in closed position.

Fig. 5 is an enlarged vertical sectional view taken on the plane of the line 5—5 of Fig. 2, with the end cover plate in position.

Fig. 6 is a horizontal sectional view taken on the plane of the line 6—6 of Fig. 5.

Fig. 7 is a cross-sectional view similar to Fig. 4, showing a modified form of the invention.

Fig. 8 is a fragmentary enlarged, vertical, sectional view taken on the line 8—8 of Fig. 7.

Fig. 9 is a fragmentary detail sectional view taken on the line 9—9 of Fig. 7.

Referring in detail to the drawings, the combined rotisserie and broiler comprises a box-like metal casing or housing 10, of rectangular shape and cross-section, having a bottom wall 11, a top wall 12 and end walls 13 and 14. The top wall 12 is formed with an elongated slot 15 adjacent its rear end edge for slidably and removably receiving a frame 16 supporting a glass panel 17 constituting the rear wall of the casing. The walls define an oven 18. The front of the casing is open but is adapted to be closed by a slidable and swingable closure or door 19.

The bottom wall 11 is pan-shaped with an upstanding flange 20 at its front providing a hollow compartment 21 covered by a floor 22, with an opening 23 therein. The opening 23 is closed by a sliding plate 24 formed with a hand hold 25 in its top surface to facilitate sliding thereof. The top wall 12 is similar in shape and construction to the bottom wall 11, with a downwardly extending flange 26, at the front, and with a hollow compartment 27 therein, similar to compartment 21.

The end walls 13 and 14 of the casing have curved top and bottom flanges 28 and 29, respectively, and the side end edges of said end walls protrude beyond the front flanges on the bottom and top walls thereby forming flanges 30 thereat. A pair of closely spaced, supporting endless bars 31, similar in shape to the cross-sectional shape of the casing but slightly larger in size, encircle each end of the casing. The side flanges 30 are interposed in the space between the bars 31 and are fastened to the opposed side portions of said bars by welding or otherwise, leaving the bars protruding above and below the casing 10 as shown in Figs. 1 and 2, whereby the casing is supported remote from the supporting surface for the bars 31. Each bar 31 is substantially square in cross-section presenting a flat outer supporting surface.

The front closure or door 19 includes an outer rectangular frame 32 and an inner frame 33 of similar shape but of smaller dimensions nested within the outer frame and clamping the edges of a glass panel 34 against the outer frame. A threaded bolt 35, having a knob 36 at one end, is threaded through aligned threaded openings in the center of the outer and inner frames for detachably securing the inner frame in clamping position. The knob 36 serves as a handle for manipulating the door. The outer frame 32 is shorter than the distance between the endless bars 31, and its inner corners carry hooks 37 which extend laterally and outwardly of the frame and are adapted to be inserted into the spaces between the bottom horizontal portions of the endless bars and the bottom of the adjacent ends of the casing 10 for ready detachment and to slide in horizontal side channels 11^a formed at the bottom wall 11. When the door is in fully open and outward position as shown in Fig. 1, the hooks 37 are in interlocking engagement with the corners of the endless bars 31 which serve as bearings to permit the door to be swung upwardly and inwardly to closed position with the hooks as the pivots. The outer frame 32 at both of its outer corners carries protruding blades 38 having notched edges 39. When the door is swung to closed position the blades swing into slots 40 formed in the depending flange 26 of the top wall 12 so that the door may be held in tightly closed and sealed position. By merely lifting the door vertically, any of the notches in the blades 38 may be interlocked with the bottom edges of the slots 40 for holding the door ajar as far as desired.

When the door is in fully open and outward position as shown in Fig. 1, it can readily be slid inwardly under the bottom wall 11 of the casing for any desired purpose, the hooks 37 serving as guides during this movement.

The end walls 13 and 14 are finished off by flanged cover plates 41 and 42, respectively, with their flanged portions facing and engaging the flanges of the end walls. Fastening members 43 and 44, passing through the flanged portions of the cover plates and through upper and lower plates 45 and 46, respectively, carried by the flanged portions of the end walls, secure the cover plates to the end walls.

