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W. E. BRENEMAN

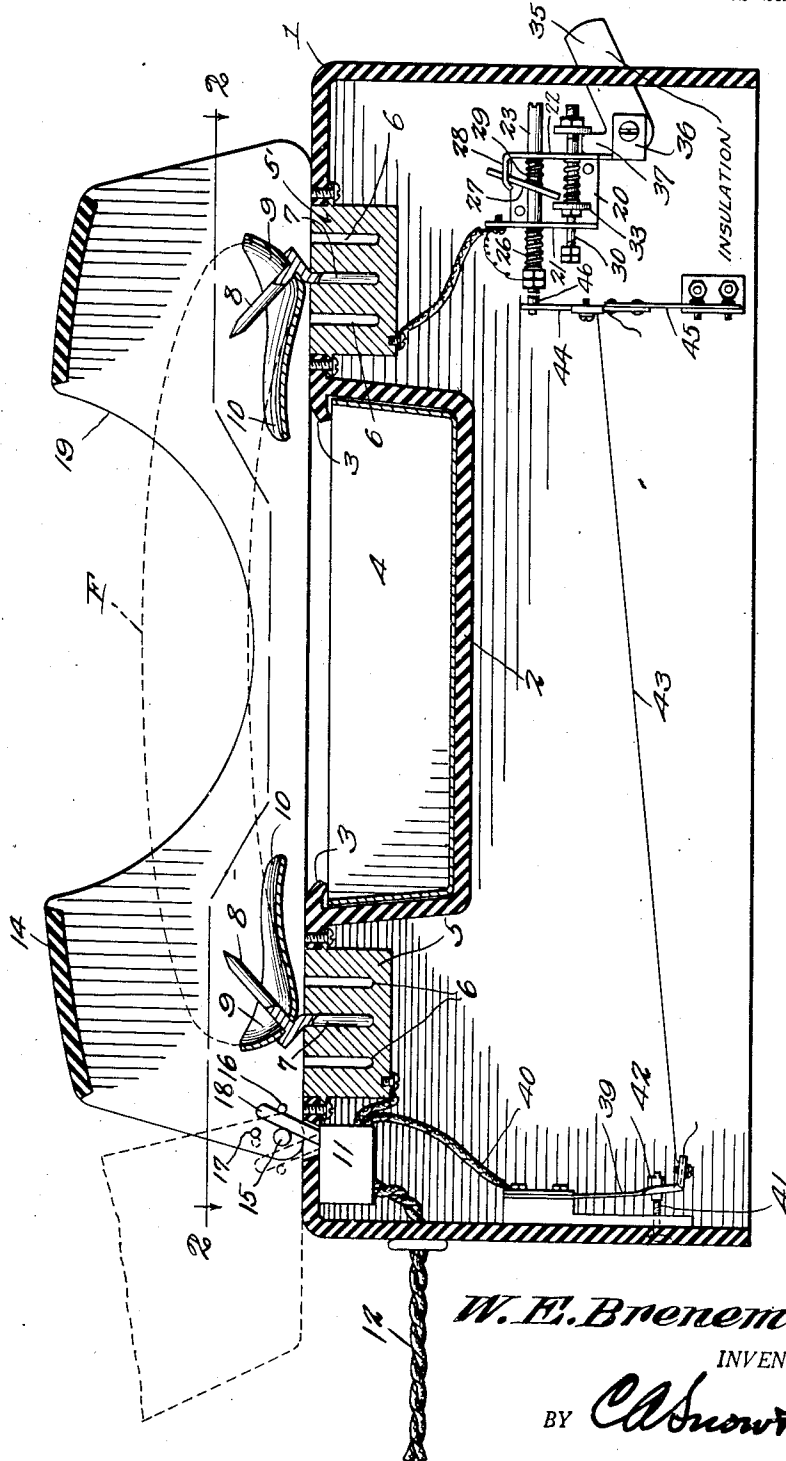
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FRANKFURTER COOKER

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3 Sheets-Sheet 1

Fig. 1.



