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S. SINGER

2,517,360

BROILER

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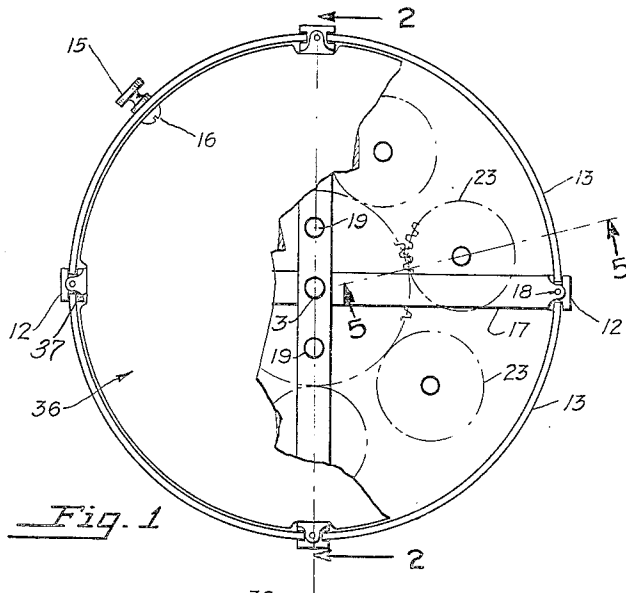


Fig. 1

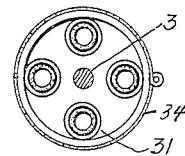


Fig. 3

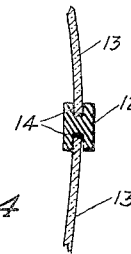


Fig. 4

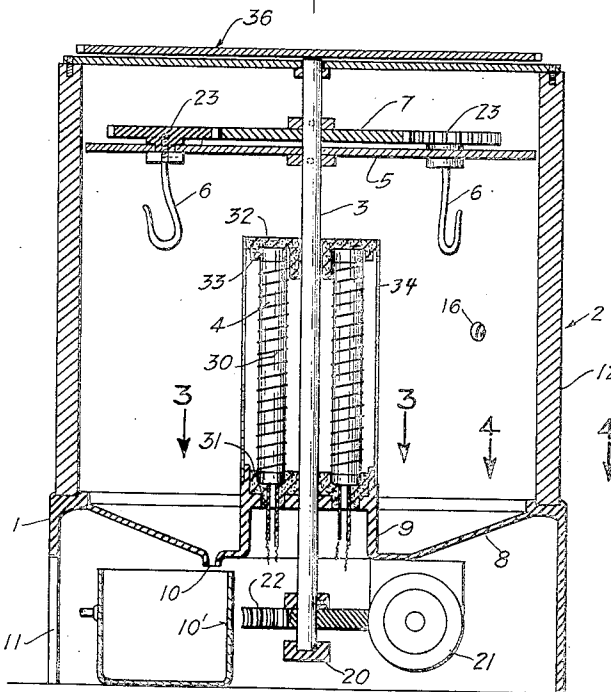


Fig. 2

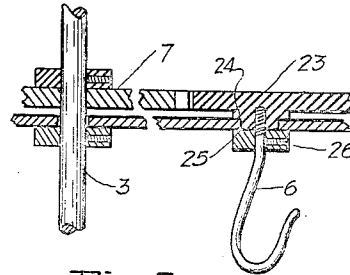


Fig. 5

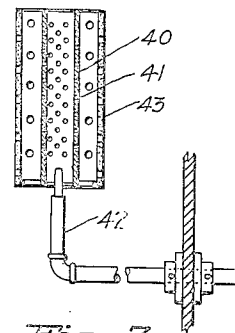


Fig. 7

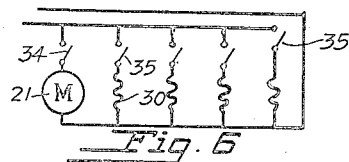


Fig. 6

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2,517,360

BROILER

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3 Claims. (Cl. 99-443)

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The present invention relates to improvements in broilers, and is a further development of the broiler described and claimed in my co-pending application, Serial Number 594,974, filed May 21, 1945, which matured as Patent No. 2,465,611.

The principal object of the present invention is to provide a convenient arrangement whereby a plurality of objects to be broiled are guided around a heater in an endless chain and each of the objects is rotated about its own axis so as to progressively expose the entire surface of the object to the source of heat and to insure uniform broiling of the object.

