Nov. 3, 1970 B. R. WELKER 3,538,309

PORTABLE PLATE HEATER AND CARRIER

Filed Oct. 29, 1968

Fig. 1

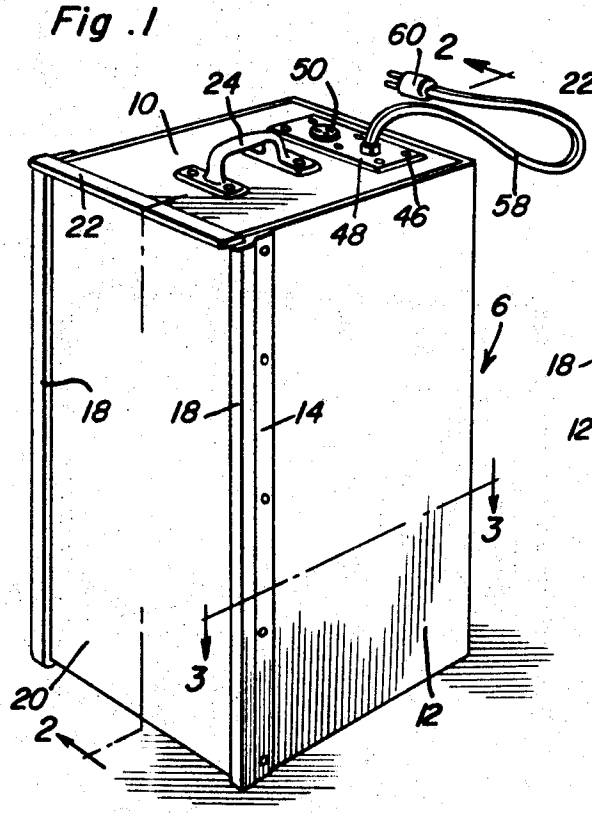


Fig. 2

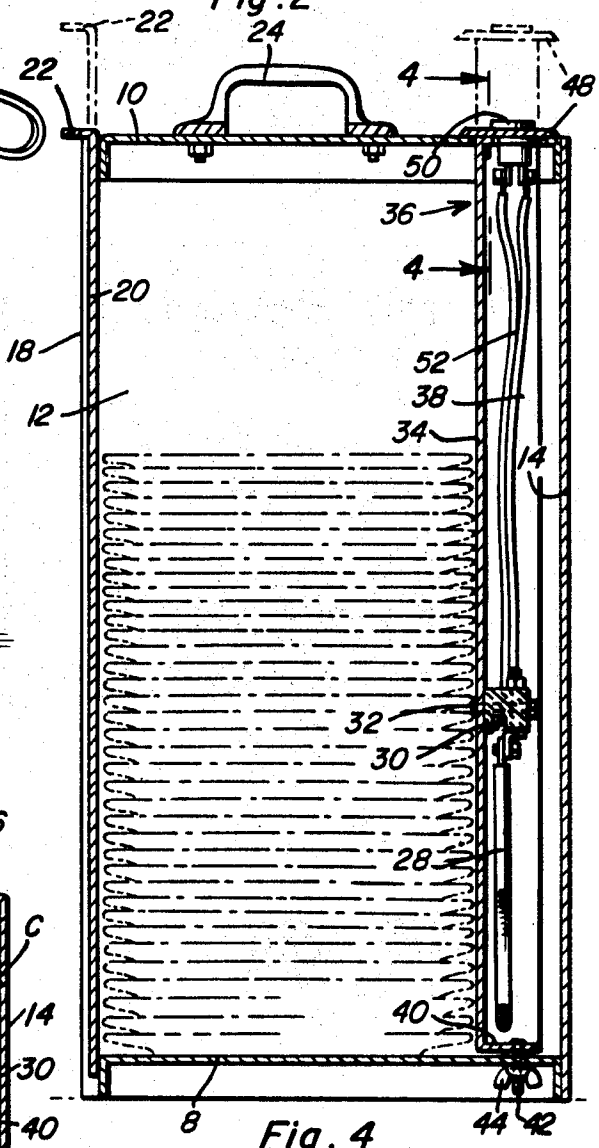


Fig. 3

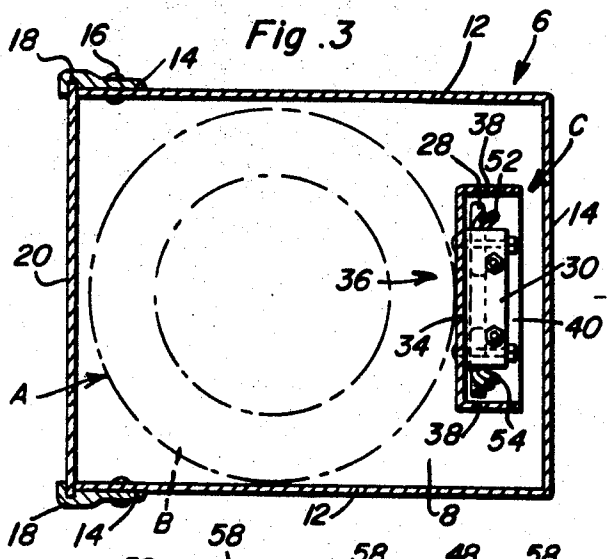


Fig. 4

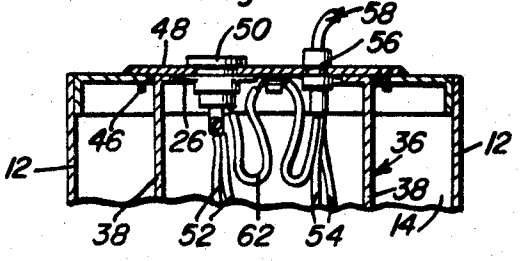
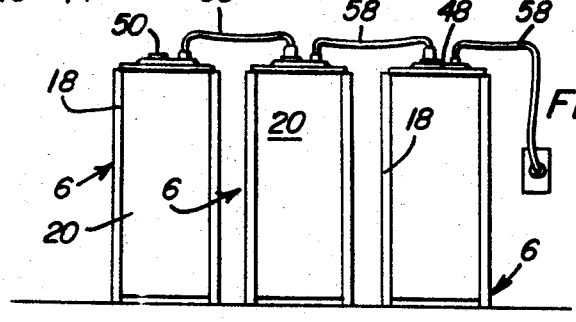


Fig. 5



Bill R. Welker

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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PORTABLE PLATE HEATER AND CARRIER

Bill R. Welker, 1816 Darbyshire Drive, Defiance, Ohio 43512

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ABSTRACT OF THE DISCLOSURE

A portable plate heater and carrier interiorly constructed to store, transport and pre-heat banquet or dinner plates preparatory to serving hot food therein. It comprises a cabinet-like container or case. The container space is divided by a vertical partition and defines a main compartment for the stacked plates and an auxiliary compartment for the heating means. These carriers can be employed individually or in coordinating group relationship and have electrical cords of suitable length with male plugs on either one or both ends.

The present invention relates to certain new and useful improvements in a portable plate heater and carrier for a stack of heated ready-to-use dinner plates, the same being such in construction that it permits the user to stack, store and transport china dinner plates which heat to a satisfactory temperature prior to use.

The adaptation herein disclosed has been found to be advantageous to users, particularly food caterers who are called upon to transport dinner plates to remote locations and are required to have preheated plates to expedite and make efficient the serving of hot food. Experience has shown that the invention also lends itself to feasible use in dining rooms and restaurants where pre-heated china and similar plates can be easily and economically stored, handled and carried.