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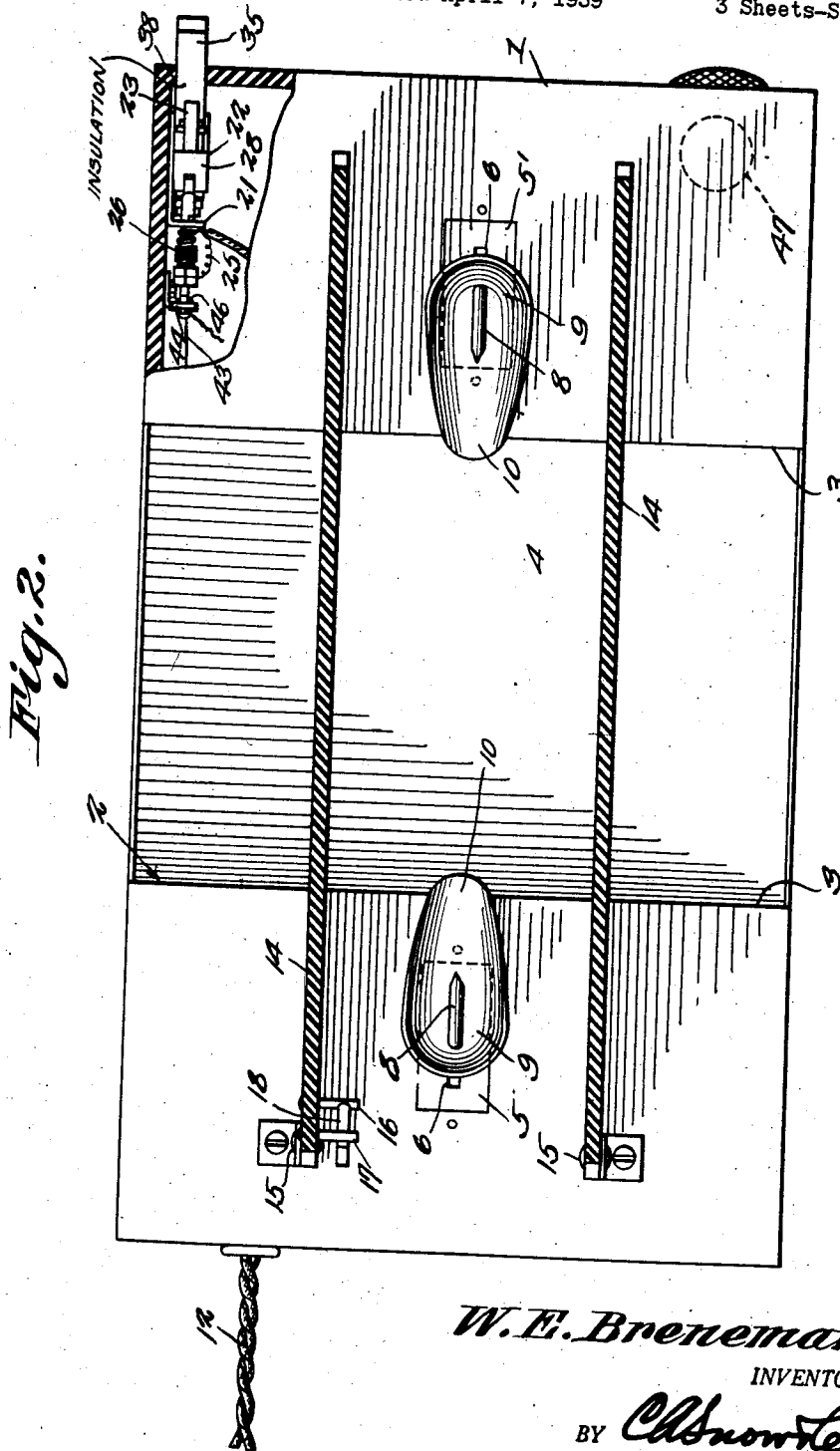
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FRANKFURTER COOKER