A further object of the invention is to provide a housing around the space in which the objects travel to serve as a heat-retaining means and also to reflect heat rays back upon the objects for insuring greater economy in the use of the heat.

It is still further proposed to provide certain structural arrangements for carrying out the above objects and made to combine the features of the invention into a compact, portable attractive unit, which can be manufactured at comparatively small expense.

Further objects and advantages of my invention will appear as the specification proceeds, and the novel and useful features of my broiler will be fully defined in the claims attached hereto.

The preferred forms of my invention are illustrated in the accompanying drawing, forming part of this application, in which:

Figure 1 shows a top plan view of my broiler, with part of a top cover removed to disclose the interior;

Figure 2, a vertical section taken along line 2-2 of Figure 1;

Figure 3, a horizontal section taken along line 3-3 of Figure 2;

Figure 4, a sectional detail view taken along line 4-4 of Figure 2;

Figure 5, a sectional detail view taken along line 5-5 of Figure 1;

Figure 6, a wiring diagram; and

Figure 7, a detail view showing a modified heater.

While I have shown only the preferred forms of my broiler, it should be understood that various changes or modifications may be made within the scope of the claims attached hereto, without departing from the spirit of the invention.

Referring to the drawing in detail, my broiler comprises in its principal features, an annular base 1, a housing 2 resting thereon, a shaft 3 supported centrally in the housing, a series of heaters 4 surrounding the shaft, a disc 5 mounted on the shaft above the heaters, an annular series of hooks 6 suspended from the disc, and co-operative means on the hooks and the housing, in-

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cluding a gear wheel 7 for rotating the hooks on their own axes as the disc revolves.

The base 1 is preferably cylindrical in shape, and has a conical apron or drip pan 8 suspended from the upper edge thereof, the drip pan carrying a central hub 9 and having an aperture 10 near the hub for discharge of drippings into a suitably disposed vessel 10' which may be inserted and removed through an opening 11 in the wall of the base.

The housing 2 is also preferably cylindrical in form, of the same diameter as the base, and comprises a series of vertical posts 12, four, in the instance shown, and a similar series of panels 13 mounted in the posts with freedom of vertical sliding movement, the posts being made H-shaped in cross section to provide opposing grooves 14 in which the edges of the panels are free to slide.

The panels are suitably made of glass or similar transparent material to allow operators and customers to view the fowls or meats and the progress of the broiling process.

The panels are provided with knobs 15 by means of which they may be conveniently lifted, and the knobs are secured by means of screws 16 with internally projecting heads which can be made to pass the edge of the disc 5 when the panel is moved manually, but offers sufficient resistance to passing by gravity only for holding the panel in raised position.

Each set of opposing posts 12 has a cross-plate 17 secured thereon by means of screws or otherwise, the cross-plates terminating in tongues 18 of reduced width to clear the grooves in the posts, and the two plates crossing each other at the center of the housing.

The gear wheel 7 is secured below the cross-plates, by means of pins 19, to form a unit therewith and to occupy a concentric position in the housing.

The shaft 3 extends centrally through the base and the housing, and is supported on a bottom bearing 20, while its upper end is revoluble in the fixed gear wheel 7 and the cross-plates 17. It is driven by the motor 21 disposed in the base, through gearing 22 or otherwise, and it carries, immediately under the fixed gearing 7, a disc 5 having an annular series of hooks 6 suspended therefrom.

Each hook 6 is threaded into a pinion 23 having a shoulder 24 riding on the disc and a neck 25 revoluble in the hole in the disc, and the hook is formed with a collar 26 adapted to bear against the underface of the disc for holding the pinion in place.

The pinions 23 are arranged in annular series about the fixed gear 7 so as to mesh therewith, whereby each of the pinions and the hook suspended therefrom is made to rotate about its

own axis, as the hooks revolve about the axis of shaft 3.

The objects to be broiled, such as fowl or barbecue steak, are suspended from the hooks 6 so as to hang opposite the heater 4 and are thus revolved about the heater, while each is also rotated about its own axis.

The heater 4 is preferably made in the form of a plurality of vertically disposed, elongated heat units 30 grouped around the shaft 3, and supported, at their lower ends, in sockets 31 carried by the hub 9, the upper ends being steadied by a cap 32 which is slidable on the shaft and has a registering number of sockets 33 adapted to receive the upper ends of the heat units.

