March 19, 1963 E. LIPSEY 3,081,694

COLLAPSIBLE BROILER AND ROTISSERIE DEVICE

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Fig. 1.

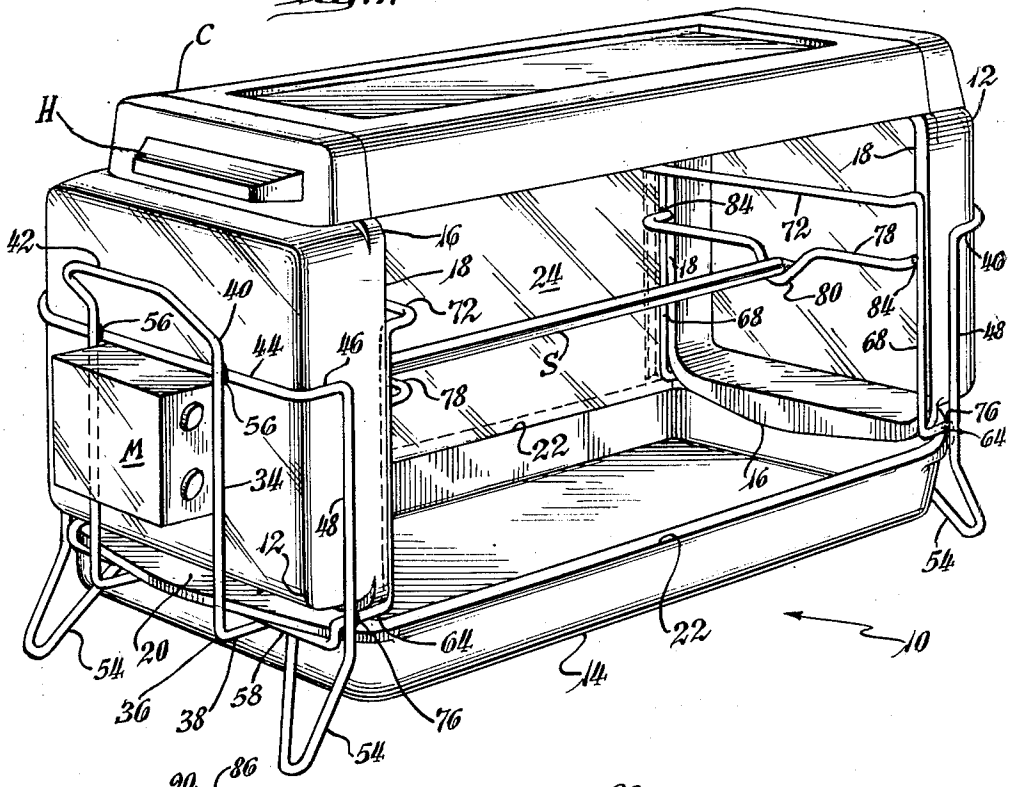
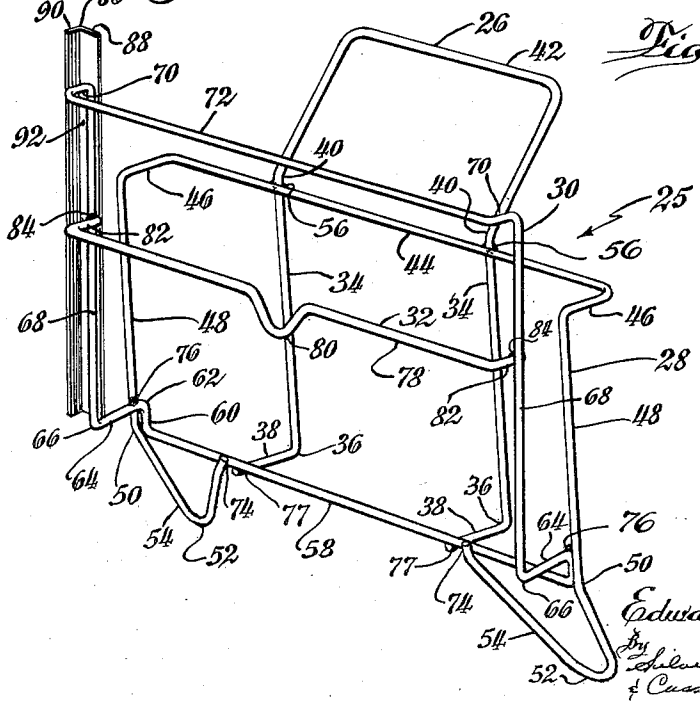


Fig. 2.



