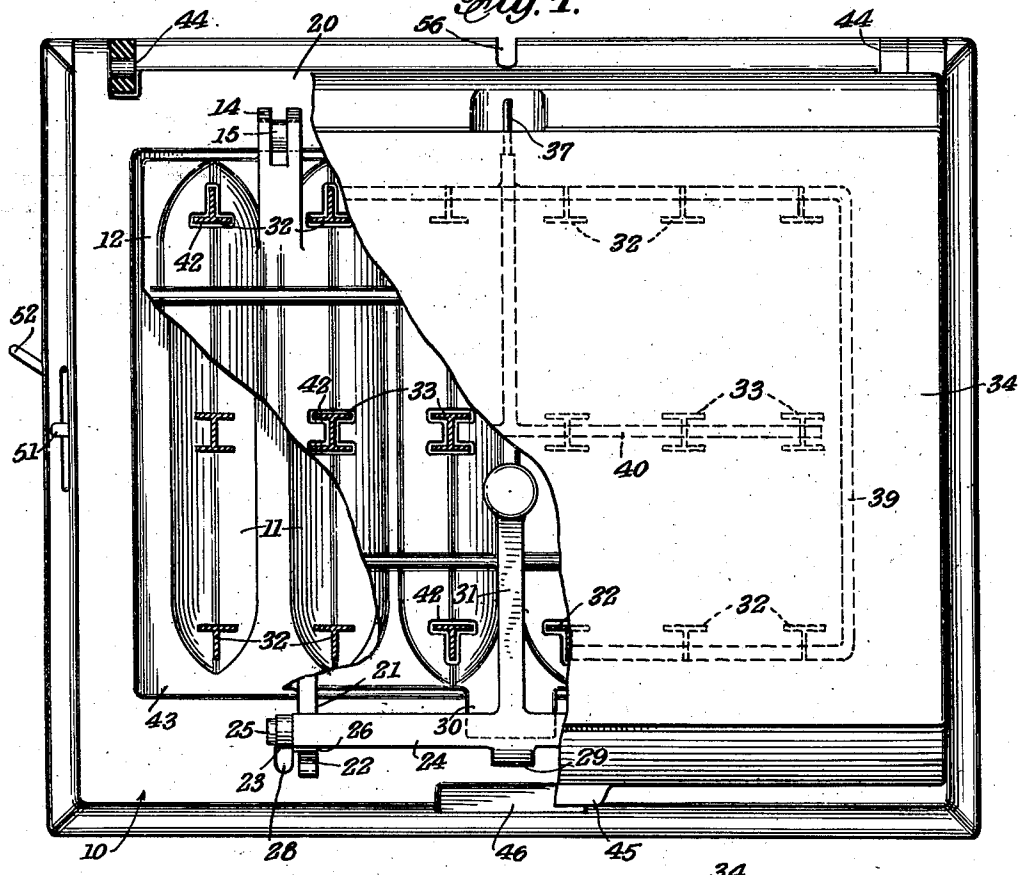
March 28, 1939. S. NELSON 2,152,208

FRANKFURTER BROILER

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Fig. 1.



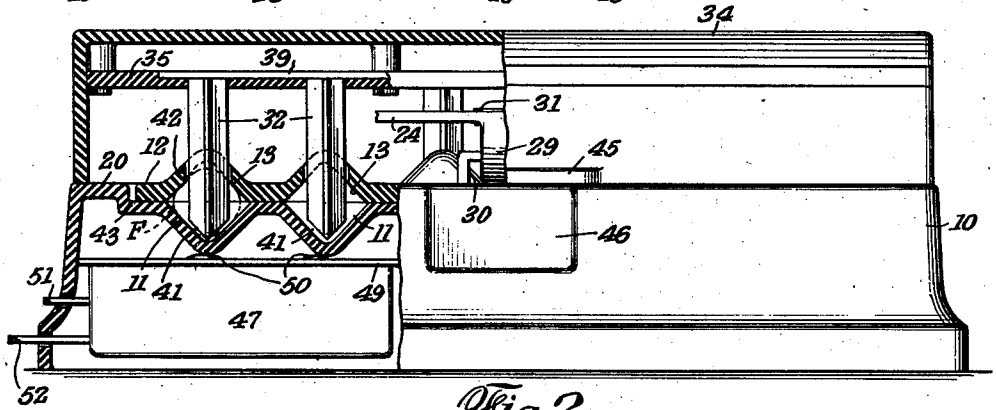


Fig. 2.