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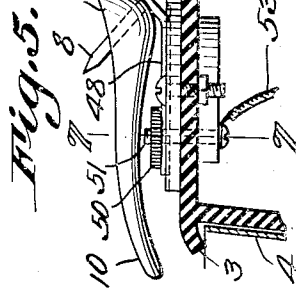
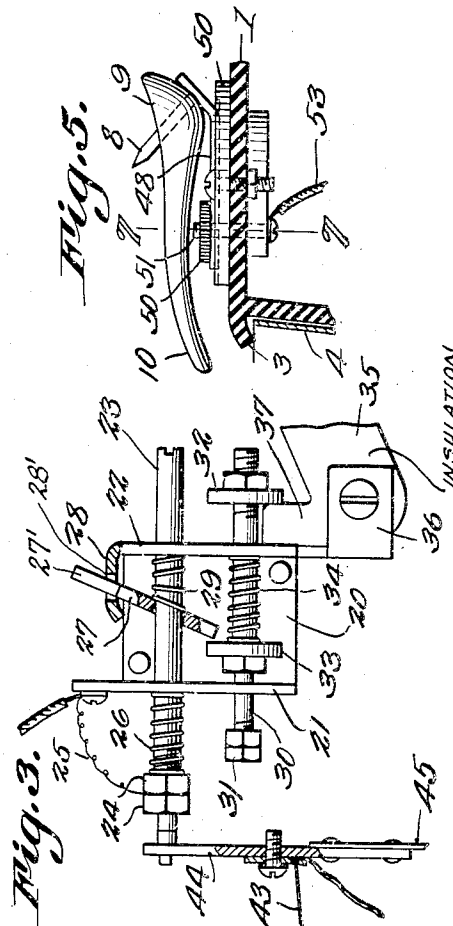
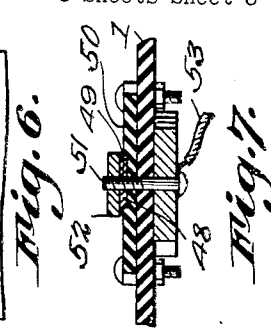
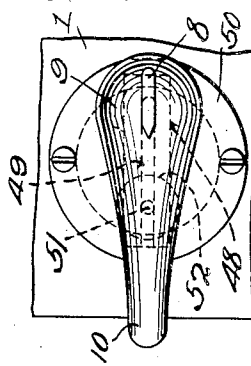
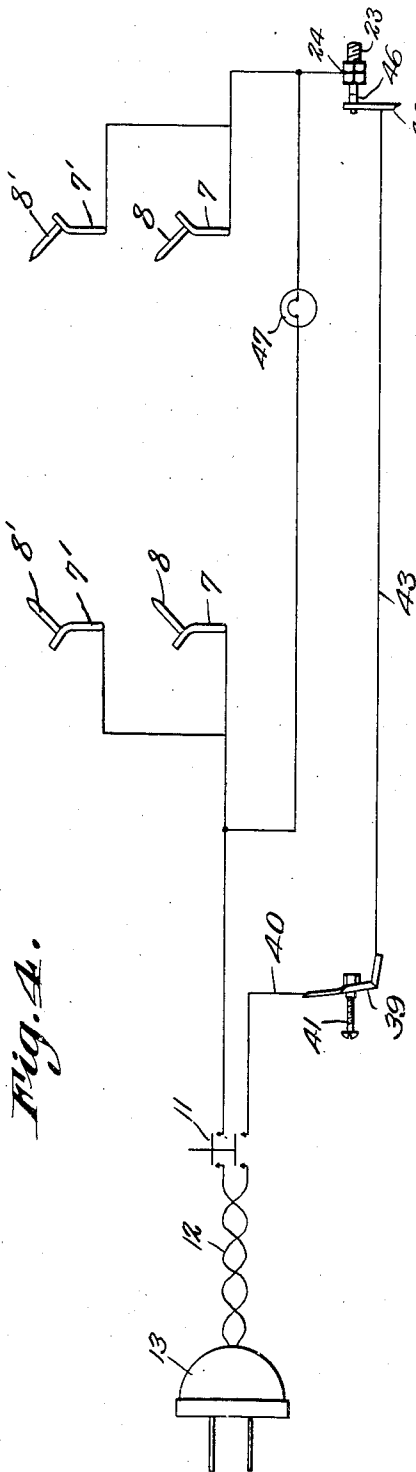
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FRANKFURTER COOKER