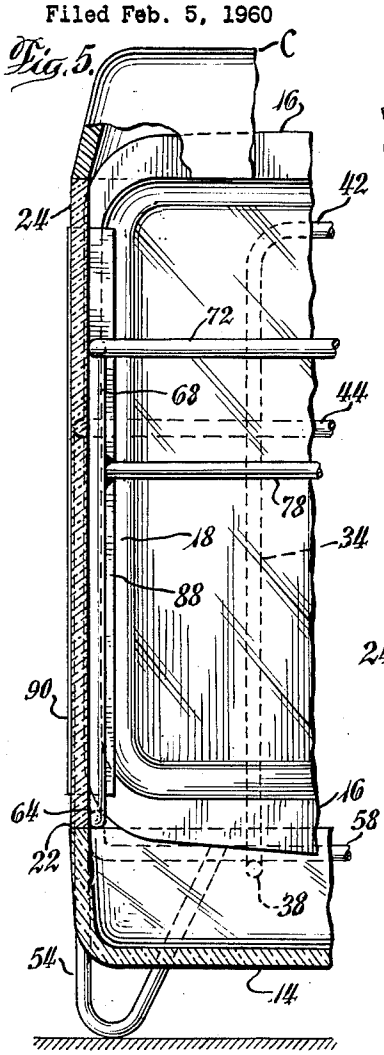
Inventor:
Edward Lipsey
By Silverman, Mullin & Cass Attorneys.

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Fig. 5.



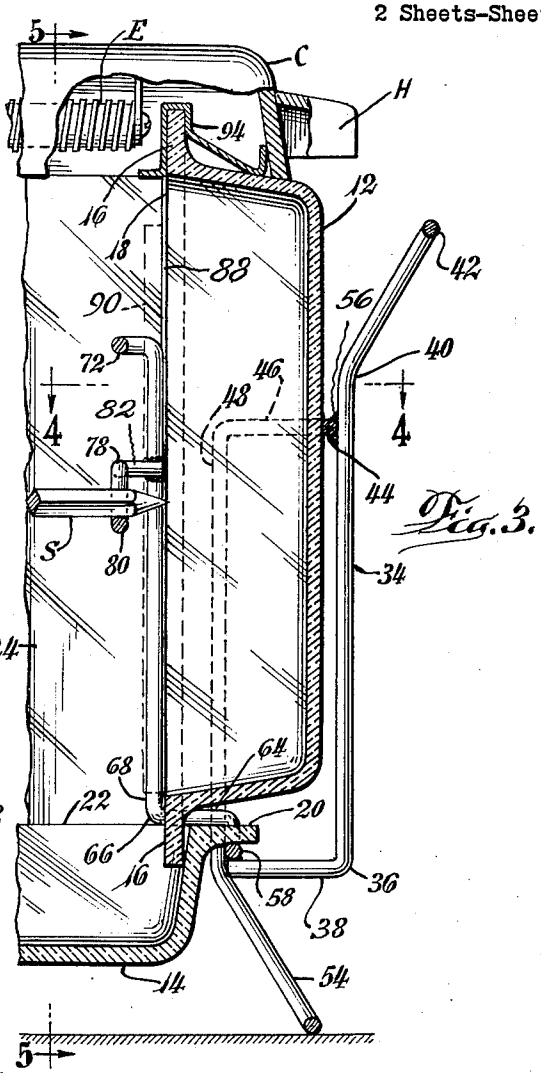


Fig. 3.

