



# UNITED STATES PATENT OFFICE

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## APPARATUS FOR HEATING CANNED FOODS

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The present invention relates to a method and apparatus for heating canned foods and more particularly to the heating of canned soups for quick service to patrons in restaurants, drug stores, etc.

At the present time it is customary at lunch counters or the like to prepare canned soups for serving in the following manner: by first opening the can with a conventional can opener, then pouring the contents into a vessel provided with an electrical heating element associated therewith, and finally pouring the soup from the vessel into a soup bowl for serving. This is a slow procedure and particularly so in view of the fact that the heating vessel should be cleansed between each use; however during rush hours it frequently happens that the heating vessel is not so cleansed, with the undesirable result that the vessel imparts the flavor of one soup to the next.

The primary objects of the present invention are to provide a quick, neat and sanitary method of heating canned soups or other foods preparatory to serving; and to provide efficient, attractive and reasonably economical apparatus whereby said method may conveniently be practiced.

An illustrative embodiment of the invention is shown in the accompanying drawing, wherein:

Figure 1 is a perspective view of a so-called "soup kitchen" into which is incorporated the apparatus of this invention, ready for use;

Figure 2 is a similar perspective view showing said apparatus in use;

Figure 3 is an enlarged vertical sectional view of the same taken on line 3—3 of Figure 2, and showing the use position of a movable element of the apparatus in full lines and the non-use position of said movable element in dotted lines; and

Figure 4 is a fragmentary, front elevational view of said apparatus with the movable element raised to a non-use position of readiness for use.

### Mechanical features

Referring now in detail to this drawing, the structure there shown generally comprises a case 10 having shelves 11 for the storage of canned soups 12, and open-front service compartment 13, and an enclosed transformer compartment 14. A stationary element 15 horizontally positioned in the case 10, forms the divider between the compartments 13 and 14, and is provided with an upstanding annular wall or ring 16. A circular metal electrode 17 is snugly fitted

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within the central cavity surrounded by the ring 16.

A movable element 18 is swingably mounted on the rear wall of the case 10, within the compartment 13, by means of hinges 19. This movable element 18 has a depending annular wall or ring 20, within which is snugly disposed a circular metal electrode 21. A punch type can opener 22 is secured to the movable element 18, within the central opening through the electrode 21, as by means of a screw 23, and a central vent 24 extends through both the can opener 22 and the movable element 18. A handle 25 is provided for ease of manipulation of the movable element 18, and a spring clip 26 is mounted in the top of the case 10 for engaging the handle's shank to yieldingly maintain the movable element in its raised, non-use position shown in Figures 1 and 4 and in dotted lines in Figure 3.

### Electrical features

The electrical system of the apparatus comprises a transformer 27 (see Figure 3) disposed in the transformer compartment 14 and having a conventional core 28, primary windings 29 supplied from a suitable source of current through leads 30, and a secondary 31 from which is derived the high amperage and low voltage electrical current required by the heating apparatus. One side of this secondary 31 is connected directly to the electrode 17 of the stationary element 15 by means of wire 32. The other side of the secondary 31 is connected to a switch member 33 on the rear wall of the case 10 by means of wire 34. A cooperating switch member 35 on the movable element 18 is connected to the electrode 21 on said movable element by means of wire 36.

### Operation

When it is desired to utilize the apparatus above described to heat a can of soup or other food in accordance with the new method, the sealed metal can 12' containing such food is positioned on the stationary element 15 with the bottom periphery of the can in electrical contact with the electrode 17 of said stationary element 15. The movable element 18 is then manually disengaged from the spring clip 26 and swung downwardly to the lowered or contact position shown in Figure 2 and in full lines in Figure 3, in which position the electrode 21 on the movable element 18 is in electrical contact with the top periphery of the can 12', and the switch member 35 contacts the switch member 33. The

high amperage, low voltage electrical circuit is thus completed and the can itself becomes the resistance element in the circuit and is thus quickly heated, in turn heating the contents of the can.

During the lowering movement of the movable element 18, the can opener 22 pierces the top of the can thus providing a vent from the interior of the can, through vent 24 to the atmosphere. The escape of steam from the vent 24 may serve as a visual signal that the contents of the can is sufficiently heated; however if desired a timing system with visual and/or audible signals may be incorporated in the apparatus, and it may be further necessary or desirable to incorporate a switch in the primary circuit of the transformer whereby the circuit is automatically completed subsequent to the lowering of the movable member and automatically broken prior to the lifting of the movable member from the top of the can in order to prevent the occurrence of any arcing.

The formation and disposition of the punch type can opener 22 is preferably such that when the movable element 18 is lifted upon completion of the heating operation, the can opener will push upwardly and outwardly the flap cut in the top of the can 12 thus to facilitate the complete emptying of the contents from the can.

The synthetic enamels commonly used to coat the inner walls of present-day cans, prevent the taking place of any electrolytic action in the food itself during the heating thereof according to the new method.

It will thus be seen that a method and apparatus have been provided by means of which the metal cans which are the original containers for soups and other foods are utilized as the electrical resistance elements by means of which the foods are heated, and that by means of this method and apparatus canned foods may be quickly heated in a neat and sanitary manner. While but one specific embodiment of the invention has been herein shown and described, it will be understood that numerous details of the apparatus shown may be altered or omitted with-

out departing from the spirit of the invention as defined by the following claims.

I claim:

1. Apparatus for heating food sealed in a metal can, comprising: a stationary element adapted to support the can in upright position thereon and having an electrode electrically contacting the bottom of the can thus supported; a movable element having an electrode adapted to electrically contact the top of the can when the movable element is moved to contacting position, said movable element having also means thereon for piercing the top of the can when said movable element is moved toward contacting position; and means for supplying electrical current of high amperage and low voltage to said electrodes to complete an electrical circuit through said can.

2. Apparatus for heating food sealed in a metal can, comprising: a case; a stationary element mounted in horizontal position on the case and adapted to support the can in upright position thereon, said stationary element having an electrode electrically contacting the bottom of the can thus supported; a movable element swingably mounted on the case and having an electrode adapted to electrically contact the top of the can in one swung position of said movable element, said movable element having also means thereon for piercing the top of the can when said movable element is swung toward said position of contact; and means for supplying electrical current of high amperage and low voltage to said electrodes to complete an electrical circuit through said can.

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