

Nov. 30, 1948.

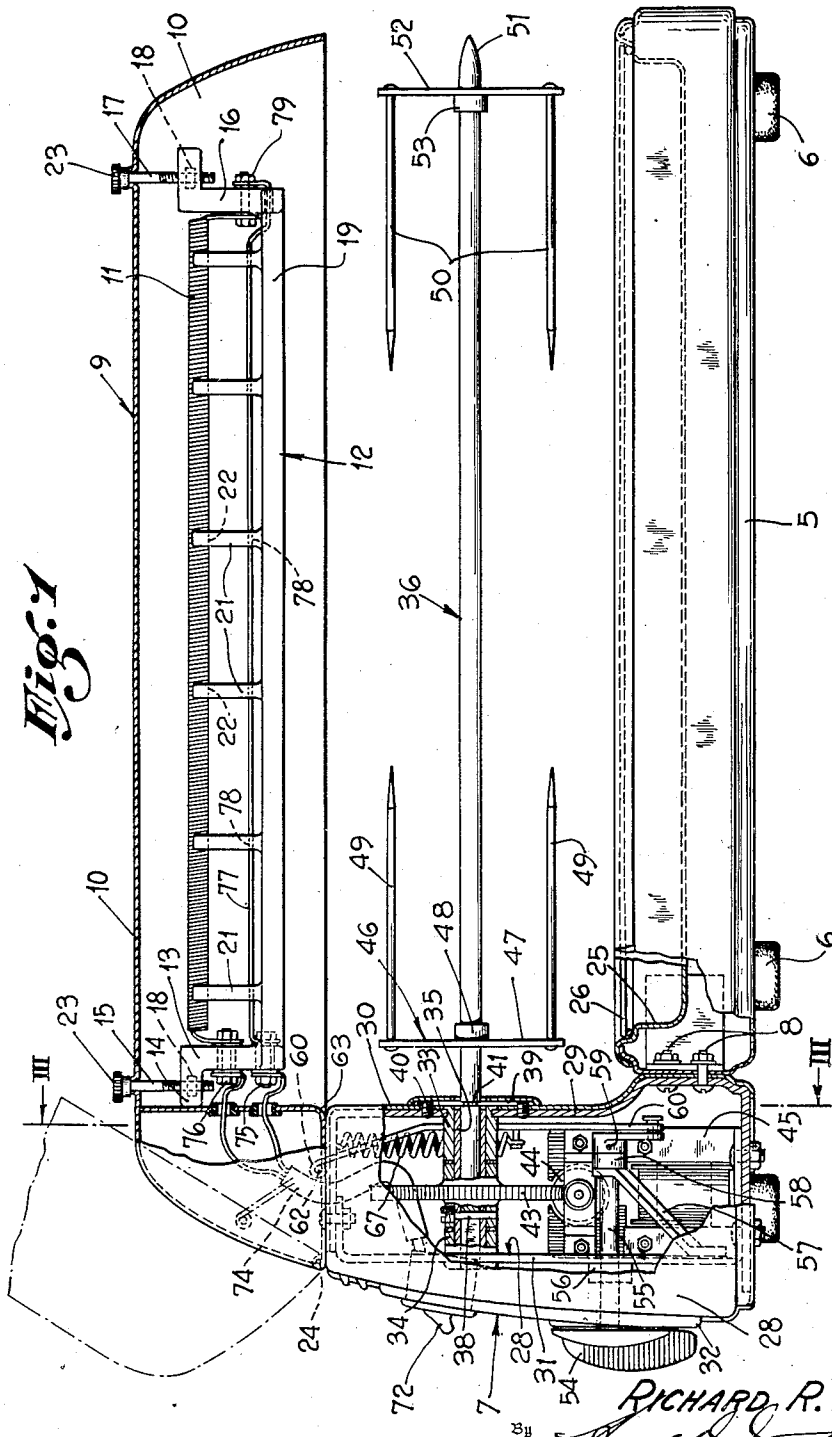
R. R. ZOEGALL
HOME BARBECUE DEVICE

2,455,034

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3 Sheets-Sheet 1

Fig. 1



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Fig. 2

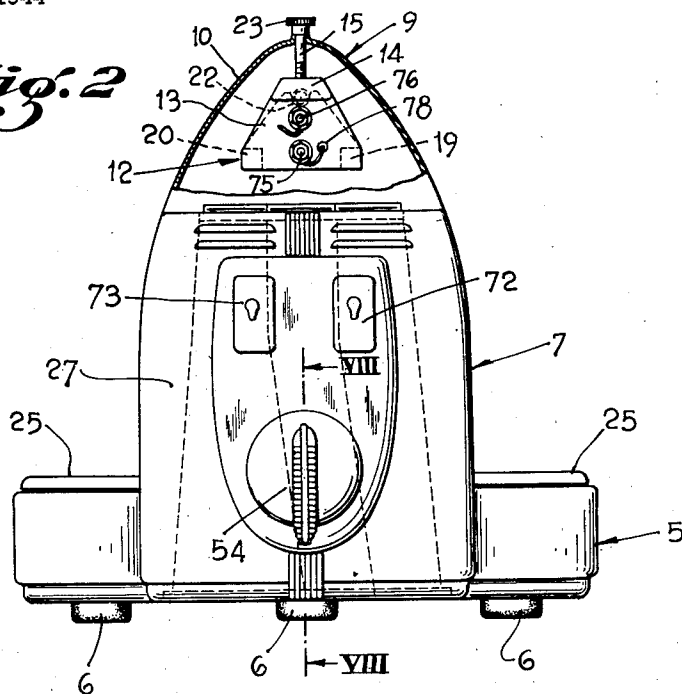
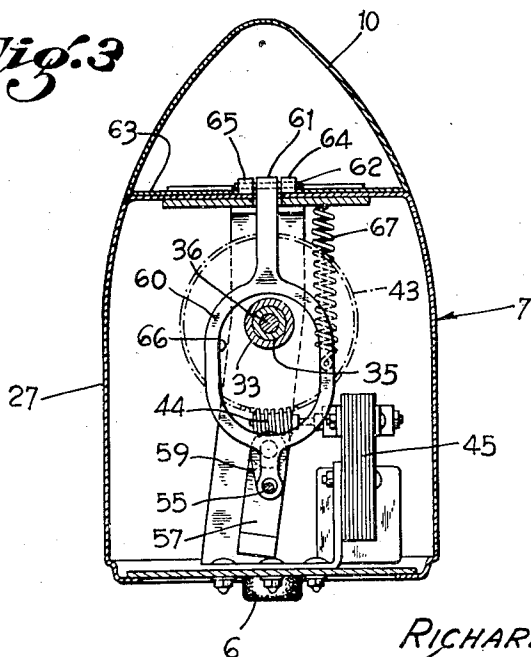


Fig. 3