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2,269,178

FRANKFURTER COOKER

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Application April 7, 1939, Serial No. 266,657

1 Claim. (Cl. 200—113)

This invention relates to apparatus designed primarily for cooking frankfurters electrically, one of the objects being to provide an apparatus by means of which the cooking operation can be carried on to a predetermined stage following which the flow of current to the frankfurter will be stopped automatically and the cooked article can be removed and another replaced without danger of injury to the user.

A further object is to provide apparatus of this character wherein the frankfurter, while being cooked, constitutes a conductor which gradually increases resistance to the flow of current therethrough as moisture is driven from the frankfurter during the cooking process so that, when the frankfurter has been properly cooked, the resistance will have reached such a stage as to cause the current to be cut off automatically.

Another object is to provide an apparatus which can be adjusted readily for use with frankfurters of different lengths.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings

Figure 1 is a central vertical section through the apparatus showing the relative positions of the parts while a frankfurter is being cooked, the position of the frankfurter being indicated by broken lines, two positions of the shield portion of the apparatus being indicated by full and broken lines respectively.

Figure 2 is a section on line 2—2, Figure 1.

Figure 3 is an enlarged side elevation of the automatic switch forming a part of the invention.

Figure 4 is a view showing in diagram the wiring which can be used in the apparatus.

Figure 5 is a side elevation of a modified mounting for one of the electrodes.

Figure 6 is a plan view thereof.

Figure 7 is a section on line 7—7, Figure 5.

Referring to the figures by characters of reference, 1 designates a base which can be of any suitable size and proportions and which is provided, adjacent to the center of the top thereof, with a well or depression 2 the walls of which

provide overhanging lips 3 adapted to overlie walls of a drip pan 4 seated in the well 2.

Supported in the top of the base 1 adjacent to opposite sides of the well are receptacles 5 and 5' which can be of conductive material and which, in the structure shown in Figure 1, are formed with spaced recesses 6 any one of which is adapted to receive a blade 7 extending downwardly from an inclined pointed electrode 8. This electrode is seated within and projects above a cup 9 constituting a seat for engagement with one end of a frankfurter F. Each cup has a drain spout 10 extending therefrom and slightly elevated above the bottom of the cup. This spout overhangs the pan 4 and, because of its shape and location, it will be apparent that a certain amount of liquid can accumulate within the cup about the base of the electrode 8 after which excess liquid will drain through the spout and into the pan 4. These cups and their electrodes are located adjacent to opposite sides of well 2 and the cups are oppositely exposed with the electrodes inclined upwardly toward each other. By inserting the blades 7 into different recesses 6 the distances between the electrodes can be changed so as to adapt the cups for use as seats for the ends of frankfurters of different lengths. The blades 7 constitute conductors and as they snugly engage the walls of the recesses 6 in which they are seated, they thus provide electrical connections between the electrodes and one side of an electric circuit including the engaged frankfurter.

A master switch 11 is located within the base 1 and input wires 12 having a plug 13 at one end are connected to this switch so that when the switch is in one position the circuit controlled thereby will be closed and, when in another position, the said circuit will be opened.

A shield in the form of an inverted channel member 14 preferably of insulating material, is pivotally mounted on the base as indicated at 15 and carries tripping pins 16 and 17. These pins are located at opposite sides of the lever 18 of switch 11 so that when the shield is swung upwardly and backwardly away from the top of base 1, pin 16 will thrust against lever 18 and throw the switch so as to break the circuit. This position of the parts has been illustrated by broken lines in Figure 1. However, when the shield is moved in the opposite direction so as to assume a position on the base 1, as shown by full lines in Figure 1, pin 17 will come against the switch lever 18 and throw it into such position as to close the circuit through the switch 11.

