Dec. 11, 1956 J. A. CANTER 2,773,357

OPEN TOP DISPLAY CASE WITH NIGHT COVER

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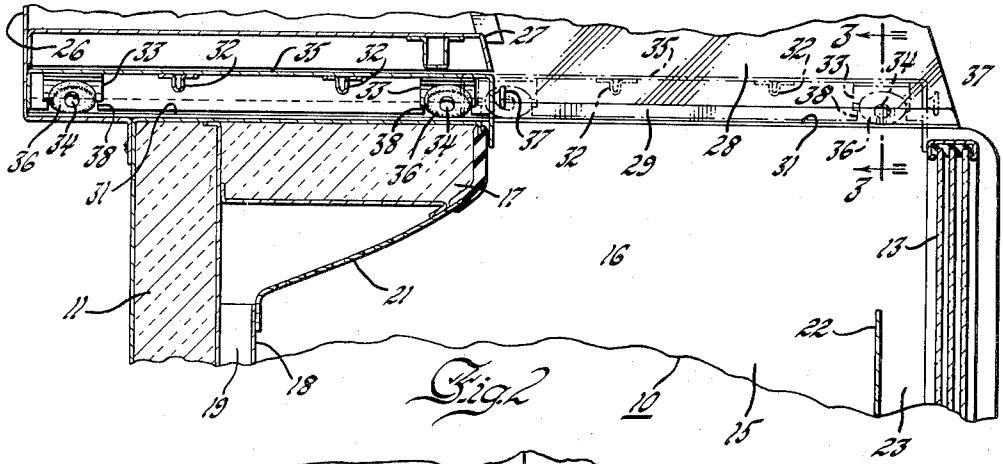