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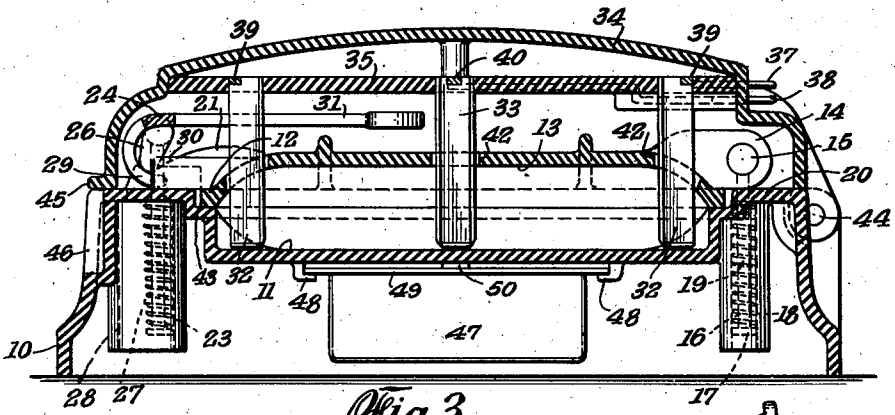


Fig. 3.

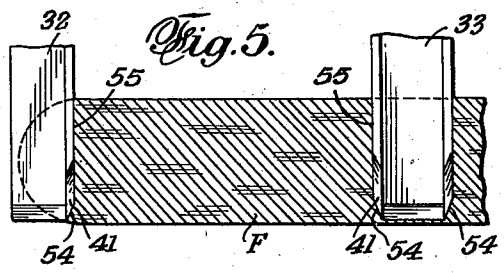


Fig. 5.

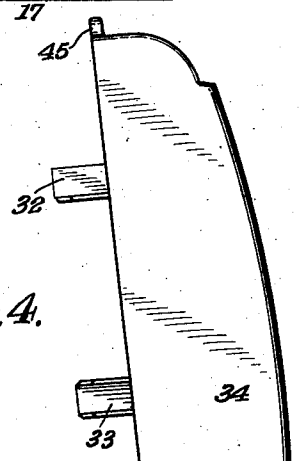
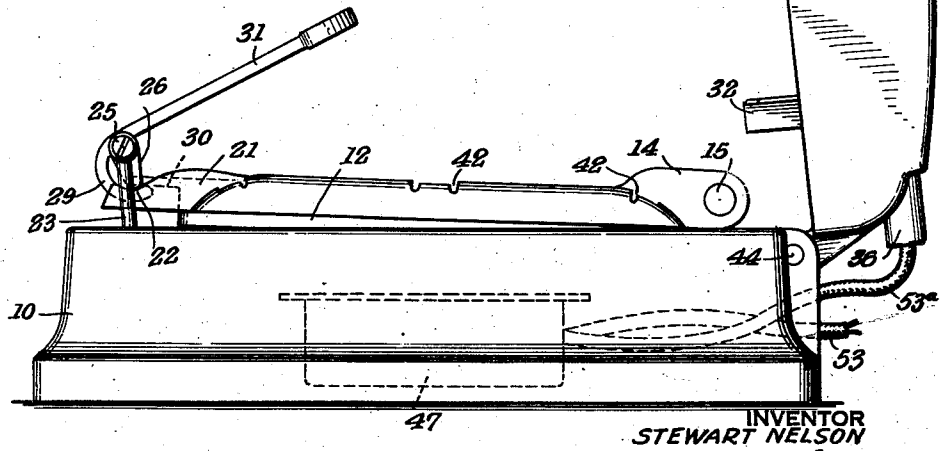


Fig. 4.



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2,152,208

FRANKFURTER BROILER

Stewart Nelson, New York, N. Y.

