May 15, 1962 A. C. SCAVULLO 3,034,499

PLATE WARMER

Filed July 31, 1958 2 Sheets-Sheet 1

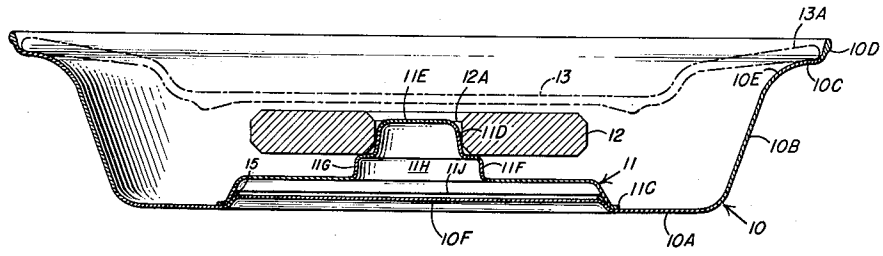


FIG. 1

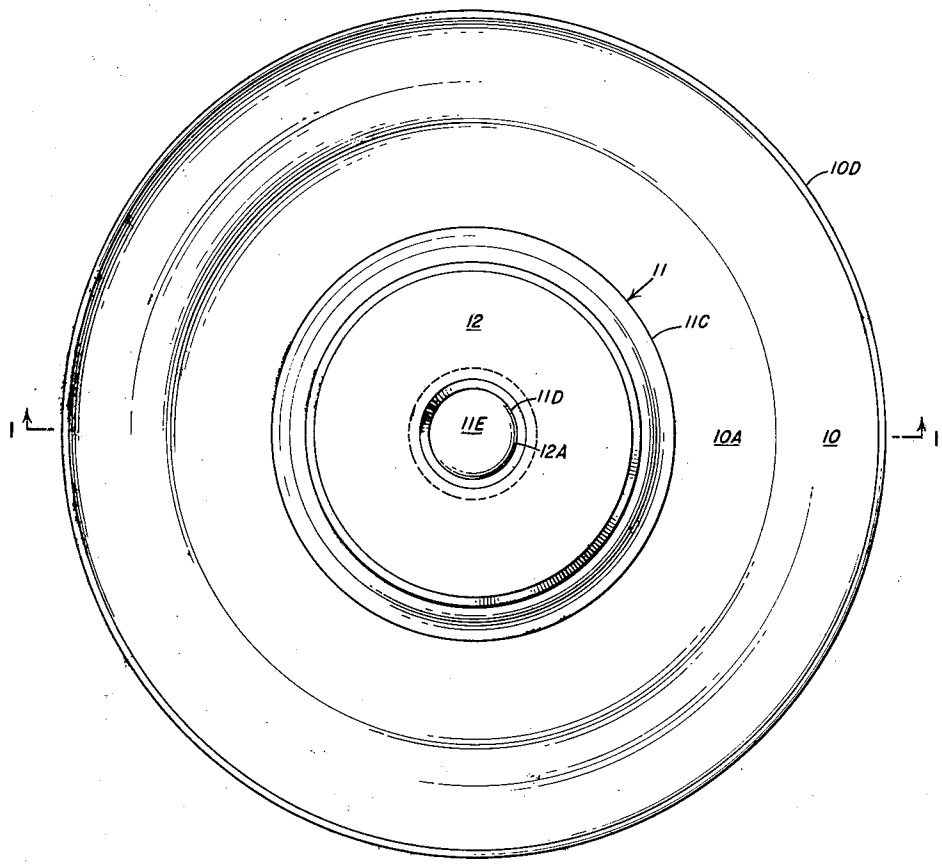


FIG. 3

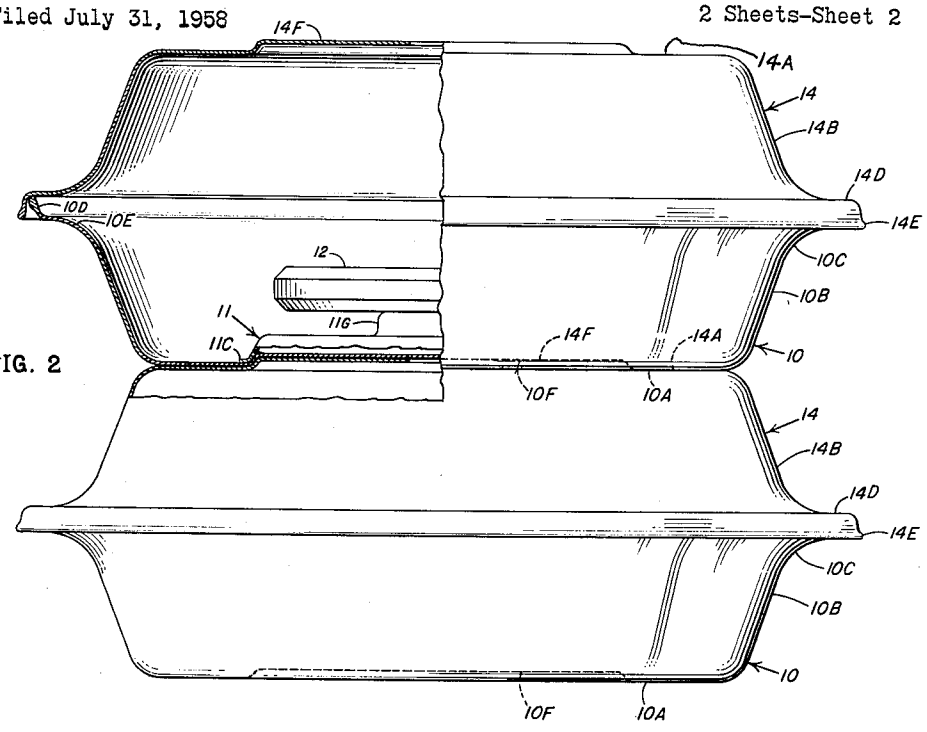
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PLATE WARMER

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FIG. 2



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PLATE WARMER

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5 Claims. (Cl. 126—375)

My invention, relating generally to plate warmers employed in restaurants, hospitals and like fields of use, has particular application to plate warmers possessing important features of safety and sanitation, at the same time being capable of maintaining food-laden dinner plates at requisite temperatures over prolonged periods of time. In some aspects, the present invention is an improvement over that disclosed in my copending and prior application, Serial No. 661,951, of May 27, 1957, also directed to a plate warmer, now abandoned in favor of its continuation-in-part application Serial No. 841,418 of September 21, 1959.

An object of my present invention is to provide a new plate warmer which, generally responding to the disclosure of my prior application, at the same time displays importantly improved features of safety and sanitation, and while maintaining exterior temperatures which are acceptable to human touch, at the same time and with certainty maintains interior temperatures and the food contents of the dinner plate at requisite temperature; which plate warmer is characterized by the absence of crevices or sharp edges in or against which dirt, greases, and other foreign matter can catch or lodge or in which bacteria can grow; which plate warmer also is in itself simple, inexpensive, easy to clean, and easy to produce in direct manner and through the use of simple production techniques, all from metal of readily available grade and size, and requiring a minimum special investment in tools and equipment; and the several elements of the plate warmer being readily positionable, one atop the other, with minimum hazard of collapse of a pile thereof, through eccentric or asymmetric relation to one another; the construction being capable of variation, when desired to provide for immobilizing any one unit, comprising plate holder and related top, from rotational movement relative to adjacent and similar units.