Fig. 2

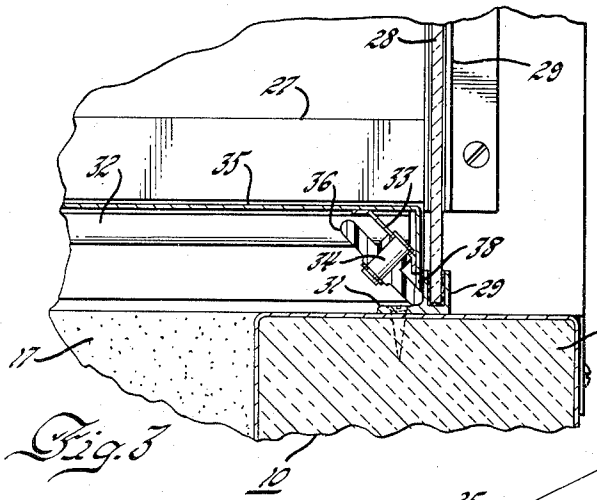


Fig. 3

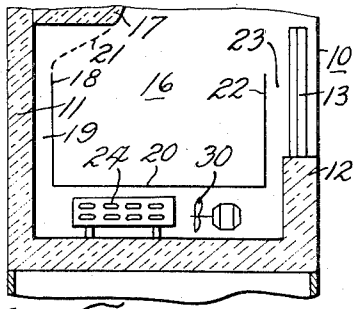


Fig. 4

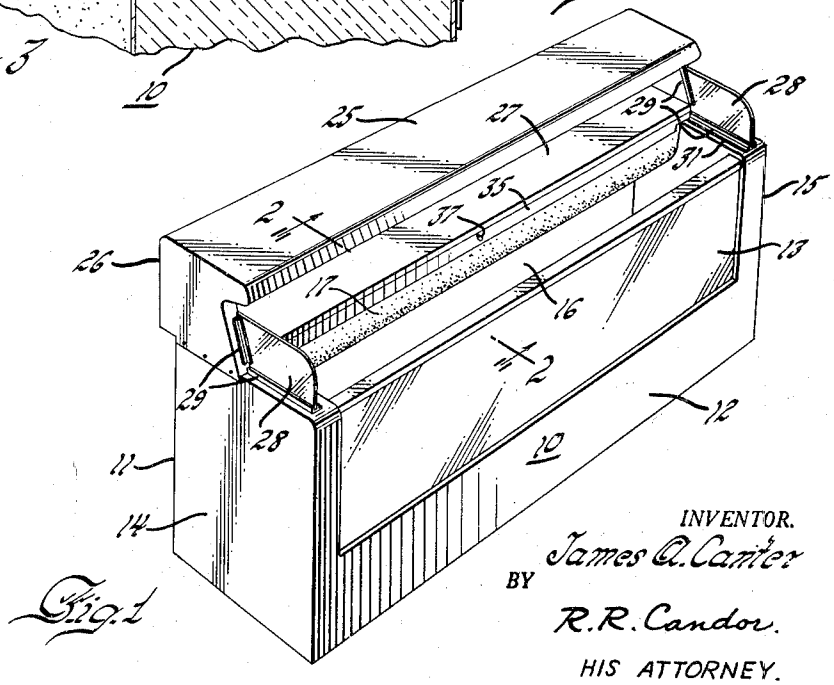


Fig. 1

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OPEN TOP DISPLAY CASE WITH NIGHT COVER

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This invention relates to open top refrigerated food storage and display cases of the self-service type.

I am aware of the fact that it is not uncommon to provide an open top display case with a cover for closing the open top of a refrigerated compartment thereof at night to prevent entrance of warm air thereinto and to prevent dust, dirt and insects from falling or settling upon food products stored in the compartment. Night covers for self-service display cases are to be distinguished from normally closed insulated doors or closure members for the open top of refrigerated ice cream storage or the like compartments and since they are used only during nights or closing times of stores and groceries such night covers are uninsulated and have been of cheap or inexpensive construction so as not to materially increase the initial cost of a display case. Consequently, prior night covers have been flimsy, difficult to operate and require frequent replacement because they twist and bind against other parts of the display case upon moving same and become damaged beyond repair. Heretofore, these difficulties have been remedied only by arrangements which substantially attain the status of complicated, heavy normally closed insulatel doors or closure member structures for ice cream and the like compartments insofar as cost is concerned. I contemplate the provision of an uninsulated lightweight night cover for the open top of a refrigerated compartment of a display case which can be manufactured at a low cost and yet is of substantial strength so as to withstand operation by an attendant over a long period of time without mental concentration on the part of the attendant.

An object of my invention is to provide a lightweight rigid night cover for closing the open top of a refrigerated compartment in a display case and to employ a minimum of rollers on the cover to render the same easily movable without binding.

Another object of my invention is to utilize elements ordinarily or inherently present on many display cases and employed for one purpose to serve as mounting means receiving and supporting a movable night cover to close the open top of a refrigerated compartment in the case.

A further object of my invention is to provide for the storage of a rigid night cover on a display case in a readily accessible location where it will not interfere with access to a refrigerated compartment therein through an opening in the top thereof and where it will not obstruct or prevent use of a food product rearrangement shelf provided in a superstructure on the case above the compartment.

A still further and more specific object of my invention is to provide a night cover for the open top of a refrigerated compartment of a display case with a roller and track device wherein a single roller at each corner of the cover is mounted at an acute angle and has its peripheral surface engaging angle iron track-forming members only at the vertex of walls of the angle irons

to prevent angular shifting of the cover relative to its tracks whereby the cover can be moved along its tracks without binding.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

Figure 1 is a perspective view of a self-service display case having my invention embodied therein;

Figure 2 is an enlarged fragmentary sectional view taken on the line 2—2 of Figure 1 showing a night cover associated with an open top refrigerated compartment and a superstructure thereon of the display case;

Figure 3 is an enlarged fragmentary sectional view taken on the line 3—3 of Figure 2 showing an acute angular mounting of a roller located at one corner of the night cover and associated with track means; and

Figure 4 is a fragmentary vertical sectional view through the display case showing an evaporator of a refrigerating system and a motor driven fan for circulating air thereover.