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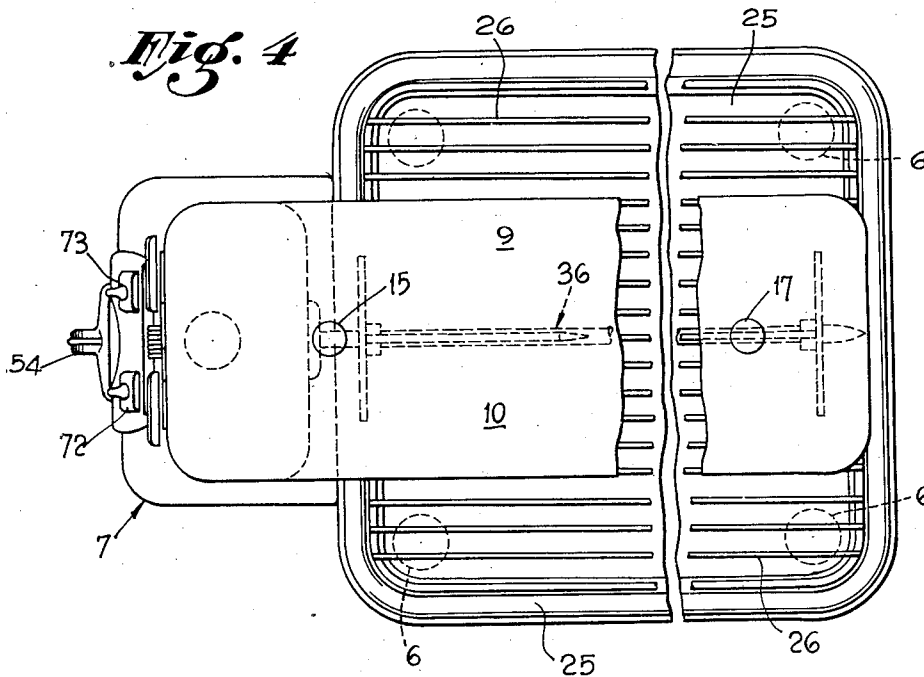
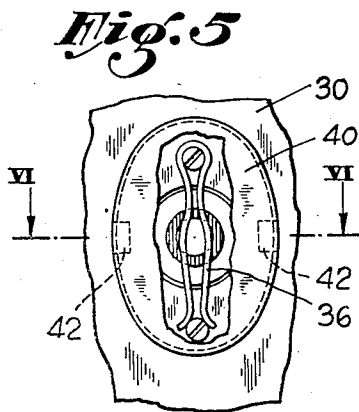
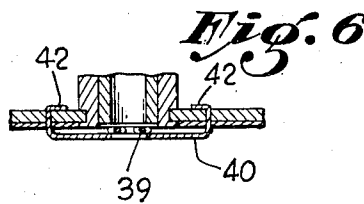
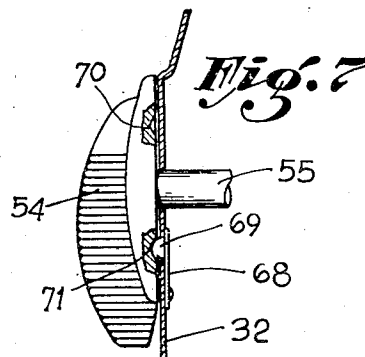
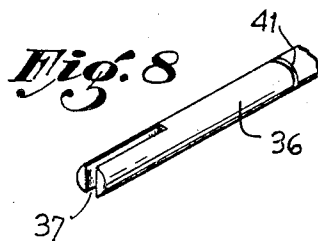
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UNITED STATES PATENT OFFICE