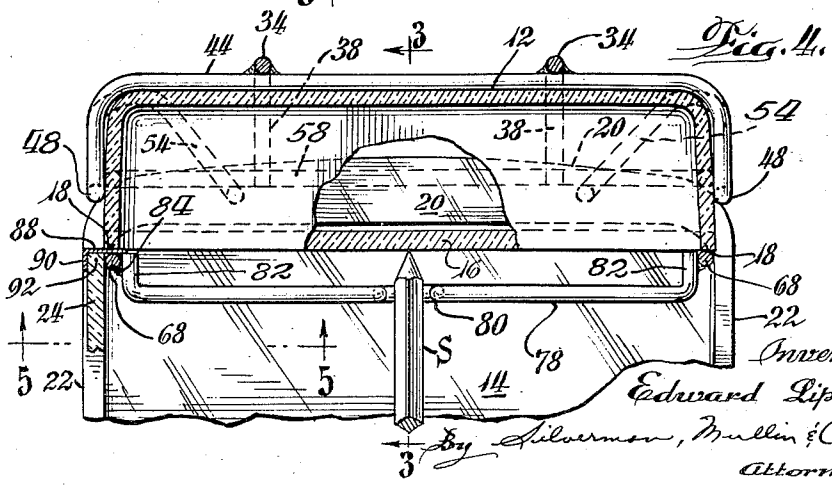


Fig. 4.

Inventor:
Edward Lipsey
By Silverman, Mullin & Cass
Attorneys.

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COLLAPSIBLE BROILER AND ROTISSERIE DEVICE

Edward Lipsey, Wauconda, Ill., assignor to Berns Air King Corporation, Chicago, Ill., a corporation of Illinois

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This invention relates generally to collapsible or knock-down broiler and rotisserie appliances and more particularly to new and improved means for simplifying and facilitating the assembly and disassembly of such devices and for affording sturdier support.

In recent years there has been a great increase in the use and popularity of portable indoor cooking devices such as the well-known table broilers. However, the use and maintenance of such cooking devices often gives rise to a number of familiar problems. For example, since these cooking devices are generally electrically operated, it is quite difficult to properly clean the same with soap and water or the like because of the danger of damaging the electrical elements. Similarly, since these cooking devices generally comprise a bulky rectangular housing, the storage of the same in crowded apartments or the like is often another serious problem. It will thus be seen that there has been a need to provide portable cooking devices of the character described which can overcome the above described and similar related problems inherent in their use.

In an attempt to overcome the above described problems, there have been proposed portable cooking devices constructed in such a manner that the same may be collapsed or disassembled for cleaning or storage purposes. Such collapsible cooking devices are generally of the type disclosed in Patent No. Re. 23,784, which has been assigned to an assignee in common with the herein application, and the herein application comprises an improvement of said patent. Thus, for example, the walls of the appliance housing may comprise substantially flat or dish-shaped members which may be individually cleaned and then stacked for storage purposes. However, while the proposed collapsible cooking devices represented an improvement over the typical unitarily constructed devices, they, too, were characterized by a plurality of objectionable features.

Chief among said objectionable features was the nature of the connecting means for operationally assembling the device, said connecting means being such that the assembly and/or disassembly of the device was quite difficult and time consuming. These operations invariably required the use of two hands in a number of relatively difficult manipulations. As a matter of fact, the assembly and/or disassembly of these devices sometimes required the combined efforts of two people.

It is therefore an important object of this invention to provide a collapsible broiler and rotisserie device having novel simplified connecting means which greatly facilitate the device's assembly and disassembly. In fact, these operations may be performed with only one hand.

The connecting means of the prior proposed devices generally comprised the customary brackets, clips, pins, or the like. In addition to being difficult to manipulate as above described, these connecting means often provided a lack of adequate support so that the assembled device was not very sturdy.

It is therefore another important object of this invention to afford a collapsible broiler and rotisserie device having sturdier and more efficient connecting means than heretofore.

Another object is to provide a collapsible broiler and rotisserie device in which only two connecting elements are required to operationally assemble the entire device.