Referring to the drawings, for illustrating my invention I show in Figure 1 thereof a substantially open top self-service display case, generally represented by the reference character 10, typical of those now on the market and well known to those skilled in the art. The case 10 comprises an insulated bottom (see Figure 4), an insulated back wall 11, an insulated front wall 12, having a suitable multiple glass thermo pane upper structure 13 and insulated end walls 14 and 15 forming a horizontally elongated open top compartment 16 in the case. Another wall 17, which may, if desired, be insulated, extends inwardly a short distance from the rear wall 11 of compartment 16 (see Figure 2) and forms an air deflecting hood over the upper back portion of the compartment. A suitable metal plate or partition 20 (see Figure 4) is inserted within compartment 16 in spaced relation to the insulated bottom wall thereof to provide a food product supporting means therein above the compartment bottom wall. Compartment 16 may also be provided with vertical metal plates or baffles to form air passages or passageways around the food products supported on the supporting means 20 within the compartment. For example, a rear baffle 18 is spaced from the compartment back wall 11 to provide an uptake cold air passage 19 in compartment 16. A perforated member 21 beneath hood 17 forms an air outlet for the uptake air passage 19 and directs cold air transversely of the case over food products in compartment 16. A front baffle 22 located adjacent the glass panel 13 of the front wall 12 of case 10 forms a return air passage 23 at the forward side of the elongated display case. It will be noted that the walls of compartment 16 all terminate in substantially the same horizontal plane. A sheet metal superstructure, generally represented by the reference character 25, forming a combined lamp carrying means for illuminating the interior of compartment 16 and an advertising device, is located on top of compartment 16 and is secured in any suitable manner to walls thereof. The superstructure 25 has its back wall 26 spaced from the rear wall 11 of compartment 16 to provide the same with a portion which overhangs the rear wall of the compartment. This overhanging portion of the superstructure 25 serves a double purpose for the present display case. It spaces the back wall 11 of compartment 16 from a wall or partition in a grocery or the like so as to provide an air passage in back of a machine compartment provided below compartment 16 and having an air cooled refrigerant translating device, of a closed refrigerating system associated with

the display case, therein over which air is circulated. The overhanging rear portion of superstructure 25 also provides additional depth to the case above the food storage compartment 16 which is utilized for a specific purpose in the practice of my inprovement. The superstructure 25 is preferably hollow and provided with a bottom ledge 27 which affords a rearrangement shelf immediately above and to the rear of the food storage compartment 16. The display case 10 is provided with glass end panes or plates 28 which are mounted in metal channel-like members 29 for shielding the refrigerated compartment 16 against air sweeping across the length of the open top thereof. The channel members 29 have a wall or leg portion extending outwardly from one wall of the channel and this wall or leg cooperates with the one wall of the channel to provide an angle iron portion 31 thereon. One short member 29 is secured to the front of each end portion of superstructure 25 and another longer member 29 is secured to the top of each of the end walls 14 and 15 of compartment 16. The horizontal members 29 are secured to walls 14 and 15 of compartment 16 and the angle iron portions 31 thereon are disposed or mounted in opposite relationship relative to one another and serve a double purpose in the present disclosure as will become evident hereinafter.

An evaporator or cooling means 24 of the refrigerating system and a motor driven fan or blower 30 for forcing air over evaporator 24 and circulating the air cooled thereby around and over food products stored in compartment 16 are shown in Figure 4 of the drawing. Air cooled by the evaporator of the refrigerating system may be circulated below the food support 20 in compartment 16, upwardly in duct or passage 19, out of hood 17 through the perforated member 21 over food products in compartment 16 and returned to the evaporator by way of duct or passage 23. The interior construction of compartment 16 and the air circuit for cooling products stored therein through or around the products may be conventional and is well-known to those skilled in the art.