Application March 23, 1937, Serial No. 132,526

14 Claims. (Cl. 219—19)

This invention relates to improvements in electric broilers for frankfurters and the like wherein the frankfurters are arranged in the electric circuit and therefore act as resistance to the flow of current therethrough. In this manner heat is generated within the frankfurters whereby, after a suitable time, they are deliciously broiled.

The present invention contemplates several improvements in design and arrangement over my application Serial No. 750,242, filed October 27, 1934, and allowed January 14, 1937.

According to this invention, an improved form and arrangement of knife electrodes is contemplated, the special novelty residing in the new cross-section thereof, in the efficient manner of mounting said electrodes, and in the novel design of their piercing edges.

Another contemplated improvement resides in the novel design of the base and outer cover by means of which said cover may be quickly and easily lifted, all annoying projections being omitted in said design.

Still another feature resides in the arrangement between the base and intermediate cover for effectively holding in position frankfurters confined in complementary cavities in said base and cover, the contemplated novelty also including the particular design of the cavities whereby splitting of the frankfurters is obviated. The special form of resilient means for retaining the intermediate cover in position, also forms a feature of the invention.

A further contemplated improvement resides in the means for both locking the intermediate cover in place and for freeing said cover after the frankfurters are broiled and ready for removal.

The invention also contemplates the incorporation of a time-controlled switch in the electric circuit which not only times the broiling operation but also interrupts the current to the electrodes so the covers may be safely lifted for removal of the broiled frankfurters. Another feature resides in the means for removably mounting said time switch.

As will be later apparent, many other features and advantages, in addition to those above enumerated, form part of the objects of the invention which may be realized in the physical form as illustrated in the accompanying drawings.

In the drawings:—

Fig. 1 is a top plan view, with parts broken away for clearer illustration, of a broiler as at present contemplated.

Fig. 2 is a front view thereof, partly in cross-section.

Fig. 3 is a cross-sectional view from front to back of the broiler as taken through one of the frankfurter cavities.

Fig. 4 is a side elevational view with the outer cover lifted and the intermediate cover in the process of being lifted.

Fig. 5 is an enlarged fragmentary longitudinal sectional view showing electrode details and their manner of entering the frankfurter.

Describing the drawings in greater detail, the present construction includes a base 10 preferably moulded of dielectric material and hollowed on its underside as shown. The top of the base is preferably provided with a series of substantially parallel cavities 11 each of which, as at present contemplated, has a right-angular or V-cross-section terminating at both ends in converging portions. Said converging portions are also of V-cross-section.

The base is associated with an intermediate cover 12 of like material to the base and this cover is provided with cavities 13 complementary and in respective mating relation to the cavities in the base. As will be more particularly seen from Figure 2, each pair of mating cavities forms an enclosure or chamber into which frankfurters or the like may be non-displaceably held.

Attention is called to the walls of both cavities, said walls being substantially straight. It is apparent therefrom that a frankfurter, which is round in section, would be contacted only by mid-portions of the mentioned cavity walls. Hence, when the intermediate cover is clamped into place, the normally round cross-section of the frankfurter will be changed to a cushion-shaped section as shown by the broken lines of Figure 2 at F.

It is apparent from the foregoing that the frankfurters will be effectively held in the cavities during the broiling period. This will obviate their tendency to burst when contained moisture is converted into steam during said broiling period.

It is essential, however, that the natural tendency for the frankfurters to expand, be taken into account. For this reason the intermediate cover 12 is yieldingly mounted. A preferred means for accomplishing this includes a pair of spaced bifurcated lugs 14 on said cover, each being provided with a hinge pin 15. Each hinge pin has affixed to it a downreaching rod or the like 16 which terminates in a head 17. As shown, each rod and its head is arranged for vertical movement in a passage 18 formed in the base 10 and a coil compression spring 19 is strung on the rod between

the head and the bottom of the top wall 20 of the base. Thus it can be seen that the cover 12 is hinged in relation to the base and also is movable vertically in relation thereto, the springs 19 acting to hold the cover firmly in place and yet yielding to the expanding force of the frankfurter without, however, lessening the confined arrangement of the frankfurters in their respective cavities.