Other objects and advantages will in part be obvious, and in part more fully pointed out in the course of the following disclosure, particularly when considered in the light of the accompanying drawings.

Accordingly, my invention resides in the several component parts, the various elements and features of construction, and in the relation and combination of each of the same with one or more of the others, the scope of the application of all of which is more fully set forth in the claims at the end of this specification.

In the several views of the drawings:

FIG. 1 is a transverse section taken through a plate warmer in accordance with my invention, with top removed, and with a plate positioned therein, to show its relationship to certain parts of the same; which section is taken on the line 1—1 of FIG. 3;

FIG. 2 is a side elevation of several plate warmers stacked one atop the other in vertical assembly, certain parts being shown in section and other parts being either omitted or broken away, for clarity of disclosure;

FIG. 3 is a top plan view of the plate warmer itself, with top removed, according to the disclosure of FIG. 1.

Throughout the several views of the drawings like reference characters denote like structural parts.

As conducive to a better understanding of certain features of my invention, and as stated in my copending application noted, an important problem encountered in the handling of foodstuffs as typically prepared in hospitals and other institutions—a problem which carries

over to the subject matter of the present application—is that of keeping hot foods, already prepared in the kitchen, at requisite elevated temperatures during the time required to transport from the kitchen to point of consumption as for example in the patient's room, in the dining room, and the like. This problem is accentuated where the distances of transport are substantial. Moreover, a tendency towards marked cooling is observed where the consumption of the meal itself is a leisurely process. As pointed out in my prior application, in all such instances it is highly desirable and even imperative, both to have the initial service of food at proper temperature, and thereafter to maintain the same at or near that same proper temperature throughout the course of the meal.