In accordance with the objects of my invention I provide the case 10 with a cover which may be slid over the refrigerated compartment 16 to close its open top at nights and at other times the grocery or supermarket, in which the case 10 is installed, is not open to the public. Such a cover conserves refrigeration and prevent dust, dirt and insects from settling or falling into the compartment 16 to thus eliminate contamination of foods stored in the refrigerated compartment. In the present disclosure a rigid cover 35 in the form of an inverted sheet metal pan-like member extends continuously across the length of the elongated compartment 16 and has its ends overlapping a portion of the end walls 14 and 15 of compartment 16. The cover 35 is supported on tracks, formed by the angle iron portions 31 of channel members 29, at the top of end walls 14 and 15 of compartment 16. The tracks or angle iron portions 31 extend from a point at the front of walls 14 and 15 rearwardly into the overhanging portion of the superstructure 25 on top of compartment 16 of the display case 10. Sheet metal cover 35 has metal strips or the like 32 welded to its underside and extending lengthwise thereof for reinforcing same. Brackets 33 welded to each corner portion of cover 35 are disposed at an angle of approximately 45° relative to top and end flanges on the inverted pan-like cover. A stud or rivet 34 secured to each bracket 33 forms a bearing for a roller 36 mounted thereon. It is well known that objects constructed of polyamide material or polymeric amides having a protein-like chemical structure may be moved along or rolled upon metal surfaces with much less friction than moving metal members upon or against one another and I therefore prefer to form the rollers 36 of such material. A single roller 36 is thus mounted at an acute angle on the cover 35 at each of its corners and these rollers have their peripheral edge surface simultaneously engaging a portion of the horizontal and vertical walls of the angle iron portion 31 of the horizontal members 29 mounted on the compartment end walls. In other words, the single roller 36 at each corner of cover 35 is mounted so as to engage the angle iron track portion 31 of the horizontal members 29 on compartment walls 14 and 15 only at the vertex of walls of the angle iron portions. The members 29, mounted on end walls 14 and 15 of compartment 16, in addition to securing the side wing plates or panes 28 in position also serve to provide tracks for rollably receiving the night cover 35. By virtue of the acute angular mounting of rollers 36 with their peripheral surface engaging the tracks only at the vertex of walls of the angle iron portion 31 of horizontal members 29 the rigid night cover 35 is prevented from shifting angularly on or relative to its supporting tracks. In preventing shifting of cover 35 it is maintained parallel to its tracks and is movable or rollable therealong without binding and it therefore does not become damaged by careless handling or manipulation on the part of a store attendant. It will be noted that the cover 35 normally lies over the hood 17 and back wall 11 of compartment 16 and has a part thereof disposed in the overhanging portion of superstructure beneath the shelf or ledge 27. This provides cover 35 with sufficient depth to enable the same to close the open top of compartment 16 when moved forwardly of the case. The down-turned front flange of cover 35 extends below its back and end flanges and has a knob or handle 37 secured thereto centrally thereof which is grasped when the cover is pulled outwardly so as to cause its forward flange to engage the glass part 13 of front wall 12 of compartment 16 and close the open top thereof as shown by the dot-dash lines in Figure 2 of the drawing. The bottom edge of the down-turned end flanges on cover 35 is cut away adjacent corners thereof, as at 38, so that the lower portion of the periphery of rollers 36, due to their acute angular mounting, will project slightly beyond ends of the cover and engage the vertex of walls of the track means while ends of the cover free the tracks.

It should, from the foregoing, be apparent that I have provided an improved night cover for a refrigerated open top compartment of a display case and a novel method of mounting the cover on the case. By extending elements already present on such display cases rearwardly into a superstructure thereof my invention renders these elements capable of serving a double purpose to thus reduce the number of elements employed in the construction of a case. I mount a single roller on each corner of a night cover in such fashion that these rollers cooperate with shielded wing mounting members on the case to prevent shifting of the cover relative to its tracks and binding thereof when moved to or from a position to close the open top of a refrigerated compartment in the case. My mounting of a single roller at an acute angle on each corner of a night cover accomplishes the same result as a cover provided with a plurality of rollers mounted at right angles relative to one another on a cover and thereby reduces the number of rollers required on a cover. The rigid night cover is substantially concealed from view while in a position uncovering the top of the compartment. The cover is located within the confines of a superstructure above the compartment at a place where it does not obstruct or interfere with a ledge on the super-structure and utilized as a shelf for receiving and supporting food products during rearrangement of these products in the refrigerated compartment of the display case.