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HOME BARBECUE DEVICE

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2 Claims. (Cl. 219—19)

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This invention relates to cooking appliances and refers particularly to a portable home barbecuing device which may be employed for barbecuing, broiling or toasting meats or other articles of food.

One of the objects of this invention is to provide a home barbecuing device of the character described which is sufficiently small and light as to permit its being readily portable but which is so designed as to cook or barbecue food by a concentration of heat from a heating element upon any desired cooking area, with the result that the cooking is accomplished at a more rapid rate than is possible to obtain with conventional barbecuing devices, the rapidity of the cooking rate leaving the food relatively moist as compared with that cooked on previous barbecuing devices.

Another object of this invention is to provide a device of the character described wherein the heat source is in the form of a hood-like reflector having a heating unit disposed therein, and which is hingedly mounted to swing up from its operative position to provide unrestricted access to the food being cooked.

Another object of this invention is to provide a device of the character described wherein the heating element is mounted within a hood-like reflector having a substantially parabolic cross section, and in which the heat source comprises an elongated heating element located in the horizontal plane extending through the focal point of the cross sectional area, whereby the heat from said source is in effect focused by the reflector to concentrate the heat in an area of limited dimensions.

Another object is to provide a device of the character set forth in the preceding paragraph wherein the heating element may be moved vertically within the reflector to change the area upon which the reflected heat is concentrated.

It is also an object of this invention to provide a device of the character described which, while designed primarily for roasting or barbecuing meat, can be employed for broiling, toasting and other similar forms of cooking.

Another object of this invention is to provide a device of the character described which is neat in appearance and which can be readily kept clean.

Another object of this invention resides in the provision of a device of the character described so designated that the operating mechanism thereof is encased and concealed from view to thereby insure a neat external appearance and also protect the mechanism.

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With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described, and more particularly defined in the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

The accompanying drawings illustrate one complete example of the physical embodiment of the invention constructed in accordance with the best modes so far devised for the practical application of the principles thereof, and in which:

Fig. 1 is a side elevational view of a home barbecue device constructed in accordance with my invention, a portion of the reflector hood being broken away to illustrate the mounting of the heating element therein;

Fig. 2 is an end view of the barbecue device shown in Fig. 1, a portion of the end of the reflector hood being broken away to show the mounting of the heating element therein;

Fig. 3 is a vertical sectional view taken through the line III—III of Fig. 1;

Fig. 4 is a top plan view of the device with a portion thereof broken away;

Fig. 5 is a fragmentary detail view illustrating the manner in which the rotatable food supporting spit is removably held in position.

