

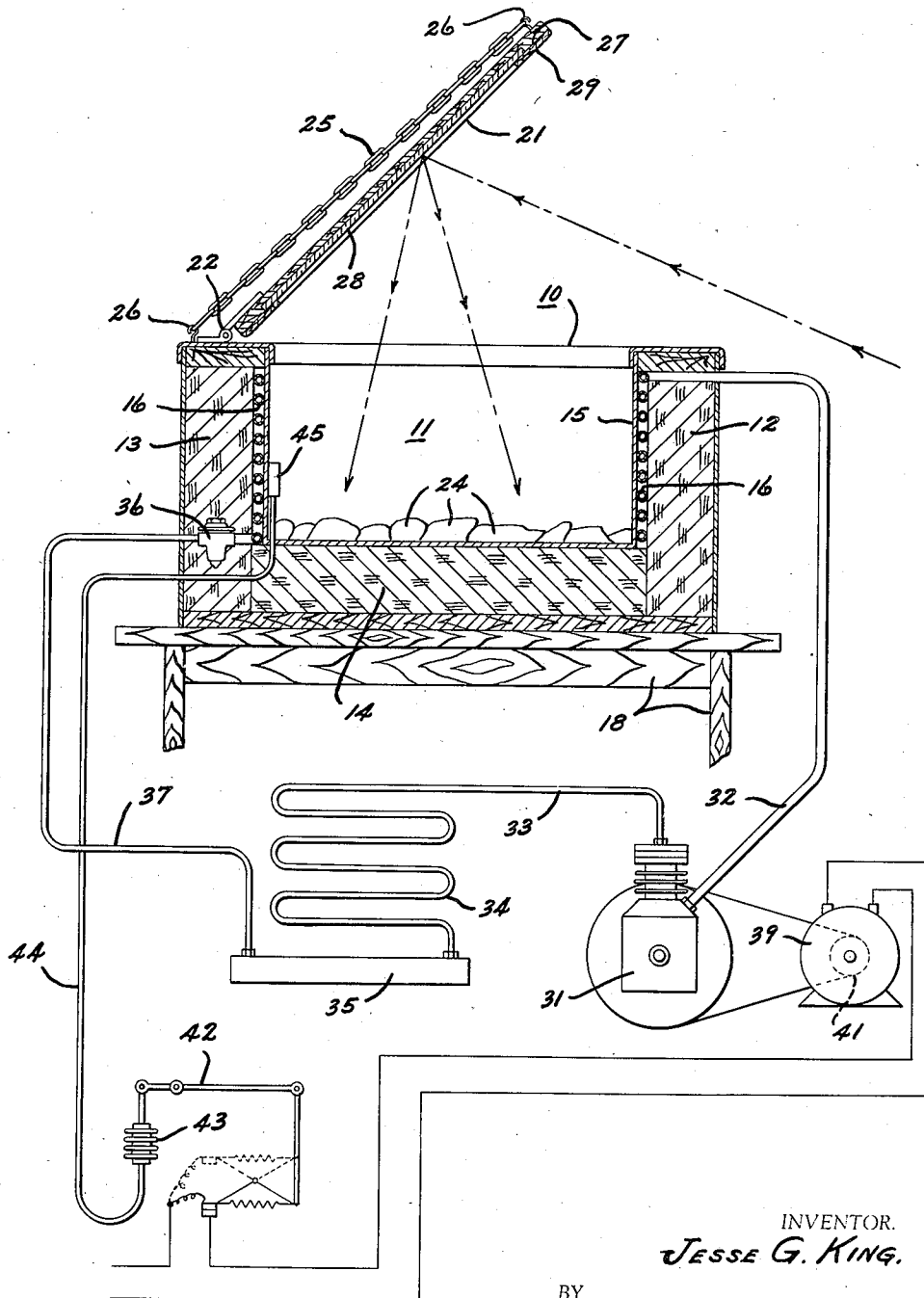
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REFRIGERATING APPARATUS

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REFRIGERATING APPARATUS

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This invention relates to refrigerating apparatus and particularly to refrigerated devices or cabinets employed for storing and displaying vegetables.