The above-described yieldable hinges are preferably positioned at the rear of the broiler so that the intermediate cover may be swung upward from the front of the machine. The front portion of the cover 12 is associated with combined latching means and yieldable means such as provided at the rear thereof. In the present form, the cover 12 is provided with a pair of forwardly extending spaced lugs 21, each formed with a cam surface 22 on its upper edge. Carried on rods 23, the counterparts of rods 16, a bridge-like member 24 is provided, hinged to and between the upper ends of said rods 23 as at 25.

Coacting with each lug 21, the member 24 is provided with a locking arm 26 adapted to engage the cam faces on said lugs. Thus, when the ends of the arms 26 are disposed in the leftmost portions of the cams (Figure 3) the springs 27 will act to hold the lugs 21 and thus the cover 12, down on the base, and when the arms are swung towards the right (Figure 4) said lugs are freed so the cover may be lifted. However, it will be noted that the bridge overstanding the lugs prevents the cover being lifted. For this reason, the rods 23 are arranged in passages 28 which are designed to permit front to back and also angular movement of said rods. In this manner the arc of travel of the lugs may be cleared of interference by the bridge 24.

It is desired to simultaneously free the cover for opening and to lift said cover about its hinge. To accomplish this, a curved finger 29 is formed on the bridge and arranged to coact with a seat formed on the cover 12. Hence, as seen in Figure 4, as the handle 31 on the bridge, is raised, the finger 29 engages the seat 30 so the cover 12 is raised on its rear hinges as the arms 26 become freed from the cams 22. Continued movement of the handle will raise the cover further until it may be manually grasped to be opened to its full extent.

Now, it can be seen that the cover 12 is resiliently mounted at four points so that it is free to move under the urgency of the expansive forces within the frankfurter and at the same time firmly exerts a pressure upon them as hereinbefore set forth.

In order to supply electric current to the frankfurters within the cavities, it is herein contemplated to provide a series of knives or electrodes 32 adapted to pierce the frankfurters immediately adjacent their ends. As shown, a knife is disposed in the end of each cavity formed between the base and the cover. In addition there is provided a series of knives or electrodes 33 disposed between each pair of electrodes 32 in any cavity.

As now conceived, all of the electrodes are preferably carried by an outer dielectric cover 34, and as shown, a dielectric plate 35 fastened to the cover may have these electrodes permanently fixed thereon. Electric current may be brought to the electrodes from a plug 36 to prongs 37 and 38 respectively connected, as by bus bars 39 and 40, to the respective series of electrodes 32, 33.

In order to efficiently carry the current to the electrodes, the upper ends of each electrode may be provided with a notch, as shown in Figure 3, into which the respective bus bars are fitted and brazed or welded.

The electrodes 32 are preferably of T-cross-section with the webs thereof of each pair disposed in opposed relation; and the electrodes 33 are preferably of H-cross-section. It will be apparent that the increased surface area provided by the indicated design of the electrodes, affords improved contact with the meat of the frankfurter which these prongs are adapted to enter.

As shown particularly in Figure 5, each of the electrodes 32 and 33 are sharpened at their lower ends, the lateral portions of all the electrodes being angled so as to be conveniently accommodated in the V-shaped cavities in the base. It will be noted that the bevels 54 formed when the lateral portions of the electrodes are sharpened, face each other. This is desirable since, when entering the meat of the frankfurter, the electrodes will thus tend to compress the meat of the frankfurter along the opposing faces 55. This is a desirable feature because of the tendency of the cooked meat of the frankfurter to curl away from the electrodes. The initial compression imparted to the meat around the electrodes compensates for this tendency.

Thus the design of the electrodes together with the V-shaped confining cavities serve to keep the meat of the frankfurter in close contact with the electrodes, the curling away of the meat, being a common fault in previous designs.

The electrodes, in order to have access to the frankfurters, are arranged to pass through openings 42 in the intermediate cover 12, each opening being shaped similarly to the electrode which passes therethrough but of sufficient size to permit freedom of movement of said intermediate cover as herein contemplated and previously described.

It will also be noted that the said intermediate cover is adapted to rest upon a seat 43 formed in the base 10, said seat being depressed below the topmost surface of said base. Here again compensation is provided for the movement of said intermediate cover.