Fig. 6 is a detail sectional view taken through Fig. 5 on the plane of the line VI—VI;

Fig. 7 is a perspective view of the inner end portion of the rotatable spit; and

Fig. 8 is a detail sectional view taken through Fig. 2 on the plane of the line VIII—VIII.

Referring now particularly to the accompanying drawings in which like numerals indicate like parts, the numeral 5 designates the base of the entire structure. The base is rectangular in shape and is designed to be set directly upon a table or other supporting surface. If desired, legs 6 may be provided for the base.

One end of the base has an upright hollow standard or pedestal 7 secured thereto as by screws 8. While it is preferable from manufacturing considerations to fabricate the pedestal and base as separate units and then assemble them, it is, of course, apparent that these parts could be made as one integral unit, for in effect the pedestal constitutes merely a continuation or extension of the base.

Supported on the top of the pedestal 7 is a heat source generally indicated by the numeral 9, the heat source comprising an elongated hood-like

reflector 10 extending substantially parallel to and spaced above the base 5, the reflector 10 having a transverse cross section constituting a parabola to define an elongated parabolic reflector within which is mounted a heating element 11 preferably comprising an elongated coil of resistance wire adapted to be heated by the passage of electric current therethrough, the coil 11 being suspended in the reflector 10 by means of a suitable support 12 preferably formed of insulating material such as a ceramic insulating support having at one of its ends a vertically extending wall 13 of substantially triangular shape, the end wall 13 having a flange 14 through which extends a supporting screw 15 by which one end of the support 12 may be suspended in the hood. The opposite end wall 16 of the support is similarly constructed and is secured in the hood 10 by means of a screw 17. As will be understood by those skilled in this art, the screws 15 and 17 may be threaded directly into the ceramic material or to metal inserts 18 embedded within the flanges of the end walls.

The end walls 13 and 16 of the support are connected together by a pair of bars 19 and 20 formed with the end wall structures, a plurality of vertically extending brackets 21 being formed at regular intervals along the lengths of the bars 19 and 20, each of the brackets 21 being of substantially triangular cross section but having a depression 22 in the apex thereof in which may be seated the coil 11. Thus the support 12 provides a plurality of supporting points spaced along the length of the coil 11 to hold this coil in substantially a straight line position, and as will be observed from an inspection of Fig. 2, disposes the longitudinal axis of the coil 11 substantially at the focal point of the parabolic cross section of the hood 10.

The screws 15 and 17 are preferably provided with knurled heads 23 by which they may be readily turned to, first, initially adjust the axis of the coil 11 at the focal point of the reflector throughout the length of the coil, and thereafter may be turned to raise or lower the coil relative to this focal point for the purpose of changing the area of the base 5 upon which the reflected heat of the heating coil 11 may be concentrated, the purpose of which will be more fully described hereinafter.

For barbecuing, a rotatable spit 36 is provided to support meat and other food in the space under the heat source. This spit is rotatably mounted and driven by means to be hereinafter described, located within the hollow pedestal 7.

The reflector 10 is hingedly attached to the pedestal as at 24 so as to enable the same to be swung upwardly from its horizontal operative position to a raised position (indicated in dotted lines in Fig. 1) affording unrestricted access to the food being barbecued or broiled.

The base 5 comprises essentially a stamped and formed metal frame open at its top to removably receive a drip pan 25. The pan obviously functions to catch grease and drippings from the meat supported on the spit; and for broiling or toasting, a removable wire rack 26 is supported across the top of the pan.

The upright hollow standard or pedestal 7 consists of an outer housing or shell 27 stamped and formed from sheet metal and an inner frame 28 formed of heavier metal. This inner frame has a rear upright portion 29 overlying the inner surface of the rear wall 30 of the housing or shell, and a front upright member 31 adjacent to but

spaced from the front wall 32 of the housing or shell.

Bearings 33 and 34 carried respectively by the upright members 29 and 31 of the inner frame rotatably mount a tubular drive shaft 35. One end of this drive shaft extends through a hole in the rear wall 30 of the housing or shell to be accessible from the space between the base and the heat source to permit insertion of the inner end of a spit 36 into the tubular drive shaft.

As best shown in Fig. 7, the inner end of the spit is bifurcated as at 37 to embrace a cross pin 38 extending through the tubular drive shaft and thereby drivingly connect the spit to the drive shaft.