My prior application discloses the provision of a plate warmer in which the hot pellet is carried in such manner as to be effectively heat-insulated from the base member, wherein the several parts of the plate warmer are formed on gently contoured, rounded and continuous curvature and wherein a hot dish of porcelain or other ceramic material or the like is kept free of the cover member, thereby diminishing the imposition of any severe strain on the plate member by the cover member which, it is to be remembered, may frequently carry a stack of other plate warmer units on the top thereof. It has been observed in actual practice, however, that while the plate holder disclosed in my copending application displays many features of advantage over the art as heretofore practiced, nevertheless, further important features of investigation remain to be explored, materially contributing both towards thermal safety and towards assured sanitation of the device, which problems I have now effectively solved and which comprise the subject matter of the present application.

Accordingly, an important object of my present invention is to provide a plate warmer of the general type disclosed in my said prior application, but in which the heat pellet is so effectively heat-insulated from the base member that the latter may be maintained at close approximation of room temperature, this permitting handling by the attendant in absolute safety and comfort, and in which the pellet-holder is so positioned that, while automatically centering the heating pellet when the latter is applied to the plate holder position, at the same time is fitted so perfectly into the plate holder, of which it comprises a component part, as to eliminate all possibility of catching and/or retaining dirt, greases, food acids, and generally similar undesirable and foreign substances and bodies, and which effectively eliminates possibility of stressing through development of steam under pressure.

And now, having reference to that embodiment of my invention disclosed in FIGS. 1 through 3, inclusive, it will be seen that I provide a base member 10 for my new plate warmer, which base member is fashioned of stainless steel sheet, particularly of the 18–8 chromium-nickel grade, and of 18–26 gauge. This base member assumes, in general, somewhat the configuration of an inverted, deeply dished saucer. And this saucer has a generally flat bottom 10A which preferably is circular, viewed in plan. The bottom portion 10A is integrally merged into side wall 10B of base member 10. To achieve this, bottom portion 10A at its periphery is gently and upwardly rounded on continuous curvature, flowing into the gently and outwardly flaring inner periphery of the side wall 10B.

With the general shape of the base member 10 of inverted concave section, it will be seen that the side wall 10B is annular in cross-section. A reverse curvature (i.e. upwardly convex and outwardly concave) near the upper terminal edge of side wall 10B permits this latter to become first, outwardly flared as at 10C and then upturned, as at 10D. The significance of this arrangement is that it provides an upstanding lip disposed internally of the

plate holder, and defining an internally-disposed and peripheral annular shoulder or seat 10E for the hot plate 13 of foodstuffs or the like, to be referred to hereinafter.

An upstanding offset 10F provided centrally of the bottom portion 10A and describing a wide and shallow stud, not only facilitates stacking of the plate warmers on top of each other, but serves to position the pellet holder 11 which comprises one of the features of my present invention. This support according to the embodiment disclosed in FIGS. 1 through 3, has the general configuration of an inverted, shallow dish. The pellet-holding dish 11 is adapted to fit snugly over and in manner complementary to the shallow and centrally disposed upstanding offset 10F which is struck up from the bottom portion 10A of the base member 10. To accomplish this, the relatively flat bottom 11A of the inverted shallow dish 11 is peripherally terminated in reverse curvature, first by outwardly flared (inwardly concave) portion 11B, and second by inwardly convex terminal lip, outturned, 11C. About the terminal lip 11C the dish 11 is hermetically sealed to the bottom portion 10A of the base member 10. This seal may be accomplished in desirable suitable manner, as by seam welding, silver-brazing, soft-soldering, or the like. Contributing to this construction, I provide air-tight seam 15 extending interiorly of the inverted dish 11, and joining together it and the adjacent portion of the offset 10F, in manner generally similar to a peripheral ring.

To support the pellet, later to be described, I provide a comparatively deep stud 11D disposed centrally of the dish 11, and upstruck therefrom in desired suitable manner, as by deep-drawing, or the like. This stud has a terminal plateau region 11E terminating moderately short of the bottom of an overlying plate 13. With stepped shoulder 11F provided intermediate the length of the side wall 11G of this stud, 11D, adequate provision is made for the reception of the heat pellet 12, later to be described. It is significant that there is a minimum area of contact between the heat pellet 12 and the dish 11. Thus, direct heat transference is reduced to a minimum. And conduction of such heat to the base member 10 is similarly reduced to a minimum. This is an important feature of my invention, for, from a practical standpoint, it means that the plate holder 10 is at all times maintained at close approximation of room temperature. There is no hazard of one handling the plate warmer and being burned, or of disturbing his load due to his sudden contact with a hot part of the warmer. It is entirely possible, therefore, to raise the heat pellets 12 to temperatures substantially higher than those heretofore employed, thus prolonging the period of active heat transfer to the overlying plate 13 in the holder 10.