Thus, should a frankfurter be somewhat longer than the cavity into which it is placed, the vertical walls of the seat 43 will serve to prevent the ends of the frankfurter from extending beyond the outer edges of the intermediate cover, when said cover is clamped down on said frankfurter, since the converging and tapered ends of the cavities will be enabled to force and guide said frankfurter ends into the cavity, said tapered ends functioning as cams to squeeze the frankfurter ends back into the cavity.

In a suitable manner, the cover 34 is hinged as at 44 to the base, being adapted to completely cover the intermediate cover 12. In order to facilitate lifting of said outer cover and to obviate projecting handles and the like, the outer cover is provided with a lip such as 45 overstanding a recess 46 in the base, said recess affording access to the lip so that the cover may be conveniently raised about its hinges.

The present invention contemplating means for timing the broiling period of the frankfurters, is provided as at 47, with a time switch of commercial design, but it is preferred, however, to mount this switch so it is readily removable when it is desired to clean the other elements of the device. For this purpose, the base, at under portions thereof, is formed with lugs or the like 48 between which a dielectric mounting plate 49, to

which the switch is secured, may be slid. In order to insure secure positioning of the switch said plate may be provided with resilient portions or means 50 which are adapted to frictionally contact and snap by portions of the undersurface of the base 10. In the usual manner, the time switch may be provided with a regulating lever 51 and a switch lever 52 arranged for access from the outside of the device, said levers passing through slots in the base for this reason.

As can be seen from Figure 4 an electric cable 53, from a current source, is brought to the time switch 47 and a cable connection 53a is made between the time switch and the plug 36. Thus the electric circuit is carried to the electrodes when the time switch is closed, and opened when the time switch is open. Obviously, the base may be formed with a slot 56, to accommodate the cables 53 and 53a in a manner which will permit their ready removal upon removal of the time switch.

As can be seen from Figures 1 and 5, the transverse portions of the electrodes are sufficient to carry electric current to the frankfurter. However, the disclosed T and H cross-sections for the electrodes are desirable since each electrode is formed with a web which serves to conduct away generated heat. This obviates overheating of the electrodes in addition to providing rigid reinforced members capable of uninterrupted use.

From the foregoing, it can be seen that a practical and considerably refined form of broiler has been provided. It is also apparent that the present design may be varied within the spirit and scope of the invention. Hence, the prior art rather than the instant disclosure should determine the scope of the invention as claimed.

I claim:

1. A frankfurter broiler comprising a base having cavities receptive of frankfurters, said cavities being of substantially V-shaped cross-section and having converging ends, a cover hinged to said base, frankfurter piercing electrodes carried by the cover and adapted to enter said cavities when said cover is closed, said electrodes being arranged in three banks, two of said banks being electrodes of T-shaped cross-section and the other of H-shaped cross-section, and means for confining the frankfurters in their respective cavities, said means being resiliently mounted and having cavities cooperative with and complementary to the cavities in the base.

2. A frankfurter broiler comprising a base, an intermediate cover resiliently mounted on said base and being adapted to hinge in relation thereto, both the base and the mentioned cover being formed to provide cavities in which frankfurters may be confined between them, said cavities being of substantially square cross-section and having converging ends, an outer cover hinged to said base and adapted to enclose the intermediate cover, and frankfurter piercing electrodes carried by the outer cover and adapted to pass through openings in the intermediate cover and to enter the cavities formed in the base when said outer cover is closed, some of said electrodes being of T-shaped cross-section and others being of H-shaped cross-section.

3. In a device of the character described, a plurality of frankfurter piercing electrodes arranged in two sets, one set being adapted to pierce the frankfurters adjacent their ends and the other set being adapted to pierce the frankfurters at their approximate middle, the former electrodes being of T-shaped cross-section and the latter of H-shaped cross-section.

4. In a device of the character described, a plurality of frankfurter piercing electrodes arranged in two sets, one set being adapted to pierce the frankfurters adjacent their ends and the other set being adapted to pierce the frankfurters at their approximate middle, the former electrodes being of T-shaped cross-section and the latter of H-shaped cross-section, and means connecting said electrodes to a source of electric current whereby current is passed through the frankfurter between the electrodes.

5. In a device of the character described, a base, a cover member adapted to rest on a seat formed in said base, means for resiliently pressing said member down on its seat and adapting said member for vertical movement and for limited lateral movement in relation to the base, and means for latching said member to said base, said latter means comprising a pair of spaced resiliently mounted rods, a bridge member hingedly mounted between said rods and carried thereby, a pair of spaced lugs on the mentioned cover member, and means carried by said bridge member having locking engagement with said lugs.