A spring detent 39 confined within a cover plate 40 on the rear wall 30 of the housing or shell engages in an annular groove 41 in the spit to readily detachably hold the spit assembled with its drive shaft. The spring detent 39 may take any suitable form and in the present instance is illustrated as a hairpin-shaped wire spring member held in place by screws or other fastenings engaged in the rear upright 29.

The cover plate 40 conceals the detent and provides a neat external appearance. This cover plate is preferably held in place by tangs 42 which pass through the walls 29 and 30 to be struck over as shown in Fig. 6.

Between its bearings 33 and 34, the tubular drive shaft mounts a gear or worm wheel 43 which is preferably fixed to the shaft by the same cross pin 38 used to provide a drive connection to the spit.

Meshing with the gear or worm wheel 43 is a worm 44 which is driven by an electric motor 45 conveniently supported on part of the inner frame so as to be completely encased within the hollow pedestal or standard. Obviously the motor through the worm and worm wheel drives the spit to revolve the same and to thus continuously turn the food which may be impaled upon the spit.

To fix food upon the spit 36 in such manner that rotation of the spit 36 will insure rotation of the food, I prefer to provide additional prongs upon which the food may also be impaled, one of such sets of prongs being illustrated at 46 as comprising a bar 47 secured as indicated at 48 to the shaft of the spit 36, the bar extending on opposite sides of the shaft to mount a pair of pins 49 extending longitudinally of the spit 36, the connection 46 being formed in any suitable manner so as to rigidly secure the bar and the prongs for rotation with the shaft of the spit 36. Also, if desired, an additional set of prongs 50 may be mounted upon the opposite end of the spit 36 adjacent the sharpened end 51, the prongs being supported on opposite sides of the shaft of the spit 36 by means of a bar 52 through which the sharpened end 51 of the spit may pass, the bar 52 being preferably fitted with a collar 53 frictionally engaging the spit 36 but permitting its ready removal whenever a piece of food is to be impaled upon the spit 36.

The heating element and its reflector may be swung on its hinge 24 whenever access is desired to the spit 36 and food which may be impaled thereon by any suitable means, one form of mechanism for swinging the heat source 9 from its normal horizontal position as shown in full lines in Fig. 1 to its elevated position as shown in broken lines in Fig. 1 comprising a knob 54 on the front wall 32 of the pedestal, the knob being secured to a stub shaft 55 mounted in a suitable bearing

56 secured to the front wall 31 of the inner frame 28. The inner end of the stub shaft 55 may be additionally supported by a bracket 57 indicated as of generally Z-shaped construction, one arm of the Z being rigidly secured to the wall 31 of the inner frame 28, while the other arm of the Z is disposed at some considerable distance from the wall 31 and is provided with a bearing member 58.

Secured to the inner end of the stub shaft 55 is a crank arm 59, to the outer end of which is pivotally secured a link 60 which extends upwardly adjacent the rear wall of the pedestal, the link having its upper end bent over in the form of a clevis 61 to engage a pin 62 which may be secured to the hood 10 by striking up from an in-turned end 63 of the end wall of the hood a pair of ears 64 and 65 spaced forwardly of the pivot or hinge 24 which interconnects the hood 10 with the pedestal 24. As viewed in Fig. 3, it will be observed that the link 60 has its central portion cut out as indicated at 66 so as to straddle or freely pass the spit shaft 35 and its bearing 33 without interference therewith.

The weight of the hood 10 and the heating element structure associated therewith will ordinarily be such as to normally urge the hood into its horizontal position, and to aid in holding the hood in its elevated position against the effect of gravity, I prefer to employ a tension spring 67, one end of which is secured to the link 60 while the other end is secured to the top plate of the frame 28, the force of the spring 67 tending to balance the weight of the hood 10 and thus permitting ease of elevation thereof upon rotation of the knob 54.

The throw of the crank arm 59 is approximately 180° so that 180° of rotation of the knob 54 from its normal position as shown in Figs. 1 and 2 to the position it will assume when the hood is elevated is required, and the hood may be maintained in either its horizontal position or its elevated position by the provision of a spring 68 (see Fig. 8) secured upon the inner face of the wall 32 of the outer housing of the pedestal having a hemispherical detent 69 secured thereto to project through an opening in the wall 32 and into either of two depressions 70 and 71 formed on the inner surface of the knob 54 (see Fig. 8) and disposed on diametrically opposite sides of the stub shaft 55. Thus, when the knob is in its normal position as shown in Figs. 1 and 2, the detent 69 will engage the depression 71 and restrain any effect of the tension spring 67 to inadvertently elevate the hood 10 from its horizontal position, while when the knob has been rotated through 180° the detent 69 will engage in the depression 70 and will hold the hood in its elevated position against any tendency of the weight of the hood 10 to move the hood from the elevated position.