Persons skilled in the art to which the invention relates are aware that it is common practice, generally speaking, to pre-heat china dinner plates in ovens, hot water and available and often heavy units such as are difficult to move into a position of usage as a serving line or a plate-makeup area.

As will be more clearly understood the invention provides a substantially dust-free stacking and storing enclosure for dishes and the like for an indefinite period of time and in readiness for handling and transportation when it becomes necessary to move the stored dishes to a predetermined locale. To the ends desired the enclosure or container, also referred to as a case, is of such size as to accommodate 50 more or less china plates. It can be readily handled, moved or loaded into a vehicle usually by one person.

Then, too, it will be hereinafter more clearly evident that upon arriving at the location where the plates are to be used, the current delivery cord can be plugged into a standard electrical outlet by means of a male plug. By thus energizing electric heating units particularly those of the "Calrod" type heat can be generated in sufficient quantity to raise the temperature of the enclosed plates to a point where they can still be handled but are nevertheless not too cool and not too hot.

In carrying out the principles of the invention a novel channel-shaped divider or partition is installed in the container space and transforms the same into main and auxiliary compartments, the main compartment for the stacked dishes and the auxiliary compartment for isolation and protected retention of the electrical heating unit. The means for mounting the heating unit also serves as a heat shield and is such that it prevents the edges of the plates which are immediately adjacent thereto from becoming too hot to handle as might otherwise be the case.