A plate 47 is slidably supported on the outer surface of each of the end walls 13 and 14 of the casing by a lazy tong construction, comprising pairs of link members

48 and 49 pivotally connected by a link 50. The links 48 are pivotally connected to the adjacent end wall and are formed with square socket members 48a adapted to receive the square extremities 48b of connecting rods 48c. This connection will transmit any arcuate motion of one link to the opposite link 48.

The outer ends of the links 49 are pivotally connected to the slidable plate 47. Connected to each plate 47 and slidable and adjustable on the inner surface of the respective end wall is a channel-shaped supporting and guiding track 51. The connection between each plate and its associated track includes threaded bolts 52 having one of their ends passing through the plate and secured to the ends of the links 49 and projecting from the plate inwardly through spaced elongated slots 53 formed in the adjacent end wall and arranged parallel to the side edges thereof, the inner ends of the bolts extending through openings in the adjacent track 51 and being secured thereto by nuts 54. The tracks are opposed to each other with their open faces directed inwardly.

A closed spit supporting frame 55 is removably and slidably supported in the opposed tracks 51, in the oven. The frame is rectangular in shape and is formed of bar metal with its end portions 56 having a sliding fit in the tracks.

A spit assembly is supported on the frame 55 at its center and comprises an elongated shaft 57, angular in cross-section and having one end pointed and journalled in a block 58 welded or otherwise fastened to one end portion 56 of the frame. The other end of the shaft is fitted into one end of a tubular bearing member 59, the opening of which is similar in cross-section to the shaft 57. A set screw 60 may be provided for securing the shaft in position in the bearing member 59. The other end of the tubular bearing member is rotatably connected to the opposite end portion 56 of the frame 55. A pair of collars 61 are slidably and adjustably fitted on the shaft 57 and are held in adjusted position therealong by thumb set screws 62. Each collar carries opposed prongs 63 which extend along the shaft, in the direction of the middle of the oven. The collars are normally arranged on the shaft so that the pairs of prongs are disposed at right angles to each other.

The spit assembly is adapted to be rotated when supported in the opposed tracks 51. Drive mechanism for this purpose is shown in detail in Figs. 5 and 6 and includes a vertically disposed metal strap 64 fastened to the slidable plate 47 on the end wall 14 and constituting a bracket. A frame having a U-shaped portion 65 is welded or otherwise secured to the bracket strap and a shaft 66 is rotatably supported in openings in the opposed parallel arms 67 of the frame. The inner end of the shaft is similar in cross-section to the shaft 57 and extends through a collar 68 interposed between the slidable plate 47 and the inner arm 67 of the frame and through aligned openings in the slidable plate, end wall 14 and adjacent track 51 and into the other end of the opening in the tubular bearing 59 so that upon rotation of the shaft 66 the bearing member and shaft 57 will simultaneously rotate. The outer end of shaft 66 is formed with a screw threaded extension 69 adapted to extend through an elongated slot 70 in the cover plate 42. A knob 71 is threaded onto the protruding end of the extension 69 for pulling the shaft 66 outwardly. The shaft 66 is normally urged to inward clutching position by a coil spring 72 sleeved therearound, with one end seated against one arm 67 of the frame and its other end impinging against a washer 73 on the shaft held by a cotter pin 74 passing through the shaft. Inward movement of the shaft 66 is limited by a collar 75 suitably fastened to said shaft and adapted to engage the inner parallel arm 67 of the frame. A spur gear 76, supported by a bracket arm 77 secured to the outer arm 67 of the frame and sleeved and fastened on shaft 66, drives the shaft, the shaft passing through aligned openings in the gear and bracket arm and being slidably interlocked with the wall of the opening in the gear. A spacing washer 78 is interposed between the gear and the adjacent parallel arm 67 of the frame.

The spur gear 76 is operatively connected to an electric motor 79 mounted on a bracket 80 fastened to the frame. The motor is connected to a source of electromotive force, such as the house lighting circuit, by conductors 81 and 82 and a plug 83. The connection between the motor and spur gear includes a pinion 84 connected to the motor shaft, and a train of intermeshing reduction gearing mounted on opposed plates 85 and 86 formed on the frame and interposed between the pinion and spur gear and operatively connected thereto, including gears 87 and 88.

Heat for the oven is supplied by electrical resistance heating elements (not shown) mounted in the hollow compartments in the bottom and top walls of the casing, which elements are connected by conductors to the source of electromotive force and controlled by a main switch 89 supported on the cover plate 42. The separate heating elements are controlled by switches 90 supported on the cover plate for regulating the degree of heat in the oven.

