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COOLER FOR BOTTLED BEVERAGES

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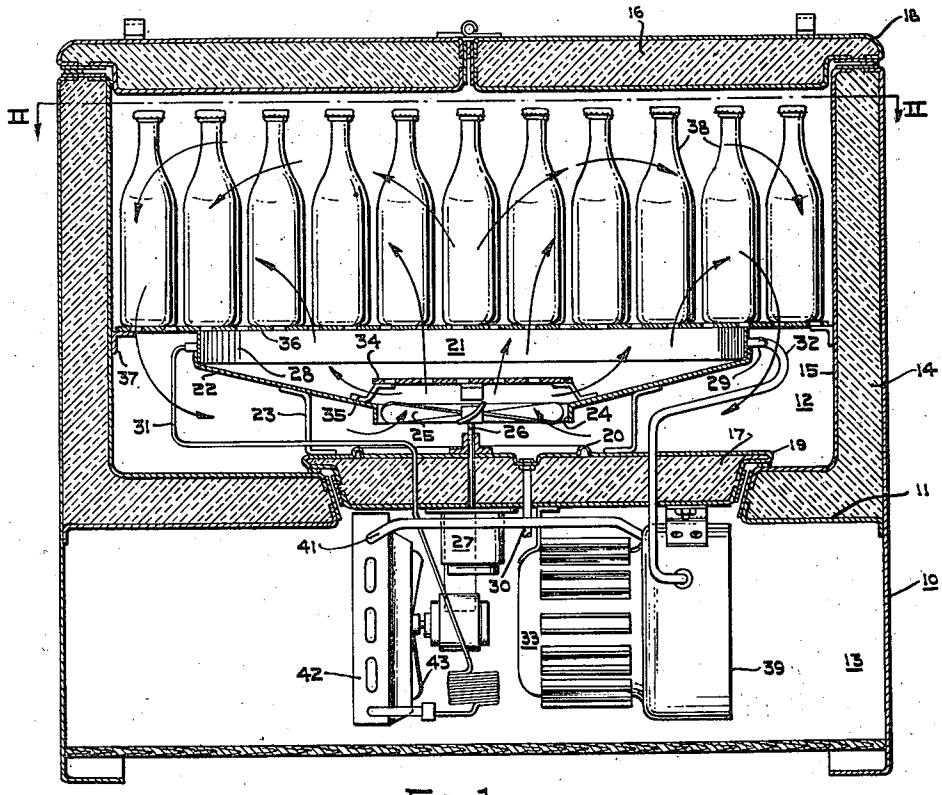

FIG. 1.

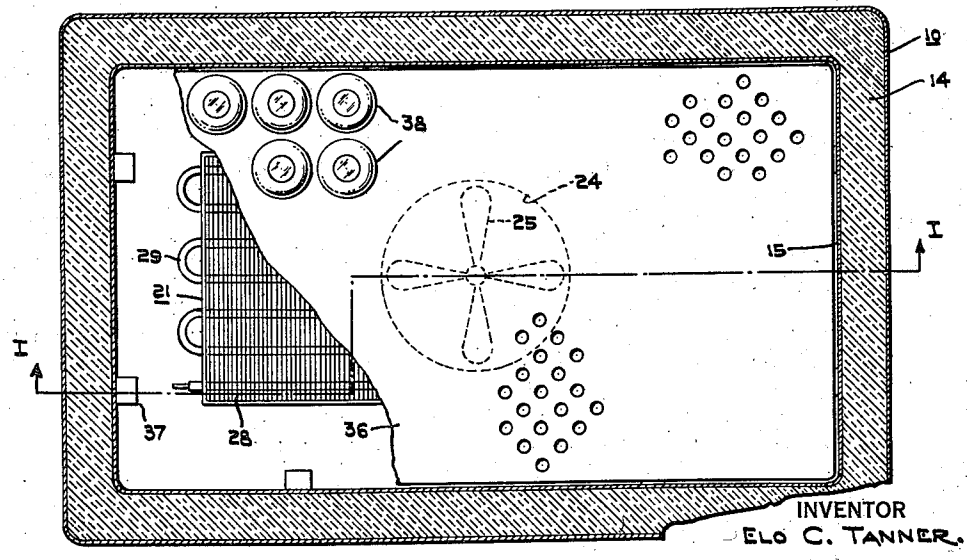

FIG. 2.