5 In order to prevent vegetables from wilting and to keep same in a crisp fresh condition while being stored or displayed for sale it has heretofore been the practice to place the vegetables on or in a display counter or container and to run or 10 spray cold water over same. This practice has not been entirely satisfactory for various reasons. For example, it may be desirable to place the display counter or container at a point where plumbing connections, such as the water supply 15 pipe and drain outlet pipe, cannot be led to and from the display device without involving a considerable expenditure of money or where such connections would interfere or cause inconvenience to clerks. Again these conventional display 20 devices, wherein water is caused to flow or to be sprayed over and upon the vegetables stored therein, present an unsightly appearance in the vicinity thereof which is ordinarily caused by water dripping on the floor due to frequent removal and replacement of the vegetables from 25 and to the device by clerks and customers.

It is the purpose of my invention to overcome the objections enumerated in the use of conventional vegetable display devices while at the same 30 time providing improved display of the vegetables.

One of the objects of the present invention is to provide an improved device for and method of storing and displaying vegetables.

35 Another object of the invention is to provide a device for preventing vegetables from wilting and for maintaining same in a fresh crisp condition while being displayed in an improved manner.

40 Another object of the invention is to store vegetables in a sanitary condition by providing a display device which substantially eliminates the tendency of customers to handle vegetables during the purchase thereof while at the same 45 time affording the customer a clear view of the vegetables to be purchased.

A further object of the invention is to provide a vegetable storage cabinet in which the vegetables are substantially concealed from view on 50 planes substantially in horizontal alignment with the cabinet but are displayed or rendered visible at distances spaced laterally from the cabinet and in the said planes by mirror or reflector means.

55 In carrying out the foregoing objects it is a

still further and more specific object of the invention to construct the mirror or reflector means so that the same forms a cover or at least an outer surface or wall of a cover adapted to close the opening in the vegetable compartment of 5 the cabinet.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing, wherein a preferred form of the 10 present invention is clearly shown.

In the drawing:

The figure is a vertical sectional view through a refrigerated device constructed in accordance with my invention and showing diametrically a 15 refrigerating system associated with the device.

Referring to the drawing, for illustrating the present invention, I have shown therein a cabinet, generally represented by the reference character 10, the plan view of which is preferably although not necessarily of rectangular form. 20 The cabinet 10 has a compartment 11 formed therein by a plurality of insulated upright walls 12 and 13 and an insulated bottom wall 14. The compartment 11 is lined with a metal liner member 15 to which exterior surface there is secured a plurality of turns or convolutions of pipe or conduit forming an evaporator or cooling element 16 of a refrigerating system. The cabinet 25 10 is supported on any suitable table or counter device, generally represented by the reference character 18, so as to elevate the cabinet to a position whereby stooping while removing vegetables from the compartment 11 is obviated. The position in which the cabinet 10 is supported by the 30 supporting means 18 causes the upright walls 12 and 13 thereof to conceal the interior of compartment 11 and vegetables stored therein from view on a level of the eye or on planes substantially in horizontal alignment with the cabinet. 40 The cabinet 10 also includes a cover 21, secured thereto by any desirable number of hinges 22, and ordinarily maintained in open position as shown during display of vegetable products, represented by the reference character 24, contained in compartment 11. It will be noted that the depth of 45 compartment 11 substantially conceals the vegetables 24 from view except when a person is immediately adjacent cabinet 10. A chain or the like device 25 and hooks 26 or any other suitable arrangement may be employed for holding the 50 cover 21 in an open position. The chain and hook arrangement disclosed provides for adjustment of the cover or closure member 21 into various positions relative to cabinet 10 because any 55