Shield 14 is so proportioned as to extend over and beyond the electrodes 8. It is also so shaped in transverse contour as to bridge a frankfurter F when mounted at its ends in the respective cups 9. However the top and sides of the shield are cut away as indicated at 19 so that when the shield is in lowered or closed position, as shown by full lines in Figure 1, the middle portion of the supported frankfurter will be exposed to view and can be reached readily if desired.

One side of the electric circuit leads from one of the wires 12 through switch 11 to one of the receptacles 5. The other receptacle 5' is electrically connected to a bracket 20 of conductive material, this bracket being provided with spaced flanges 21 and 22. In the upper portions of these flanges is slidably mounted a contact pin 23 carrying, near one end, binding nuts 24 which can be used for maintaining this pin in positive electrical connection with bracket 20 through a loosely coiled wire 25. A spring 26 is mounted on pin 23 between nuts 24 and flange 21 and exerts a constant pressure against the nuts so as to tend to thrust pin 23 in one direction.

A gripping plate 27 is tiltably mounted on pin 23 and bears at one end against a stop 28 carried by flange 22. A stem 27 projects upwardly from plate 27 and fits loosely in an opening 28' in stop 28. A coiled spring 29 is mounted on the pin between this gripping plate 27 and flange 22 and constantly thrusts against the gripping plate so as to cause it normally to bind upon opposed portions of pin 23 and hold said pin against sliding movement in the direction in which it is urged by spring 26.

A tripping pin 30 is slidably mounted in the flanges 21 and 22 along lines parallel with pin 23 and is limited in its sliding movement by nuts 31 or the like at one end and a flanged nut 32 or the like at its other end. At an intermediate point this tripping pin is provided with a flanged nut 33 or the like which normally extends between the lower end of the gripping plate 27 and the flange 21. A spring 34 mounted on tripping pin 30 is located between flange 22 and flanged nut 33 and serves normally to hold the tripping pin normally pressed in one direction with nut 33 close to the flange 21.

A shifting lever 35 is pivotally mounted in a bracket 36 carried by the lower portion of bracket 20 and has a finger 37 which projects between flange 22 and flanged nut 32. This finger constitutes a stop for limiting the movement of pin 30 under the action of spring 34. Lever 35 projects through a slot provided therefor in base 1, as indicated at 38. This lever is preferably formed of insulating material.

The parts thus far described constitute one side of the circuit through the apparatus. The other side of the circuit includes a spring arm 39 electrically connected, as at 40, to one of the input wires 12 through switch 11. The free end portion of this arm 39 can be adjusted angularly by means of a threaded pin 41 which extends through arm 39 and is engaged by an adjusting nut 42. To this arm is attached one end of a fine wire having a high coefficient of expansion when heated, and this wire, which has been indicated at 43, is attached at its other end to a contact strip 44 supported by means of a spring strip 45 and carrying a contact 46 adapted to engage the end of the pin 23.

For signal purposes a lamp 47 may be arranged in parallel with the electrodes 8 and the

engaged frankfurter and is used for the purpose of indicating to the user whether or not current is still being delivered to the supported frankfurter.

Normally the wire 43 is cool and is contracted to its minimum length at which time it exerts a pull upon strip 44 so as to hold the contact 46 away from contact pin 23, as shown in Figure 1. When it is desired to cook a frankfurter the shield 14 is swung upwardly and backwardly to the dotted position shown in Figure 1 so as thus to expose the electrodes 8 and the cups 9. At the same time the master switch 11 will be shifted so as to cut off the flow of current to the apparatus. The ends of the frankfurter F are then empaled on the electrodes 8 so that said ends will be seated snugly in the cups 9. Thereafter shield 14 is swung back to normal position, as shown by full lines in Figure 1 and this action results in closing switch 11. However current will not as yet flow between the electrodes because the circuit is broken between contacts 46 and pin 23. This is due to the fact that movement of the pin 23 towards contact 46 is prevented by the gripping plate 27. When the operator is ready to commence cooking the frankfurter, he depresses the lever 35. This causes tripping pin 30 to move longitudinally so that the flanged nut 33 will come against the lower end of plate 27 and thrust it toward flange 22. As the upper end of plate 27 cannot slide in the portion 28 but merely has a rocking movement therein, it will be obvious that this movement of plate 27 under the action of flanged nut 33 will cause the plate to release its grip upon pin 23. Thus this pin is promptly released for actuation by spring 26 so that it will come against the contact 46 and close the circuit. As soon as lever 35 is released the spring 34 will return it and tripping pin 30 to their normal positions and will move flanged nut 33 away from the lower end of plate 27 so that spring 29 can reset this plate as shown in Figure 3.