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COOLER FOR BOTTLED BEVERAGES

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6 Claims. (Cl. 62—102)

This invention relates to mechanical refrigerators and more especially to dry refrigerators for cooling packaged beverages and the like.

One object of the invention is to provide a dry refrigerator for rapidly cooling packaged beverages and similar articles.

Another object is to provide a compact dry refrigerator for packaged beverages.

Another object is to provide a dry refrigerator for packaged beverages in which the refrigeration apparatus is removable as a unit.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawing forming a part of this application, in which:

Fig. 1 is a vertical section of the refrigerator of this invention taken on the line I—I of Fig. 2; and,

Fig. 2 is a section on the line II—II of Fig. 1 with a portion of the foraminated false bottom broken away to show a part of the cooling unit of the refrigerator.

The refrigerator comprises a cabinet of rectangular section and includes an outer shell 10 and a horizontal partition 11 therein dividing the cabinet into an upper refrigerated chamber 12 and a lower machine compartment 13. The refrigerated compartment 12 is provided with heat insulating material 14 and an inner liner 15. The upper wall of the insulated compartment comprises a removable cover 16. A removable insulated section 17 is provided in the bottom of the insulated chamber 12. The removable cover 16 as well as the removable section 17 is supported by their respective flanges 18 and 19.

A flat, rectangular and horizontal cooling unit or evaporator 21, somewhat smaller in size than the horizontal cross sectional area of the refrigerated chamber 12, is located centrally in the chamber 12 and is supported a distance above the removable section 17 by a shroud 22. The shroud 22 in turn is supported by Z-shaped metal strips 23 secured to the removable section 17. The shroud 22 has a circular opening 24 in its lower portion in which opening an air circulating fan 25 is located. The fan 25 is secured on the end of a vertical shaft 26 which shaft passes through the removable section 17 and is driven by a motor 27 secured to the lower surface of the removable section 17. The cooling unit 21 comprises spaced apart metal strips 28 through which a tube 29 is passed back and forth, which tube connects through tubes 31 and 32 with a refrigerant supplying unit 33 to be described subsequently.

A foraminated circular plate 34 is secured by brackets 35 above the fan 25, which plate 34 deflects the air currents set up by the fan 25 to flow substantially uniformly through all portions of the cooling unit 21.

A rectangular foraminated metal plate 36 rests partially on the cooling unit 21 and partially on the brackets 37, which plate forms a false bottom in the refrigerated chamber and supports the bottles 38 or other packaged beverages. The fan 25 preferably circulates the air upwardly through the cooling unit 21, through the perforations in the rectangular plate 36 above the cooling unit 21, through the storage space above the plate 36, downwardly through the perforations at the borders of the plate 36 and below the shroud 22 to the fan 25. The flow of air, however, may also be reversed. The bottles 38 or other articles are thus cooled by the air circulating in heat exchange relationship with the cooling unit 21 and also by conduction through contact of the metal plate 36 with the cooling unit 21. The path through which the air is circulated is also short and its area is large so that a large quantity of air may be circulated with a small expenditure of motive power. Any moisture dripping from the cooling unit is directed by the shroud into a receptacle formed by ridges 20 on the removable section 17 and is drained from the receptacle by a tube 30.