To accomplish this object, the connecting elements comprise novel supporting frame members which are positioned at opposite sides of the device.

A further object is to afford a collapsible device of the character described which includes rotisserie means.

Still another object is to provide a collapsible device of the character described in which the supporting frame members provide carrying handles for the assembled device.

Still a further object is to afford a collapsible device of the character described having transparent walls so that the food being cooked may be viewed at all times.

Yet another object is to provide a collapsible device of the character described in which the supporting frame members include means for supporting the cooking food at various levels with relation to the electrical heating element.

Yet a further object is to afford a collapsible device of the character described which utilizes ordinary heat resistant dishes, or the like, for the various walls of the housing, so that said dishes may also be used for their ordinary purposes.

Another object is to provide a collapsible device of the character described which is most efficient and attractive and yet is relatively inexpensive to manufacture.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel features of construction, arrangement and a combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

For the purpose of facilitating an understanding of my invention, I have illustrated in the accompanying drawings a preferred embodiment thereof, from an inspection of which, when considered in connection with the following description, my invention, its mode of construction, assembly and operation, and many of its advantages should be readily understood and appreciated.

Referring to the drawings in which the same characters of reference are employed to indicate corresponding or similar parts throughout the several figures of the drawings:

FIG. 1 is a perspective view of the operationally assembled device;

FIG. 2 is a perspective view of one of the supporting frame members;

FIG. 3 is a fragmentary vertical sectional view taken on the plane of line 3—3 in FIG. 4 of the drawings and viewed in the direction indicated;

FIG. 4 is a fragmentary horizontal sectional view taken on the plane of line 4—4 in FIG. 3; and

FIG. 5 is a fragmentary vertical sectional view taken on the plane of line 5—5 in FIG. 4 of the drawings and viewed in the direction indicated.

Referring now to the various figures of the drawings, the reference character **10** indicates generally the subject collapsible broiler and rotisserie device assembled in operational condition. The device **10** comprises a pair of side dishes **12**, **12** and a bottom dish **14** detachably connected in U-shaped arrangement. Each of the side dishes **12** may be substantially square shaped and is provided with a pair of outwardly extending lips **16**, **16** and a pair of straight edges **18**, **18**. The bottom dish **14** may be of longer rectangular shape and is similarly provided with a pair of outwardly extending lips **20**, **20** and a pair of straight edges **22**, **22**.

The dishes **12** and **14** may comprise any suitable heat resistant material. However, in the embodiment illus-

trated, the same comprise transparent heat resistant glass of the well known "Pyrex" type. It will thus be apparent that when the device 10 is disassembled (in a manner which will be subsequently described), the dishes 12 and 14 may be readily cleaned and then stacked or used for their ordinary purposes such as for baking and the like.

The back wall of the operationally assembled device 10 comprises a rectangular panel 24 which may likewise be made of the above-described heat resistant glass. It should thus be noted that the assembled device 10, which may be open at the front, is transparent at its sides and back, so that the interior thereof may be readily viewed at all times.

The side dishes 12, bottom dish 14 and back panel 24 are operationally and detachably interconnected and supported by a pair of novel supporting frame members which will now be described in detail. Turning to FIG. 2 of the drawings, the numeral 25 indicates generally one of said novel supporting frame members. The frame member 25 comprises a plurality of bent wire rod members such as 26, 28, 30 and 32, which may be integrally formed or, as illustrated, spot welded together at their respective points of contact. The bent wire rod members 26, 28, 30 and 32 may be made of any suitable material which is substantially rigid and yet possesses some degree of resiliency.

Wire rod member 26 comprises a channel shaped element having a pair of vertical legs 34, 34 which are perpendicularly bent as at 36 to afford a pair of short inwardly projecting bottom legs 38, 38. The vertical legs 34 are bent obtusely outwardly as at 40 and are connected by a top horizontal arm 42. It will be noted, as seen in FIG. 1, that the horizontal arms 42 provide convenient carrying handles of the entire device 10.