By referring particularly to Figs. 2 and 4, it will be observed that on the rear wall of the pedestal 7 there are mounted two electrical switches 72 and 73, respectively, to which a suitable flexible electric cable or cord (not shown) may be connected, the switch 72 being connected by suitable circuit connections to the heating element 11 while the switch 73 may be employed to control the operation of the motor 45 by suitable electrical connections (not shown).

The electrical connections to the heating element 17 preferably include a two wire conductor cable or cord 74, the conductors of which are connected, respectively, to terminals 75 and 76 mounted upon the end wall 13 of the heating ele-

ment support 11, the terminal 76 being also coupled to the end of the heating element 11 adjacent the wall 13. The terminal 75 has connected thereto a conductor 77 which extends through openings 78 in the brackets 21, whereby the conductor 77 will be supported throughout the length of the heating element support 12, a suitable terminal 79 being mounted upon the end wall 16 to which the conductor 77 and the opposite end of the heating element 11 may be connected.

From the foregoing description, it will be apparent that I have provided a home barbecue device which is completely self-contained and in which meat or other foods to be barbecued may be readily supported upon the spit 36 to receive the most intense heat from the heating element 11 by focusing the heating element relative to the hood 10 in such fashion as to cause reflection of and concentration of the heat over an area lying substantially at a longitudinal horizontal plane intersecting the axis of the spit 36. By employing this arrangement, a heating coil 11 of relatively small wattage may be effectively employed to produce intense heat on and in the foods impaled upon the spit 36.

It will also be noted that my barbecue device may be readily adapted to the broiling or toasting of other foods disposed directly upon the wire rack 26, in which event the spit 36 may be removed merely by pulling the spit 36 out of its tubular drive shaft 35 to provide space above the wire rack 26 into which foods placed thereon may extend. In the event of use of the barbecue device for such toasting or broiling of foods disposed on the rack 26, I prefer to change the position of the heating element 11 in the hood 10 to extend the area of focusing of the heat, as well as to change the region at which the most intense heat will be concentrated to a level below the spit 36. This change in the position of the heating element can be readily accomplished by turning the screws 15 and 17 an equal amount to raise the heating element 11 to a higher level in the hood 10.

By employing the parabolic-type of reflector and the elongated heating element associated therewith for disposition at the focus of the reflector, permits the concentration of a maximum amount of heat from a heating element of given size upon the foods to be cooked, thus permitting the cooking to be accomplished with a considerable saving in electric current costs. Also, by changing the position of the heating element relative to the focus of the reflector to concentrate the heat at different horizontal planes and over different sizes of horizontal areas, results in the acceleration of the rate of cooking, tests of the device showing not only great savings in time required for cooking a given mass of food, but also insuring the maximum conservation of the moisture within the food.

While I have shown and described the preferred embodiment of my invention, I do not desire to be limited to any of the details of construction shown or described herein, except as defined in the appended claims.

I claim:

1. In a food cooking device of the character described: a base; an upright hollow pedestal disposed at one end of said base and having spaced front and back walls; a hood-like reflector; means hingedly mounting the reflector on said hollow pedestal with the hinge axis of said connection near the front wall so that the top of the pedestal supports the reflector in a substantially horizontal

position extended out over the base; and means concealed within the hollow pedestal and actuated from the exterior thereof for swinging the reflector on its hinge connection.

2. In a cooking device of the character described: a base; an upright hollow pedestal disposed at one end of said base and having spaced front and back walls; a hood-like reflector; means hingedly mounting the hood-like reflector on the top of the pedestal near the front wall thereof to swing to and from a position extending across the top of the pedestal and over the base so that in its lowered position the hood-like reflector rests on the top of the pedestal; a manually rotatable actuating shaft journaled in the pedestal; a crank on the shaft; and a link connecting the crank with the hood-like reflector so that rotation of the actuating shaft raises and lowers the hood-like reflector.

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