one of the links of chain 25 may be secured to hooks 26. The cabinet or compartment cover device 21 comprises a panel 27 which forms a frame for a mirror or reflector means 28. Strips 29, secured to the panel or frame 27 in any suitable manner, holds the glass mirror 28 in place in the cover 24. When the cover 21 is in open position, as shown in the drawing, a customer may view the vegetables 24 which are substantially concealed in the compartment 11 at a distance spaced from and in substantially the same horizontal alignment of cabinet 10 by looking into the mirror 28. The line of sight of a customer and the lines of reflection of the mirror 28 to the vegetables are indicated by the dot-dash lines and arrows shown in the drawing. Thus a customer in the background or remote from the cabinet 10 may view the vegetables 24 from a distance and may decide to purchase certain of the vegetables while a clerk is serving another customer. Thus an improved display of the vegetables which are substantially concealed in compartment 11 is obtained. The mirror cover device 21 of cabinet 10 may be released from its open position and lowered upon the top surface of cabinet 10 to close the opening in compartment 11 during periods when the store, in which the cabinet is installed, is closed from business so as to reduce the cost of refrigerating the cabinet.

In order to cause the evaporator or cooling element 16, secured to the outer surface of the liner 15, to produce a refrigerating effect within compartment 11 of cabinet 10 the evaporator is connected with a compressor 31 of a closed refrigerating system. The compressor 31 creates a suction within evaporator 16 and causes refrigerant in the evaporator to vaporize in its absorption of heat from compartment 11 as is well-known to those skilled in the art. The vaporized refrigerant is withdrawn from evaporator 16 and circulates through the suction return pipe or conduit 32 to the compressor 31. Compressor 31 compresses the vaporized refrigerant and circulates same under pressure through the pipe 33 to a condenser 34. The condenser 34 is cooled, in any suitable manner, to cause compressed refrigerant circulated thereto to liquefy. Liquefied refrigerant flows from the condenser into the collecting receiver 35 where it is stored prior to being circulated to the evaporator 16. A pressure operated expansion device or valve 36 may be employed to control the flow of liquid refrigerant from receiver 35 to evaporator 16 through the liquid supply pipe 37. The compressor 31 is operated by an electric motor 39 connected therewith by suitable belt and pulley means 41. Operation of the motor 39 is controlled by a switch means 42 inserted in the power lines leading to the motor. The switch means 42 is actuated in response to expansion and contraction of a bellows 43 caused by changes in condition of a volatile fluid contained in the pipe 44 and a thermostatic bulb 45 secured in thermal contact with either the lining 15 of compartment 11 or with the evaporator outlet for determining the temperature to be maintained in the compartment 11 by the refrigerating system. It is to be understood that while I have disclosed one form of a refrigerating system other forms may be employed without departing from the invention and that the refrigerating system may be located adjacent the cabinet 10 thus avoiding the necessity of extending the refrigerant pipes to the cellar or to a room located remote from the room in which cabinet 10 is located.

It will be noted that the distance between the top surface of cabinet 10 and the inner surface of the bottom wall of compartment 11 is greater than that found in conventional cabinets of the so-called cold plate or salad counter type at the same time being less than the ordinary lift-top food storage cabinets now on the market. This specified or preferred distance between the top surface of cabinet 10 and the inner surface of the bottom wall of compartment 11 is of great importance in the storage of vegetables for which the cabinet herein disclosed is to be utilized. This importance lies in the fact that the vegetables are stored in a substantially cool dry condition, within the dead air pocket provided by compartment 11 of the cabinet disclosed, while at the same time being sufficiently moistened by condensation of moisture from air in the vicinity of the top of the compartment 11. The compartment liner 15 being cooled by evaporator 27 up to substantially the top thereof tends to create a cold air pocket in the lower part of compartment 11 and a somewhat warmer air pocket in the upper part of the compartment due to the top of the compartment being open to the atmosphere. Air in the upper part of compartment 11 or air immediately above the open top thereof is chilled by the cold air within the compartment and this chilling action causes moisture in the relatively warm air to be drawn therefrom. Moisture drawn from the relatively warm air near the top of the cabinet 10 falls in the form of a fog upon and between the vegetables 24, stored or concealed in compartment 11, during its tendency to condense upon the cold surface of the liner member 15. This fog provides a strata of relatively cool humid air above the vegetables 24 at all times. It has been found that the construction of the cabinet disclosed together with the action produced during cooling of the compartment 11 serves to supply the vegetables 24 with sufficient moisture to prevent wilting thereof and to enable the vegetables to retain their fresh crispness which is essential in maintaining their palatability after having been harvested. This function of the apparatus disclosed cannot be obtained in cabinets of the lift-top food storage or salad counter types now on the market and known to me because the compartments formed therein are either too deep or too shallow to create a zone of humid air immediately above the vegetables.