The spit assembly with its supporting frame 55 may be readily moved up or down in the oven to adjusted position therein by a threaded shaft 91 extending through aligned threaded openings in the upper plate 45 and in the upper flanged portion 26 of the end wall 14.

Shaft 91 has its inner end formed into a loop 92 extending around a stud 93 projecting from the frame. A knurled nut 94 on the outer projecting end of the shaft may be turned for moving the shaft inwardly and outwardly carrying the slidable plate 47, on wall 14, adjacent track 51 and associated parts along with it and swinging the links 48 and 49 about their pivots until the bolts 52 carried by the slidable plate strike the ends of the slots 53. The rigid connection between the track on end wall 14 and the track on end wall 13, afforded by the spit supporting frame 55, causes the track on the end wall 13 and its associated sliding plate 47 to move in unison with the track and sliding plate on end wall 14.

The spit assembly with its supporting frame 55 may also be readily removed from the track 51 by pulling out the shaft 66 by means of the knob 71 until the inner end of the shaft clears the inner surface of the end wall 14. The spit supporting frame 55 with the spit assembly may then be slid along the tracks outwardly of the oven. The collars 61 with the prongs 63 may be readily slid along the shaft 57 to permit the apparatus to support various sized articles of food, and the pointed ends of the prongs permit them to be forced through the article of food.

In reinstalling the spit assembly and frame 55 in the tracks, the frame is slid inwardly until the opening in its end portion 56 aligns with the openings in the adjacent tracks 51 and end wall 14 so as to permit the inner end of the shaft 66 to pass through into the tubular bearing 59.

The collars 61 supporting the prongs 63 on shaft 57 may be turned in order to dispose the pairs of prongs in horizontal alignment, and upon these prongs as a support, a broiler pan or steak grille or the like may be placed with the meat or other article of food to be broiled placed thereupon. A broiler pan or the like may also be placed on the floor 22 of the casing for broiling purposes.

The supporting bars 31 of the casing 10 are so shaped and arranged that the casing 10 may be readily inverted so as to position the top wall 12 at the bottom whereupon cooking utensils may be placed on the floor of said top wall 12 for broiling or other purposes.

In Figs. 7 and 8, three channel members 51′ are shown to be attached to the plate 47′ by threaded bolts 52′ so as to move all three channel members simultaneously by the linkage 48 and 49. When three channels 51′ are provided, the slots 53′ are made longer.

In other respects this form of the invention is similar to the previous form and corresponding parts may be recognized by the same reference numerals.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention what I claim as new and desire to secure by United States Letters Patent is:

1. A combined rotisserie and broiler comprising a hollow casing having, top, bottom, rear and end walls constituting an oven, said end walls having spaced elongated slots, a plate slidable on the outer surface of each end wall, bolts carried by each plate and extending inwardly through the slots in the adjacent end wall, a channel-shaped track secured to the inner ends of the bolts of each plate and slidable along the inner surface of the adjacent end wall, said tracks being arranged in opposed relation, in the oven, a spit supporting frame slidably and removably supported by and rigidly connecting the tracks, a spit assembly supported in said frame, a screw-threaded shaft protruding outside the casing and being connected to one of the plates, and a nut on the protruding outer end of the shaft for actuating the same.

2. A combined rotisserie and broiler comprising a hollow casing having bottom, top, rear and end walls constituting an oven, said end walls having spaced elongated slots, a plate slidable on the outer surface of each end wall, a lazy tong connection between each plate and its respective end wall, bolts carried by each plate and extending inwardly through the slots in the adjacent end wall, a channel-shaped track secured to the inner ends of the bolts of each plate and slidable along the inner surface of the adjacent end wall, said tracks being arranged in opposed relation in the oven, a spit supporting frame slidably and removably supported by and rigidly connecting the tracks, a spit assembly supported in said frame, a screw-threaded shaft protruding outside the top wall of the casing and being connected at its inner end to one of the plates, and a nut on the protruding outer end of the shaft for actuating the same.