Wire rod member 28 comprises a top horizontal segment 44 which is bent perpendicularly to provide a pair of short horizontal arms 46, 46 in the same horizontal plane as segment 44. The arms 46 are in turn bent perpendicularly to provide a pair of vertical leg segments 48, 48. The vertical legs 48 are bent obtusely outwardly as at 50, 50 and then acutely return bent as at 52, 52 to afford a pair of support legs 54, 54. The horizontal segment 44 may be welded to the vertical legs 34, 34 as at 56, 56. It is important to note, as seen best in FIGS. 1 and 4, that the dimensions of the wire rod member 28 are such that the horizontal segment 44, horizontal arms 46, 46 and vertical legs 48, 48 afford a snug contour-accommodating supporting structure for the side dish 12.

The wire rod member 30 comprises a bottom horizontal segment 58 which is bent upwardly at both ends thereof to afford a pair of short vertical legs 60, 60. The vertical legs 60 are bent as at 62 to afford a pair of inwardly projecting horizontal arms 64, 64. The horizontal arms 64 are bent as at 66 to provide a pair of substantially vertical legs 68, 68. The legs 68 are in turn bent to afford a pair of short top horizontal leg segments 70, 70, and the latter are connected by the integrally formed top horizontal segment 72. The support legs 54 may be welded to the bottom horizontal segment 58 as at 74, 74. The horizontal arms 64 may be welded to the inner surface of the vertical legs 48 at a point adjacent the bends 62, such as at 76. The legs 38 may also be welded to the segment 58 as at 77, 77. It will thus be seen that the wire rod members 26, 28 and 30 are connected together to afford the unitary structure described.

It is most important to note, as indicated in FIG. 2, that the angle of the bends 66 is slightly less than 90°, and that the legs 68 consequently project upwardly in a plane which is slightly inclined from the vertical. Similarly, it will be noted that the distance between the legs 68 is slightly less than the distance between the vertical legs 48. The reasons for this construction will become apparent as the description proceeds.

The wire rod member 32 comprises a rod 78 having a depending arcuate segment 80 formed at the midpoint thereof. Portions adjacent the ends thereof are bent to afford short arm segments 82, 82. The arms 82 may be welded to the inner surfaces of the legs 68 as at 84, 84.

Secured to one of the legs 68 is an elongated angle bar 86 having legs 88 and 90. Referring to FIGS. 4 and 5 of the drawings, it will be noted that the legs 68 and 70 cooperate with the leg 90 to afford a channel 92 which is adapted to snugly accommodate the lateral edge of the panel 24.

The operational assembly and disassembly of the side dishes 12, bottom dish 14 and back panel 24 will now be described. Initially, the bottom dish 14 is positioned between the two supporting frame members 25 with its lips 20, 20 resting on the horizontal segments 58, 58, as indicated in FIGS. 1 and 3. In this condition, the frame members 25 stand upright and support the bottom dish 14 therebetween due to the coaction of the vertical legs 60 and the horizontal arms 64 on the lips 20 of the dishes as indicated. A side dish 12 is then forced down into one of the frame members 25 so that the lip 16 of the side dish overlaps the respective lip 20 of the bottom dish 14 and bears against the inner surface of the bottom dish. It is important to note here that when the dish 12 is forced down into the frame member 25, the legs 68 and 88 automatically bear against that dish's straight edges 18 (see FIGS. 1 and 4). Since the frame member 25 is made of a slightly resilient material, the bends 66 are caused to yield until they describe a right angle and the legs 68 and 88 are in a vertical condition (see FIG. 3). The legs 68 and 88 thus bear over their entire lengths against the straight edges 18 to most securely, but releasably, clamp the side dish 12 in the frame member 25. The second side dish 12 is positioned in its respective frame member 25 in the same manner described, although it has been found that this operation is so simply performed that both side dishes 12 may be positionel simultaneously by one person. The back panel 24 is then positioned in the channels 92, 92 to complete the operational assembly of the bottom, sides and back of the device 10. The disassembly is equally as simple, it being necessary only to reverse the described procedure by removing the back plate 24 and then the side dishes 12 from the frame members 25.