While the embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. A self-service refrigerated display case comprising in combination, insulated bottom, back, front and end

walls forming a horizontally elongated open top compartment in said case, means for supporting food products in said compartment, means for cooling air in said case, means for circulating the cooled air around said food supporting means and over food products thereon, substantially parallel members having integral horizontal and vertical walls mounted on top of the insulated end walls of said compartment, said members being disposed in opposite relationship relative to one another and forming tracks along said compartment end walls, a rigid night cover for said compartment extending continuously across the length thereof and overlapping a portion of said insulated end walls, said cover including a single roller at each of its corners adapted to support same on said tracks, said cover having a part thereof normally lying over said compartment back wall and affording access to said compartment through its open top, said cover being movable along said tracks forwardly of said back wall into association with the front wall of said compartment to close its open top, and means for mounting each of said rollers at an acute angle on said cover with their peripheral surface simultaneously engaging a portion of both said horizontal and said vertical walls of said members whereby to prevent angular shifting of said cover on said tracks and binding of the cover during movement thereof along the tracks.

2. A self-service refrigerated display case comprising in combination, insulated bottom, back, front and end walls forming a horizontally elongated open top compartment in said case, means for supporting food products in said compartment, means for cooling air in said case, means for circulating the cooled air around said food supporting means and over food products thereon, substantially parallel members having an angle iron portion mounted on top of the end walls of said compartment, said members being disposed in opposite relationship relative to one another whereby said angle iron portion thereon form tracks along said compartment end walls, a rigid night cover for said compartment extending continuously across the length thereof and overlapping a portion of said insulated end walls, said cover including a single roller at each of its corners adapted to support same on said tracks, said cover having a part thereof normally lying over said compartment back wall and affording access to said compartment through its open top, said cover being movable along said tracks forwardly of said back wall into association with the front wall of said compartment to close its open top, and means for mounting each of said rollers at an acute angle on said cover with their peripheral surface engaging said tracks only at the vertex of walls of said angle iron portion of said members whereby to prevent angular shifting of said cover on said tracks and binding of the cover during movement thereof along the tracks.

3. A self-service refrigerated display case comprising in combination, insulated bottom, back, front and end walls forming a horizontally elongated open top compartment in said case, means for supporting food products in said compartment, means for cooling air in said case, means for circulating the cooled air around said food supporting means and over food products thereon, a shielding plate extending upwardly above the top of each compartment end wall, substantially parallel channel-like members mounted on top of the insulated end walls of said compartment for supporting said plates therefrom, said channel-like members each having an integral leg extending therefrom and cooperating with a wall of the channel thereof to provide an angle iron portion thereon, said members being disposed in opposite relationship relative to one another whereby said angle iron portion thereon form tracks along said compartment end walls, a rigid night cover for said compartment extending continuously across the length thereof and overlapping a portion of said end walls, said cover including a single roller at each of its corners adapted to support same on said tracks, said cover having a part thereof normally lying over said compartment back wall and affording access to said compartment through its open top, said cover being movable along said tracks forwardly of said back wall into association with the front wall of said compartment to close its open top, and means for mounting each of said rollers at an acute angle on said cover with their peripheral surface engaging said tracks at the vertex of walls of said angle iron portion of said channel-like members to prevent angular shifting of said cover relative to said tracks and binding of the cover during movement thereof along the tracks.

4. A self-service refrigerated display case comprising in combination, insulated bottom, back, front and end walls forming a horizontally elongated open top compartment in said case, said case having a superstructure mounted on top of said compartment near the rear thereof and extending therealong, said superstructure having a portion thereof projecting rearwardly beyond said compartment back wall so as to overhang same, a shelf on said superstructure coextensive with and spaced above the top of said compartment forming a ledge for receiving food products from the compartment during rearrangement thereof therein, means for cooling air in said case, means for circulating the cooled air around said food supporting means and over food products thereon, substantially parallel members having integral horizontal and vertical walls mounted on top of the insulated end walls of said compartment, said members being disposed in opposite relationship relative to one another and forming tracks along said compartment end walls, a rigid night cover for said compartment extending continuously across the length thereof and overlapping a portion of said insulated end walls, said cover including a single roller at each of its corners adapted to support same on said tracks, said cover having a part thereof disposed between the top of said compartment and the shelf in said superstructure within the overhanging portion thereof to provide the cover with sufficient depth to enable the same to close the open top of said compartment, said cover being movable on said tracks forwardly of said superstructure toward the front wall of said compartment to close said compartment open top, and means for mounting each of said rollers at an acute angle on said cover with their peripheral surface simultaneously engaging a portion of both said horizontal and said vertical walls of said members whereby to prevent angular shifting of said cover on said tracks and binding of the cover during movement thereof along the tracks.