It is within the purview of the invention to provide a heat source which is readily insertable and removable, which is detachably anchored to the bottom wall of the container and which is connected at its top to a lid-like adapter plate. This adapter plate and heat source constitute a novel insertable and removable entity.

Briefly, the invention is characterized by a self-standing vertically elongated cabinet-type container which embodies operatively united top and bottom walls, side walls, and front and back walls. The front wall embodies an entrance and exit opening which is such as to facilitate loading the container space and subsequently removing the plates for use. The front vertical edge portions of the side walls which are proximal to and border said front wall are provided with a pair of guide tracks. A panel spans the entrance opening and has a finger grip at the top. The panel is slidingly keyed in the tracks and provides a door-type closure. A handgrip is accessibly mounted atop the top wall. The top wall is provided adjacent the rear wall with a slot affording access to the interior space of the container. The aforementioned vertically elongaetd partition is located in the space of the container between the top and bottom walls and occupies a position parallel to and spaced from the front and back walls respectively. It functions to transform the space into a main compartment at the front and an auxiliary compartment at the rear. The main compartment is of a size and shape to permit a stack of clean dinner plates to be inserted through the entrance opening and stacked that is within the encompassing limits of the walls of the main compartment and the divider. Certain marginal edge portions of the plates abut the partition and the partition also serves as a limit stop to prevent the plates from being inserted too far and also to prevent the plates from coming into damaging contact with the heat generating and radiating means or unit carried by the rearward side of the partition.

In carrying out the invention the partition is channel-shaped in cross-section and the open side of the channel faces and is spaced a nominal restricted distance from the back wall. The web thereof is space significantly a relative greater distance from the front wall. The partition has its lengthwise flanges or side walls spaced inwardly from the opposed side walls of the container so as to provide limited communication between the flanges of the partition and side walls and said auxiliary compartment.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a view in perspective of a dinner plate heater and carrier constructed in accordance with the invention and showing the slide door or closure in its normal down or closed position and showing the attached prong-equipped cord in readiness to use for example in the manner illustrated in FIG. 5.

FIG. 2 is a view on an enlarged scale with parts appearing in elevation but taken approximately on the plane of the section line 2—2 of FIG. 1 looking in the direction of the arrows.

FIG. 3 is a horizontal section ona suitably enlarged scale taken on the plane of the section line 3—3 of FIG. 1.

FIG. 4 is a fragmentary view with parts in section and elevation taken on the vertical section line 4—4 of FIG. 2.

And FIG. 5 is a view on a small scale and diagrammatically shown and illustrating how several of the plate

heaters and carriers are grouped in side-by-side relationship and are connected together in series from a cord connected with an ordinary room or wall outlet.

Referring now to the views of the drawing and particularly to FIGS. 1 and 2 it will be noted that the aforementioned vertically elongated portable enclosure functions as a container and is also and sometimes referred to as a box-like case. It is denoted, generally stated, by the numeral **6**. It can be made of appropriate material such as aluminum, possibly a multiple plastic material and in some cases of wood. It is approximately rectangular in shape and has a suitably fitted bottom wall **8** (FIG. 2), a similarly flanged and telescopingly fitted top wall **10**, side walls **12**, a rear or back wall **14** and a front wall. Actually the front wall is more in the nature of readily openable closure means. Accordingly it is defined as being an open front wall and it is provided along its marginal edges with strip members such as at **14** (FIG. 3) which are fastened in place at **16** and have projecting end portions which are properly grooved to provide tracks at **18**. The front wall proper comprises a sliding panel **20** which has its vertical edges slidingly mounted in the grooves or tracks. The upper part of the panel is provided with a lateral flange **22** which constitutes a conveniently usable finger grip and is used in the manner shown in full and dotted lines in FIG. 2. The top wall is provided with a balanced permanently bolted or equivalently attached handle or handgrip **24**. The upper rearward portion of the top wall is provided with an opening or slot as at **26** in FIG. 4. This slot is of suitable length and parallel and proximal to the upper part of the rear wall **14**. It provides for the insertable and removable space heating means. To the ends desired this means or heat source may vary in construction and could if desired include incandescent lamp bulbs (not shown). On the other hand, it is preferred that the means employed had best take the form of a suitably shaped electric heating element or unit such as at **28** (FIG. 2). This unit comprises what is referred to in the trade as a "Calrod." The limbs of the rod unit are suitably electrically connected to an insulated terminal block **30** which in turn is bolted or fastened as at **32** to a flat central or web portion **34** of an insertable and removable channel-shaped member **36**, also designated herein as a separator or divider. It should be noted in FIG. 3 that the cross-sectional dimension of the channel is less than the cross-section of the area of the space in which this member is mounted. Accordingly the side flanges **38** are spaced from the side walls **12**. Then, too, there is a bottom wall or flange as at **40** which as shown in FIG. 2 is provided with a screw-threaded stud **42** extending through the bottom wall and held in place by a thumbnut **44**. This arrangement provides a hold-down and anchor for the insertable and removable channel-shaped divider **36**. The upper end is such that it is lined up with and insertable and removable by way of the aforementioned opening or slot as brought out in FIGS. 2 and 4. This supper end is suitably secured to coacting end portions of an adaptor or cover plate **48** which in turn is fastened, as at **46**, atop the top wall and in a manner to cover the slot or opening **26** (FIG. 4). Thus when the anchor means **42** and **44** is disconnected the entire divider **36** can be lifted out through the slot **26**. The cover plate is provided with a suitably constructed and mounted receptacle **50** having appropriate companion wires **52** electrically connected at lower ends to the aforementioned terminal block **30** (FIG. 2). Similar wires **54** are provided and are connected at their lower ends to the terminal block and they extend up and are connected to a fitting **56** which in turn is mounted on the plate **48** and which carries a current conducting cord **58** which terminates in a plug **60** having prongs capable of use for example in the manner shown in FIG. 5. It can be added that the numeral **62** is a ground wire which functions in the manner