6. In a device of the character described, a base, a cover member adapted to rest on a seat formed in said base, means for resiliently pressing said member down on its seat and adapting said member for vertical movement and for limited lateral movement in relation to the base, means for latching said cover member to said base, said latter means comprising a pair of spaced resiliently mounted rods, a bridge member hingedly mounted between and on said rods, a pair of spaced lugs on the mentioned cover member, and means carried by said bridge having locking engagement with said lugs, and means for lifting said cover member upon release of said latching means, said means comprising cooperating portions on the bridge member and on said cover member.

7. In a frankfurter broiler, a base and a cover member, said cover member having spaced hinge lugs which are engaged by a hinge pin to vertically sliding rods resiliently mounted in said base, a T-shaped member having locking means in engagement with said cover member, said T-shaped member being pivotally engaged with rods having yieldable engagement with said base, and means on said member for lifting said cover member upon release of said locking means.

8. In a frankfurter broiler, a base, a cover member resiliently mounted on said base, a T-shaped member having locking means in engagement with said cover member, and means for positively lifting said cover member upon release of said locking means, said last-mentioned means comprising a finger on said T-shaped member and a cooperating portion on said cover member.

9. In a frankfurter broiler two permanently spaced electrodes, each adapted to enter and contact the meat of a frankfurter, the piercing ends of said electrodes being formed with chisel-shaped beveled portions adapted to compress the adjacent meat of said frankfurter; said beveled portions being on opposed portions of said spaced electrodes.

10. In a frankfurter broiler, a knife electrode adapted to enter and contact the meat of a frankfurter, one side of the piercing end of said electrode being formed with a chisel-shaped beveled portion adapted to compress the adjacent

meat of said frankfurter, and the opposite side of said electrode having a longitudinal rib to reinforce the electrode and to aid in conducting away generated heat.

11. In a device of the character described, a plurality of frankfurter piercing electrodes arranged in two sets, one set being adapted to pierce the frankfurters adjacent their ends and the other set being adapted to pierce the frankfurters at their approximate middle, the former electrodes being of T-shaped cross-section and the latter of H-shaped cross-section, the electrodes being so arranged with respect to each other that the broadside of the heads of the T-shaped electrodes face the broadside of the legs of the H electrodes.

12. In a device of the character described, a plurality of frankfurter piercing electrodes arranged in two sets, one set being adapted to pierce the frankfurters adjacent their ends and the other set being adapted to pierce the frankfurters at their approximate middle, the former electrodes being of T-shaped cross-section and the latter of H-shaped cross section, the electrodes being so arranged with respect to each other that the broadside of the heads of the T-shaped electrodes face the broadside of the legs of the H electrodes, the piercing end of said electrodes being formed with chisel-shaped beveled portions adapted to compress the adjacent meat of the frankfurter, said beveled portions being on opposed portions of said spaced electrodes.

13. In a device of the character described, a plurality of frankfurter piercing electrodes arranged in two sets, one set being adapted to pierce the frankfurters adjacent their ends and the other set being adapted to pierce the frankfurters at their approximate middle, the former electrodes being of T-shaped cross-section and the latter of H-shaped cross-section, the electrodes being so arranged with respect to each other that the broadside of the heads of the T-shaped electrodes face the broadside of the legs of the H electrodes to present a relatively wide area to facilitate the flow of electric current through the frankfurter, the broadsides of the electrodes facing each other being beveled at their piercing ends to chisel-shape to compress the adjacent meat of the frankfurter, and the opposite sides of said electrodes having a longitudinal rib to reinforce the electrodes and to aid in conducting away generated heat.

14. The combination with a frankfurter broiler having a base and electrodes for piercing frankfurters, and having a source of electric current whereby current is passed through the frankfurters between the electrodes; of a time switch removably connectible in said electric circuit, lugs on the underside of said base adapted to slidably receive the base of the time switch, resilient portions on said time switch base and protuberances on said broiler base with which the resilient portions frictionally engage to hold the time switch in removable engagement with the broiler base.

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