It is to be understood that the design, arrangement and the temperature at which the compartment 11 of the apparatus disclosed is maintained is such that the amount of moisture withdrawn from air does not greatly exceed the amount which the vegetables require over long periods of storage. However, a suitable drain may be provided in the bottom of compartment 11 for conveying surplus moisture from the compartment when necessary. The vegetables 24 may, if desired, be placed upon wire or the like trays or pans and thus supported a slight distance away from the floor of the compartment so as to avoid storage thereof in a body of water should atmospheric conditions and the moisture content of air in the vicinity of the installation require same.

It will be seen therefore that I have provided an efficient method of storing vegetables and an improved device for displaying same while being stored. My improved apparatus serves to facilitate and speed up service to customers in stores by the provision of the mirror or reflector which enables a customer to view the vegetables in

the apparatus at a distance from the cabinet and to thereby choose the vegetables to be purchased in advance of being served or during the time a clerk is obtaining other items for a customer. The improved apparatus overcomes the difficulties heretofore enumerated and encountered in the use of conventional water spray type of vegetable storage devices because the vegetables stored in an apparatus of the type disclosed will not be wetted to such a degree that a large amount of water will flow therefrom upon the floor. Vegetables are stored in a cool substantially dry condition in my apparatus while at the same time being prevented from wilting by the strata or layer of humid air above the vegetables. Vegetables stored in the apparatus disclosed are also maintained in a sanitary condition because the present invention tends to reduce or eliminate handling of the vegetables by customers.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A refrigerating apparatus comprising in combination, a cabinet having a bottom and upright insulated walls forming an open-top compartment, a metal liner for said compartment walls adapted to receive and support food products thereon in said compartment, cooling fluid conveying means disposed in intimate thermal contact with said metal liner for cooling the food products supported thereon and for cooling the air above the products, said cabinet being supported in a position whereby the upright walls thereof conceal the interior of said compartment from an observer's view, a cover for closing the

open top of said compartment, the lower surface of said cover being formed of a glass mirror, means for maintaining said cover in an open position whereby said mirror reflects food products in said compartment laterally from said cabinet into the observer's view, and said last named means being adjustable to support said cover in any one of a plurality of open positions relative to said cabinet for changing the direction of reflection of food products from said compartment by said mirror.

2. A refrigerating apparatus comprising in combination, a cabinet having a bottom and upright insulated wall forming an open-top compartment, a liner for said compartment walls adapted to receive and support food products thereon in said compartment, said liner being formed of a good heat conducting material, cooling fluid conveying means disposed in intimate thermal contact with said liner for cooling the food products supported thereon and for cooling the air in said compartment above the products, said cabinet being supported in a position whereby the upright walls thereof conceal the interior of said compartment from an observer's view, a cover for closing the open top of said compartment, the lower surface of said cover being formed of reflecting material, means for maintaining said cover in an open position whereby said reflecting material reflects food products in said compartment laterally from said cabinet into the observer's view, and said last named means being adjustable to support said cover in any one of a plurality of open positions relative to said cabinet for changing the direction of reflection of food products from said compartment by said reflector.

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