shown designates FIG. 4. The idea however is to provide a receptacle **50**, to wire it to the block **30**, to wire the block back to the conductor **58** and use the conductor in the manner shown at the right in FIG. 5. It is also within the purview of the invention to provide conductors **58** with prongs on both ends so that any number of these heaters and carriers can be placed together and electrically connected in series. On the other hand it will be evident that the essence of the invention is primarily in the self-contained device itself, that is the cabinet-like container with the openable and closable door **20** and wherein the inner space is transformed into a main compartment A in which the china dishes B are stacked and an auxiliary compartment C at the rear in which the heat source is confined and isolated. The heat is generated in this compartment or chamber and circulates around the flanges **38** into the main compartment. Also it will be noted that the main compartment when the door is opened can be loaded and the dishes stacked as suggested in phantom lines. When the dishes are properly stacked in position they bear against the web **34** of the channel-shaped divider **36** whereby the divider becomes a limit stop. Then too the web **34** constitutes a shield and prevents the edges of the dishes which contact the same from being heated to an objectionable degree. This heat shield is a feature incorporated to keep the plates from becoming to hot to handle and without subiecting the fingers of the user to danger or injury.

It will be noted that the electrical heating element or unit **28**, terminal support block therefor and wires are arranged in the channel of the channel-shaped member **36** and that the open side of the channel is proximal to but faces the rear wall **14**.

Many of the features and advantages of the over-all device have been pointed out in the introductory portion of the specification and need not be repeated here. Also, it is believed that by studying the views of the drawing, singly and collectively, and taking into account the details of the plate heater and carrier the features and advantages thereof will be clear. Furthermore, the use of the devices in series or group relationship is believed to be evident in FIG. 5. Under the circumstances a more extended description is believed to be unnecessary.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to.

What is claimed as new is as follows:

1. A portable dinner plate storing heater and carrier comprising a vertically elongated self-standing cabinet-like enclosure constituting a container, said container providing a prescribed space within the confines of which a plurality of dinner plates can be conveniently stacked, compactly stored and carried from place to place, said container having readily openable and closable closure means designed and adapted to facilitate loading and unloading said space, heat source operatively confined in said space, said heat source being protectively shielded, isolated and readily accessible, and insertable and removable, said heat source embodying an electrically insulated electric heating element, and accompanying receptacle for an electric plug, and a complemental current conducting cord separate from the receptacle and element and having a free end terminating in a prong-equipped plug capable of being connected to a second receptacle provided on a second plate heater and carrier such as can be stationed when in use adjacent the aforementioned plate storing heater and carrier.

2. The plate heater and carrier defined in and according to claim **1**, and wherein said enclosure embodies interconnected top and bottom walls, side walls, and front and back walls, said front wall having an entrance opening

provided with marginal guide tracks, said closure means comprising a door-like panel and said panel spanning said entrance opening and being slidingly mounted in said guide tracks.