The refrigerant supplying unit 33 which is of conventional design comprises a casing 39 containing a motor driven pump, not shown in the drawing. The pump withdraws the vaporized refrigerant from the cooling unit 21 through the suction tube 32 passing through the removable section 17. The compressed refrigerant is conducted through a tube 41 to a condenser 42 wherein the refrigerant is liquefied and then passed through a capillary impedance tube 31 to the tube 29 of the cooling unit 21. The capillary tube 31 is coiled at its lower end and also passes through the removable section 17. A motor driven fan 43 is located between the casing 39 and the condenser 42 for drawing air through the condenser 42 over the casing 39. The casing 39, the motor driven fan 43, and the condenser 42 are secured to the underside of the removable section 17 and are of a size to pass upwardly through the opening in the bottom of the refrigerated chamber.

It will be apparent from the above description that the entire refrigerating mechanism may be

removed as a unit from the insulated chamber by removing the false bottom and lifting the entire unit including the removable section from the refrigerated chamber. It will also be apparent that this invention provides a dry cooler for articles such as packaged beverages which is of compact design and which quickly cools articles placed therein.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. In a dry cooler for packaged beverages and the like, the combination of an insulated chamber, a foraminated metal false bottom therein having a central portion and a border portion, a metallic cooling unit below and in contact with the central portion of said false bottom, said cooling unit having vertical air passages therein, and means for circulating the air in said cabinet through said air passages and through the foraminations in the false bottom above said cooling unit, said air returning through the foraminations at the border portion of the false bottom.

2. In a cooler for packaged beverages and the like, the combination of an insulated chamber, a flat, horizontal, and metallic cooling unit near but spaced from the bottom and from the side of said insulated chamber, said cooling unit having vertical air passages therethrough, a foraminated metal plate above and in contact with said cooling unit, said plate forming a false bottom in said chamber for supporting the packaged beverages, and a motor-driven fan for circulating the air in said chamber through said air passages, through the foraminations in the portion of the plate above said cooling unit, through the storage space above the plate, and reversely through the foraminations near the border of the plate.

3. In a cooler for packaged beverages and the like, the combination of an insulated chamber, a flat, horizontal, and metallic cooling unit near but spaced from the bottom and from the sides of said insulated chamber, said cooling unit having vertical air passages therethrough, a foraminated metal plate above and in contact with said cooling unit, said plate forming a false bottom in said chamber for supporting the packaged beverages, and a motor-driven fan for circulating the air in said chamber upwardly through said air passages, through the foraminations in the portion of the plate above said cooling unit, and through the storage space above the plate, said air returning downwardly through the foraminations near the border of the plate to the space below the cooling unit.

4. In a dry cooler for packaged beverages and the like, the combination of an insulated chamber, an access opening in the top of said chamber, a closure for said opening, a foraminated false bottom having a central portion and a border portion, said false bottom being located in said chamber to divide the same into a bottle-storage compartment and an air-cooling compartment located below the bottle-storage compartment, and means in said air-cooling compartment for blowing chilled air through the foraminations in the central portion of said false bottom, said storage and cooling compartments being constructed to guide said air through the foraminations at the border portions of said false bottom back to said means.

5. In a dry cooler for packaged beverages and the like, the combination of an insulated chamber, an access opening in the top of said chamber, a closure for said opening, a foraminated partition in said chamber dividing the same into a bottle-storage compartment and an air-cooling compartment located below the bottle-storage compartment, and means in said air-cooling compartment for blowing chilled air through a portion of said foraminated partition, said storage and cooling compartments being constructed to guide said air back to said means through the foraminations at another portion of said partition.

6. In a dry cooler for packaged beverages and the like, the combination of an insulated chamber, an access opening in the top of said chamber, a closure for said opening, a foraminated partition in said chamber dividing the same into a bottle-storage compartment and an air-cooling compartment located below the bottle-storage compartment, a removable section in the bottom of said chamber, a cooling unit supported on said removable section, said cooling unit having air passages therein, means for circulating the air in said chamber through said passages of the cooling unit and through a portion of said foraminated partition, said cooling and storage compartments being constructed to guide said air back to said air-circulating means through the foraminations of another portion of said partition, and refrigerating apparatus below and secured to said removable section for supplying refrigerant to said cooling unit, said removable section, said refrigerating apparatus, and said cooling unit being removable from said chamber as a unit.

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