5. A self-service refrigerated display case comprising in combination, insulated bottom, back, front and end walls forming a horizontally elongated open top compartment in said case, said case having a super-structure mounted on top of said compartment near the rear thereof and extending therealong, said superstructure having a portion thereof projecting rearwardly beyond said compartment back wall so as to overhang same, a shelf on said superstructure coextensive with and spaced above the top of said compartment forming a ledge for receiving food products from the compartment during rearrangement thereof therein, means for cooling air in said case, means for circulating the cooled air around said food supporting means and over food products thereon, substantially parallel members having an angle iron portion mounted on top of the insulated end walls of said compartment, said members being disposed in opposite relationship relative to one another whereby said angle iron portion thereon form tracks along said compartment end walls, a rigid night cover for said compartment extending continuously across the length thereof and overlapping a portion of said insulated end walls, said cover including a single roller at each of its corners adapted to support same on said tracks, said cover having a part thereof disposed between the top of said compartment and the shelf in said superstructure within the overhang-

ing portion thereof to provide the cover with sufficient depth to enable the same to close the open top of said compartment, said cover being movable on said tracks forwardly of said superstructure toward the front wall of said compartment to close said compartment open top, and means for mounting each of said rollers at an acute angle on said cover with their peripheral surface engaging said tracks only at the vertex of walls of said angle iron portion of said members whereby to prevent angular shifting of said cover on said tracks and binding of the cover during movement thereof along the tracks.

6. A self-service refrigerated display case comprising in combination, insulated bottom, back, front and end walls forming a horizontally elongated open top compartment in said case, said case having a superstructure mounted on top of said compartment near the rear thereof and extending therealong, said superstructure having a portion thereof projecting rearwardly beyond said compartment back wall so as to overhang same, a shelf on said superstructure coextensive with and spaced above the top of said compartment forming a ledge for receiving food products from the compartment during rearrangement thereof therein, means for cooling air in said case, means for circulating the cooled air around said food supporting means and over food products thereon, a shielding plate extending upwardly above the top of each compartment end wall, substantially parallel channel-like members mounted on top of the insulated end walls of said compartment for supporting said plates therefrom, said channel-like members each having an integral leg extending therefrom and cooperating with a wall of the channel thereof to provide an angle iron portion thereon, said members being disposed in opposite relationship relative to one another whereby said angle iron portion thereon form tracks along said compartment end walls, a rigid night cover for said compartment extending continuously across the length thereof and overlapping a portion of said end walls inwardly of said shielding plates, said cover including a single roller at each of its corners adapted to support same on said tracks, said cover having a part thereof disposed between the top of said compartment and the shelf in said superstructure within the overhanging portion thereof to provide the cover with sufficient depth to enable the same to close the open top of said compartment, said cover being movable on said tracks forwardly of said superstructure toward the front wall of said compartment to close said compartment open top, and means for mounting each of said rollers at an acute angle on said cover with their peripheral surface engaging said tracks only at the vertex of walls of said angle iron portion of said channel-like members to prevent angular shifting of said cover relative to said tracks and binding of the cover during movement thereof along the tracks.

7. A self-service refrigerated display case comprising in combination, insulated bottom, back, front and end walls forming a horizontally elongated open top compartment in said case, means for supporting food products in said compartment, means for cooling air in said case, means for circulating the cooled air around said food supporting means and over food products thereon, said insulated compartment end walls having substantially parallel angle iron-like tracks extending along the top thereof, an upright wall of said angle iron tracks opposing one another, a rigid night cover for said compartment extending continuously across the length thereof and overlapping at least a portion of said tracks on said compartment end walls, said cover including a single roller at each of its corners adapted to support same from said tracks, said cover having a part thereof normally lying over said compartment back wall and affording access to the interior of said compartment through its open top, said cover being movable transversely of the length of said case along said tracks into engagement with the front wall of said compartment to close said open top thereof, and means for mounting each of said rollers at an acute angle on said cover with their peripheral surface engaging said tracks only at the vertex of walls thereof whereby to prevent angular shifting of said cover relative to said tracks and binding of the cover while moving same along the tracks.

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