3. A portable dinner plate storing heater and carrier comprising a vertically elongated self-standing cabinet-like enclosure constituting a container, said container providing a prescribed space within the confines of which a plurality of dinner plates can be conveniently stacked, compactly stored and carried from place to place, said container having readily openable and closable closure means designed and adapted to facilitate loading and unloading said space, means normally confined in the space of said container for positioning the plates and maintaining them in stacked but accessible relationship in said space, said means comprising a partition located in and dividing said space into a main compartment for the plates and a complemental auxiliary air heating compartment, said partition being operatively mounted in the container space at the dividing line between said main and auxiliary compartments, the locale of said partition being such that it constitutes a limit stop for the dinner plates in a manner that they can be orderly stacked and systematically but accessibly maintained in the stack within the confines of said main compartment, whereby to minimize displacement of the plates while being handled or carried, and heat generating and radiating means operatively mounted on and carried by said partition, said means embodying an electrically insulated electric heating element and a current conducting cord having one end electrically wired to said heating element and the other end accessible and free and provided with a prong-equipped plug, said heating element being confined and isolated in said auxiliary air heating compartment and proximal to and shielded by and separated from the main compartment by said partition.

4. A portable plate heater and carrier for a stack of heated ready-to-use dinner plates comprising a self-standing vertically elongated cabinet-type container embodying operatively united top and bottom walls, side walls, and front and back walls, said front wall embodying an entrance and exit opening to facilitate loading the container space and subsequently removing the plates for use, the front vertical edge portions of the side walls proximal to and bordering said front wall being provided with a pair of guide tracks, a panel spanning said entrance opening, said panel being slidingly keyed in the tracks and providing a door-type closure, a handgrip accessibly mounted atop said top wall, said top wall being provided adjacent said rear wall with a slot affording access to the interior space of said container, a vertically elongated partition located in said space between said top and bottom walls and occupying a position parallel to and spaced from the front and back walls, respectively, and transforming said space into a forward main compartment and a rearward auxiliary compartment, said main compartment being of a size and shape to permit a stack of clean dinner plates to be inserted through said entrance opening and stacked, and stored and confined within the encompassing limits of said main compartment, certain marginal edge portions of said plates being capable of abutting said partition and said partition serving as a limit stop for said plates, and heat generating and radiating means operatively mounted on said partition, said means embodying an electric heating element which is electrically insulated from said partition and other adjacent components thereof.

5. The plate heater and carrier defined in and according to claim 4, and wherein said partition is channel-shaped in cross-section with the open side of the channel facing and spaced a nominal restricted distance from said back wall and its web spaced a significantly relatively greater distance from the front wall, said partition having its lengthwise walls spaced inwardly from the opposed side walls of said container and affording limited communication between said main and auxiliary compartments, said partition being of a cross-sectional dimension that it can be inserted and withdrawn by way of said access slot, accessible anchoring and fastening means separably uniting the lower end of said partition to said bottom wall, an adapter plate connected to an upper end of said partition and detachably fastened atop said top wall and closing said slot, the upper end of said partition being operatively connected to said adapter plate, said electric heating element comprising an electrical rod-type heating unit, similar to a "Calrod" confined in a lower portion of the channel and situated wholly therein and within the adjacent confines of the auxiliary compartment, said unit being carried by an insulated terminal block secured in said channel.

6. The plate heater and carrier defined in and according to claim 5, and wherein said adapter plate is provided with a receptacle electrically wired to said terminal block and is also provided with an attached current conducting cord also wired to said terminal block and having a free terminal end provided with an accessible prong-equipped plug capable of use when it is desired to group a plurality of correspondingly constructed plate heaters and carriers together for use in series with each other.

7. The plate heater and carrier defined in and according to claim 5, and wherein said adapter plate rests flatwise in a readily accessible locale atop said top wall and spans and completely covers said slot and is equipped at one end with an optionally usable receptacle which is electrically wired to said terminal block and is provided at an opposite end with a current conducting cord which is likewise electrically wired to said terminal block and has a freely accessible upper terminal end which is provided with a prong-equipped plug for such use as may be desired.

8. The plate heater and carrier defined in and according to claim 5, and wherein the accessible anchoring and fastening means comprises a screwthreaded stud which is fixed to a flange provided at the bottom of said partition, said stud extending downwardly through said bottom wall and being provided with an accessible thumbnut clampingly cooperable with an underneath surface of said bottom wall.

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