To complete the housing for the device 10, there is provided a broiler top C which includes an electrical heating element E and suitable wiring (not shown) for connection to a source of electrical power. Positioned within the broiler top C are a pair of suitably spaced brackets such as 94 which are adapted to frictionally engage the lips 16 of the side dishes 12 (see FIG. 3). The top C may also be provided with a pair of handles such as H.

Referring to FIG. 1, one of the side dishes 12 may be formed with an opening therethrough (not shown), in which opening may be removably mounted a housing M containing a rotisserie motor (not shown). The motor is adapted to rotate a spit S. It will be noted that the depending arcuate portions 80 provide a bearing support for the spit S.

The device 10 may be provided with a suitable food supporting grill (not shown) which is removably mountable on the horizontal segments 44 or the rods 78 when plain broiling of food is desired. Similarly, the frame members 25 may be provided with additional horizontal cross members such as the rod 78, so that the above mentioned grill may be supported at any desired distance from the heating element E.

From the above description and drawings, it should be apparent that I have provided a novel collapsible broiler and rotisserie cooking device. The supporting frame members 25 permit the device to be simply and quickly assembled and disassembled, while simultaneously affording a most efficient and sturdy support for the entire device. In addition, the frame members 25 afford convenient carrying handles, supports for a food supporting

grill and bearings for a rotisserie spit. Further, ordinary glass dishes such as the ones described may be used, so that upon disassembly of the device, these dishes may be easily cleaned and then stacked or else used for their ordinary purposes.

It is believed that my invention, its mode of construction and assembly, and many of its advantages should be readily understood from the foregoing without further description, and it should also be manifest that while a preferred embodiment of the invention has been shown and described for illustrative purposes, the structural details are nevertheless capable of wide variation within the purview of my invention as defined in the appended claims.

What I claim and desire to secure by Letters Patent of the United States is:

1. A collapsible broiler and rotisserie device comprising a pair of transparent rectangular side dishes, a rectangular bottom dish, one of said side dishes having an opening formed therein, each of said dishes having a pair of opposed straight edges and a pair of opposed outwardly extending lips, a transparent back panel, a pair of bent wire rod frames releasably interlocking and supporting said side dishes, bottom dish and back panel in operational assembly, each of said frames including a lower horizontal rod for supporting said lips of said bottom dish therebetween, each of said frames including a resilient receptacle for releasably grasping one of said side dishes in substantial contour accommodating relationship with its bottom lip overlapping the respective lip of said bottom dish, each of said frames further including a plurality of horizontal cross members positioned inwardly of said side dishes, an elongated angle bar secured to back portion of each of said frame members in spaced relationship with the back extremities of said horizontal cross members, said angle bars and cross

members cooperating to afford a pair of vertical channels for removably accommodating the lateral edges of said back panel, a top cover member including an electrical heating element removably positioned across the top lips of said side dishes, a housing including a rotisserie motor removably mounted on the outside of said one side dish adjacent said opening, a spit removably positioned through said opening and connected to said rotisserie motor, and bearing means for said spit.

2. The collapsible broiler and rotisserie device of claim 1 in which said bearing means comprises a central depending arcuate portion formed in an aligned pair of said cross members.

3. The collapsible broiler and rotisserie device of claim 1 in which each of said frames includes a pair of outwardly bent bottom legs for supporting said operationally assembled device in elevated position.

4. The collapsible broiler and rotisserie device of claim 1 in which each of said frames includes an upper outwardly bent segment, said segments affording carrying handles for said operationally assembled device.

5. The collapsible broiler and rotisserie device of claim 1 in which each of said resilient receptacles includes a pair of short inwardly projecting horizontal legs and a pair of integrally formed upwardly inclined legs describing an angle of slightly less than 90° therebetween, said short horizontal legs bearing against the lips of said bottom dish, said angles adapted to yield whereby said upwardly inclined legs bear over their entire lengths against the straight edges of said side dishes.

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