Contributing to the efficiency of the thermal insulation, not only is there provided the air space between the inverted dish 11 and the offset 10F of the base member 10, reliance in such instances being had on the known thermal insulating efficiency of air, but as well and where desired, the region 11H, thus sealed off upon seam welding, silver-brazing, soft-soldering or the like, preferably is evacuated. Finally, where desired, metal foil 11J, such as aluminum foil, may be provided between the dish 11 and the offset 10F, this adding to the effective thermal insulation of the heat pellet 12 from the plate holder 10 by minimizing radiation between dish 11 and base member 10. Where desired, heat-insulating materials such as asbestos, fibre-glass, or the like, may be employed, the insulation comprising bulk material, batts, or a sheet of insulation.

Now the heat-retaining pellet 12 is much similar to that disclosed in my prior application. It is generally flattened and of a disk-like configuration. A central opening 12A extends transversely through the pellet and imparts annular configuration thereto. This not only facilitates ready handling of the pellet itself by a suitable tool but at the same time insures ready positioning thereof, in semi-automatic manner, on the stud 11D. Such ready positioning is aided by constructing the central opening 12A of diameter but slightly greater than that of the stud 11D.

In my prior application I have pointed out that it is desirable to construct the pellet 12 of readily available material displaying high specific heat and of requisite high heat retentivity. Aluminum has been found to be entirely satisfactory for the purpose. And in use, the aluminum pellet 12 is first brought to requisite high temperature, as in a suitable kitchen-located oven. Because of the effective thermal insulation provided in my new construction, the pellet 12 may be brought to substantially higher temperature than has heretofore been employed, and this with perfect safety and with assurance that the person handling the plate warmer 10 will not be subjected to temperatures departing materially from those prevailing in the room. Typically and initially, pellet 12 may be brought to a temperature of say, 450° F.

It may be noted that it is only line contact, and this over a circular path of small radius, which is provided between pellet 12 and dish 11. In generally similar manner, there is but little more than line contact between the peripheral edge of dish 11 and the base member 10. This limited area of contact surface, coupled with the dead air space 11H and the foil insulation 11J, effectively precludes the transmission of any material quantity of heat from the hot pellet to the base member.

The compound curvatures imparted to the pellet-holding shallow dish 11 are so gentle and merge so smoothly, both from one portion into another and into the base member 10, that little opportunity is presented for the build-up of food particles thereon, or for the growth of bacteria. The utensil can be thoroughly cleansed with greatest facility, and in rapid manner. Requisite sterilizing is made both easy and certain. Plate 13 is protectively nested at its outer periphery 13A in the ring-like shoulder 10C, 10D provided on the base member 10.

An overlying cover is indicated generally at 14 in FIG. 2, closing the plate warmer 10 and completely covering the related dish 13. Being designed in manner as disclosed in my said copending appliaction and as is apparent from inspection of FIG. 2 so as to rest entirely on the base member 10, it is completely out of contact with plate 13. Cover 14, like the base member 10, preferably is fashioned of stainless steel sheet of the 18–8 chromium-nickel grade and of 18–26 gauge. And it snugly fits at and about the upstanding edge 10D of the base member 10.

In use, as shown in FIG. 2, cover 14 is disposed in inverted position over the base member 10 with its mid-portion 14A disposed uppermost and with its side wall 14B being let, by curvature which is continuous in transverse section, into said mid-portion 14A. And as also disclosed in my companion application, the side wall 14B is downwardly and outwardly flared as at 14D, thus providing inward concavity, directed towards related base member 10. With continuous curvature as at 14D, side wall 14B is reversely and outwardly flared at its peripheral edge, thus providing a peripheral flange 14E. It is this flange which fits about and snugly engages the peripheral edge 10D of the base member 10.

To facilitate stacking an offset 14F is provided, projecting upwardly from the mid-portion 14A of the cover 14. Thus, and as shown in FIG. 2, this offset extends upwardly and outwardly from the top center of cover 14 which it is to be noted is circular in section throughout its extent.

The construction of my plate warmers is such that when stacked, the upwardly projecting offset 14F of an underlying plate holder, with cover applied, will nest snugly within the corresponding depressed offset 10F of the overlying base member 10 of the dish holder disposed next above. Thus a large number of plate warm-

ers with complemental cover members, can be stacked one atop the other.