When the circuit is closed to the pin 23 and contact 46 current will flow through master switch 11 to receptacle 5 and thence to one of the electrodes 8. It will then flow through the moist frankfurter to the opposed electrode and, by way of receptacle 5' and bracket 20 to pin 23, contact 46, wire 43, arm 39 and connection 40 back through the switch 11.

As the frankfurter is gradually heated as a result of the resistance set up by the flow of current therethrough, juices will extrude from the ends of the frankfurter into the cups and will collect about said ends so as to provide increasingly effective electrical connections between the frankfurter and the cups 9. Thus the current will gradually cook the frankfurter. During this operation the resistance set up by wire 43 and the resultant generation of heat will cause the wire to expand so that spring 45 will cause arm 44 to press through contact 46 against the engaged pin 23 and gradually shift said pin longitudinally within the plate 27. This plate, however, will act automatically to hold the pin against retrograde movement. As the frankfurter continues to cook, it will gradually lose its moisture and this will result in gradually cutting down the flow of current through the circuit. Consequently the wire 43 will gradually cool and as it cools it will pull strip 44 so as to move contact 46 away from the gripped and held pin 23 so as thus to break the circuit to the frankfurter at the time when it has become properly cooked. The oper-

ator is notified of this action by the extinguishment of the light from lamps 47 and he thereupon swings the guard or shield 14 back to raised position, thereby breaking the circuit at the master switch. He then removes the frankfurter, places another one on the electrodes and returns the shield to its former position on the base so as thereby to close switch 11. However current will not begin to flow through the frankfurter until pin 23 is again tripped and caused to move against contact 46 whereupon the operation thus far described will be repeated.

It will be noted that as the juices extrude from the ends of the frankfurter and collect within the cups 9, surplus juices will drain through the spouts 10 into the pan 4. However enough juice will remain in each cup to insure an excellent electrical contact between the frankfurter and the cup.

Instead of mounting the electrodes and cups as shown in Figures 1 and 2, each electrode 8, with the cup joined thereto, as at 9, can be carried by a strip 48 having a longitudinal slot 49 and this strip can be seated in a plate 50 attached to the top of the base 1. By means of a bolt 51 extending through base 1 and plate 50 and through the slot 49, the parts can be held adjustably, they being held by binding nut 52 engaging the bolt. This bolt constitutes an electrical connection between the slotted strip 48 and one of the wires 53 of the circuit. With this arrangement the two electrodes and their

cups can readily be adjusted toward or from each other as will be apparent by referring to Figures 5, 6 and 7.

While in the apparatus illustrated only two electrodes have been shown, it is to be understood that these can be multiplied in parallel as indicated for example, at 7' and 8' in Figure 4.

Although this apparatus has been shown and described as useful for cooking frankfurters, it is to be understood that other articles might be cooked by means thereof and the term "frankfurter" as herein used and as employed in the claim is to be interpreted as of sufficient scope to cover all such articles.

What is claimed is:

A timer for incorporation in an electric circuit, including an element expansible by heat generated by resistance to current flowing there-through, separate movable switch contacts, means for shifting them in one direction while in contact and during the expansion of said element by the generated heat, and means for locking one of the switch contacts against retrograde movement, said expansible element, when cooled, constituting means for shifting the other switch contact away from the held switch contact to break the circuit, means under the control of an operator for releasing the held contact, and means for returning the released contact into engagement with the other contact.

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