The heat units may thus be readily replaced by lifting the cap and inserting a new one. The heater is preferably surrounded by a wire screen 34, which may be constructed in two semi-cylindrical sections with a hinged connection between the same. This screen serves to diffuse the heat and to cause the same to emanate uniformly from the entire screen area.

A simple wiring diagram is illustrated in Figure 6 for the motor and the heating units, from which it appears that the motor is controlled by a switch 34, and each heat unit by a separate switch 35 which allows the operator to turn on as many heat units as he desires for a certain operation.

A top plate 36 of thin, elastic material is disposed above the cross-plates 17 to fit into the cylindrical housing, and is suitably notched, as at 37, to allow for the joints between the cross-plates and the posts 12.

In operation, for loading the broiler, one of the panels 13 is lifted and the hooks are brought opposite the opening thus created successively by successive operation of the switch 34. The objects to be broiled are suspended from the hooks as they appear opposite the opening.

Upon completion of the loading operation, the desired number of heat units are energized by operation of the switches 35, and the motor is set in operation. The objects to be broiled then revolve about the heater, each object also turning on its own axis.

The heat emanating from the screen about the heater strikes the objects directly, but it is also reflected by the housing to heat the objects from all sides with substantial uniformity. If one of the pieces is finished ahead of the others, it may be brought opposite the panel used for a gate and removed to be replaced by another one.

Figure 7 shows a modified form of heating unit 40 in the form of a gas heater. This may consist of an elongated tube with numerous perforations or jets 41 adapted for accommodation in the sockets 31 and fed by a gas line 42 equipped with suitable controls.

For diffusing the flames issuing from the heater, I provide a perforated sleeve 43 constructed of ceramic material, which will turn to a red heat under the influence of the gas flames.

I claim:

1. In a broiler of the character described, an integral base structure comprising a cylindrical member, a shallow drip pan suspended from the upper edge thereof, and a hub rising axially from the drip pan, opposing posts mounted on the upper edge of the cylindrical member and having panels slidably mounted therebetween, cross-members connecting the upper ends of opposing posts, a single shaft extending axially through

the hub and supported in the base and in the cross-members, a gear wheel fixedly suspended from one of the cross-members in concentric relation to the shaft, heating means arranged around the shaft below the gear wheel, a disc supported on the shaft above the heating means and below the gear wheel and having an annular series of hooks rotatably suspended therefrom, pinions on the hooks and meshing with the gear wheel for rotating the hooks when the disc is revolved, and means in the base for revolving the shaft.

2. In a broiler of the character described, an integral base structure comprising a cylindrical member, a shallow drip pan suspended from the upper edge thereof, and a hub rising axially from the drip pan, opposing posts mounted on the upper edge of the cylindrical member and having panels slidably mounted therebetween, cross-members connecting the upper ends of opposing posts, a single shaft extending axially through the hub and supported in the base and in the cross-members, a gear wheel fixedly suspended from one of the cross-members in concentric relation to the shaft, heating means arranged around the shaft below the gear wheel, a disc supported on the shaft above the heating means and below the gear wheel and having an annular series of hooks rotatably suspended therefrom, pinions on the hooks and meshing with the gear wheel for rotating the hooks when the disc is revolved, and means in the base for revolving the shaft, the heating means comprising an annular series of heating elements positioned on the hub and a cap slidable on the shaft and having means for positioning the upper ends of the heaters.

3. In a broiler of the character described, an integral base structure comprising a cylindrical member, a shallow drip pan suspended from the upper edge thereof, and a hub rising axially from the drip pan, opposing posts mounted on the upper edge of the cylindrical member and having panels slidably mounted therebetween, cross-members connecting the upper ends of opposing posts, a single shaft extending axially through the hub and supported in the base and in the cross-members, a gear wheel fixedly suspended from one of the cross-members in concentric relation to the shaft, heating means arranged around the shaft below the gear wheel, a disc supported on the shaft above the heating means and below the gear wheel and having an annular series of hooks rotatably suspended therefrom, pinions on the hooks and meshing with the gear wheel for rotating the hooks when the disc is revolved, and means in the base for revolving the shaft, the panels being liftable between the posts and having automatically operating means cooperable with the disc for supporting the panels in raised position.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
835	Pierce	July 12, 1838
70 1,638,452	Panajiotaros et al.	Aug. 9, 1927
1,762,035	Soylian	June 3, 1930
1,785,079	Grapp	Dec. 16, 1930
1,787,469	Blier	Jan. 6, 1931