Thus it will be seen that I provide in my invention a plate warmer which is pleasing in appearance, of marked and prolonged durability, and which is well adapted to present foodstuffs at elevated temperatures, temptingly displayed upon the dinner plate, for long periods of time, with all hazard removed of exposing the attendant to these elevated temperatures. Quite to the contrary, the plate holders themselves, even when stacked one atop the other in substantial numbers, and regardless of internal temperature, are maintained at substantial approximation to the prevailing room temperature. Spillage from the plate is rendered virtually impossible. Such liquids as may escape from the plate itself are caught by and retained in the underlying base member.

Moreover, the welding, brazing or soft soldering of the dished member to the base member throughout the entire periphery of the dished member ensures freedom from moisture penetrating between these two elements. Thus, there is averted the problem of the prior art of evolution of steam from entrapped moisture accompanied by distortion of component metallic elements.

All the foregoing, as well as many other highly practical advantages, attend the practice of my invention.

It is apparent from the foregoing that once the broad aspects of my invention are disclosed many embodiments thereof will readily occur to those skilled in the art, as well as many modifications of the embodiments herein disclosed, and all falling within the scope of my invention. Accordingly, I intend the foregoing disclosure to be considered as illustrative and not by way of limitation.

I claim as my invention:

1. A plate warmer comprising a base member adapted to peripherally carry an overlying plate, and having on its bottom portion a centrally disposed upstanding offset portion for positioning onto a top member of an associated plate warmer; an inverted dished member overlying said upstanding portion of said base member and spaced therefrom to provide an insulating air space between said dished member and said base member marginally sealed to the base member in the region of said upstanding portion, said dished member having a stud projecting upwardly therefrom and adapted to extend to a point short of the plate carried in said base member; a generally annular heat-retaining pellet loosely mounted on said stud in generally line contact therewith and adapted to be positioned thereby in closely spaced relation to the said plate and substantially spaced both from said dished member and said base member; and a cover member overlying and cooperating with said base member, said cover member being provided with a centrally disposed upstanding offset portion for interlock with the base member of a further associated plate warmer.

2. A plate warmer comprising a base member adapted to peripherally carry an overlying plate; an inverted dished member overlying and marginally contacting said base member to preserve a spaced relation between the major portion thereof and the bottom portion of said base member; and thermal insulation provided in the space between the dished member and the base member; said dished member having a stud projecting upwardly therefrom and adapted to extend to a point short of the overlying plate carried in said base member and being provided with a shouldered portion adapted to receive in generally line contact an annular heat-retaining pellet and align the same in parallel and closely spaced relation to the overlying plate and substantially spaced from the major portion of said dished member.

3. A plate warmer comprising a deep-drawn stainless steel metal base member adapted to peripherally carry an overlying plate, and having on its bottom an inverted centrally disposed upstanding portion; an inverted dished member overlying said upstanding portion and marginally contacting said base member to maintain said dished member and said base member largely in spaced relation; and metal-foil provided in the space between said dished member and base member, said dished member having a stud projecting upwardly therefrom and adapted to extend to a point short of the overlying plate carried on said base member, said stud being adapted to receive in generally line contact an annular heat-retaining pellet and align the same in parallel and closely spaced relation to the said overlying plate and substantially spaced from the major portion of said inverted dished member.

4. A plate warmer comprising a deep-drawn stainless steel sheet metal base member adapted to peripherally carry an overlying plate, and having on its bottom portion an inverted centrally disposed wide-diameter upstanding portion for positioning onto a top member of an associated plate warmer; and an inverted shallow dished member overlying the upstanding portion of said base member and spaced therefrom to provide an insulating air space between dished member and base member and marginally sealed to said base member in the region of said upstanding portion, said dished member having a positioning stud projecting upwardly therefrom, said positioning stud being externally shouldered intermediate its height and adapted to receive upon said shoulder and in generally line contact therewith an annular heat-retaining pellet and align the same in parallel and closely spaced relation to the said overlying plate and substantially spaced both from said dished member and said base member.

5. A plate warmer comprising a base member adapted to peripherally carry a related and overlying plate; and an inverted dished member overlying said base member and spaced therefrom to provide an insulating air space between said dished member and said base member but marginally contacting said base member for support, said dished member itself having a positioning stud projecting upwardly therefrom and adapted to extend to a point short of said related plate carried in said base member, said stud being provided with a shouldered portion adapted to receive in generally line contact an annular heat-retaining pellet and align the same in parallel and closely spaced relation to the said overlying plate but substantially spaced both from said dished member and said base member.

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