3. A combined rotisserie and broiler comprising a hollow casing having bottom, top, rear and end walls constituting an oven, said end walls having spaced elongated slots, a plate slidable on the outer surface of each end wall, a lazy tong connection between each plate and its respective end wall, including pairs of pivotally connected links having their ends pivotally connected to the respective end wall and associated plate and are formed with square socket members adapted to receive complementary square ends of rods connecting the said links at the opposite end walls, bolts carried by each plate and extending inwardly through the slots in the adjacent end wall, a plurality of channel-shaped tracks secured to the inner ends of the bolts of each plate and slidable along the inner surface of the adjacent end wall, said tracks being arranged in opposed relation in the oven, a spit supporting frame slidably and removably supported by and rigidly connecting the tracks, a spit assembly supported in said frame, a bracket fastened to one of said plates, a frame secured to said bracket, means for driving the spit assembly supported by said frame and being operatively connected to the spit assembly, a screw threaded shaft protruding outside the top wall of the casing and being connected at its inner end to said frame, and a nut on the protruding outer end of the shaft for actuating the same.

4. In a combined rotisserie and broiler, a hollow casing having fixed bottom, top, rear and end wals and a hingedly mounted front closure, said walls and closure constituting an oven, a pair of endless bars encircling each end of the casing and being secured thereto, said bars projecting below and above the bottom and top walls of the casing, respectively, and constituting reversible supports for the casings, opposed tracks on the end walls in the oven, a spit assembly supported on the tracks, said front closure including an outer frame, a glass panel, an inner frame nested in the outer frame for clamping the inner frame to the outer frame, and hooks on the outer frame hingedly interlocked with the endless bars below the bottom wall of the casing.

5. In a combined rotisserie and broiler, a hollow casing having fixed bottom, top and end walls, said top wall having an elongated slot adjacent its rear end edge, a removable rear closure and a hingedly mounted front closure, said walls and closures constituting an oven, a pair of endless bars encircling each end of the casing and being secured thereto, said bars projecting below and above the bottom and top walls of the casing, respectively, and constituting reversible supports for the casing, opposed tracks on the end walls in the oven, a spit assembly supported on the tracks, said front closure including an outer frame, a glass panel, an inner frame nested in the outer frame for clamping the glass panel to the outer frame, and hooks on the outer frame hingedly interlocked with the endless bars below the bottom wall of the casing, said rear closure including a frame enclosed glass panel slidable in the slot in the top wall.

6. In a combined rotisserie and broiler, a hollow casing having fixed bottom, top and end walls, said top wall having an elongated slot adjacent its rear end edge and a depending flange at its front end, said flange having a slot adjacent each end thereof, a removable rear closure and a hingedly mounted front closure, said walls and closures constituting an oven, a pair of endless bars encircling each end of the casing and being secured thereto, said bars projecting below and above the bottom and top walls of the casing, respectively, and constituting reversible supports for the casing, opposed tracks on the end walls in the oven, a spit assembly supported on the tracks, said front closure including an outer frame, a glass panel, an inner frame nested in the outer frame for clamping the glass panel to the outer frame, hooks on the outer frame hingedly interlocked with the endless bars below the bottom wall of the casing, said rear closure including a frame enclosed glass panel slidable in the slot in the top wall, and notched blades on the outer corners of the outer frame of the front closure adapted to be received in the slots in the flange of said top wall for adjustably holding the front closure in partially open position.

7. In a combined rotisserie and broiler, a hollow casing having fixed bottom, top, rear and end walls and a hingedly mounted front closure, said walls and closure constituting an oven, a pair of endless bars encircling each end of the casing and being secured thereto, said bars projecting below and above the bottom and top walls of the casing, respectively, and constituting reversible supports for the casing, opposed tracks on the end walls in the oven, a spit assembly supported on the tracks, said front closure including an outer frame, a glass panel, an inner frame nested in the outer frame for clamping the panel thereto, means for clamping the inner frame to the outer frame, and hooks on the outer frame hingedly interlocked with the endless bars below the bottom wall of the casing, said bottom wall being formed with horizontal side channels, said hooks adapted to slide in the said side channels.

References Cited in the file of this patent

UNITED STATES PATENTS

2,046,352	Warner	July 7, 1936
2,225,861	Dufour	Dec. 24, 1940
2,306,519	Bobo	Dec. 29, 1942
2,502,685	Warner	Apr. 4, 1950
2,608,149	Ellis	Aug. 26, 1952