

Nov. 30, 1937.

L. A. M. PHELAN ET AL.

2,100,871

CABINET

Filed Oct. 21, 1935

2 Sheets-Sheet 1

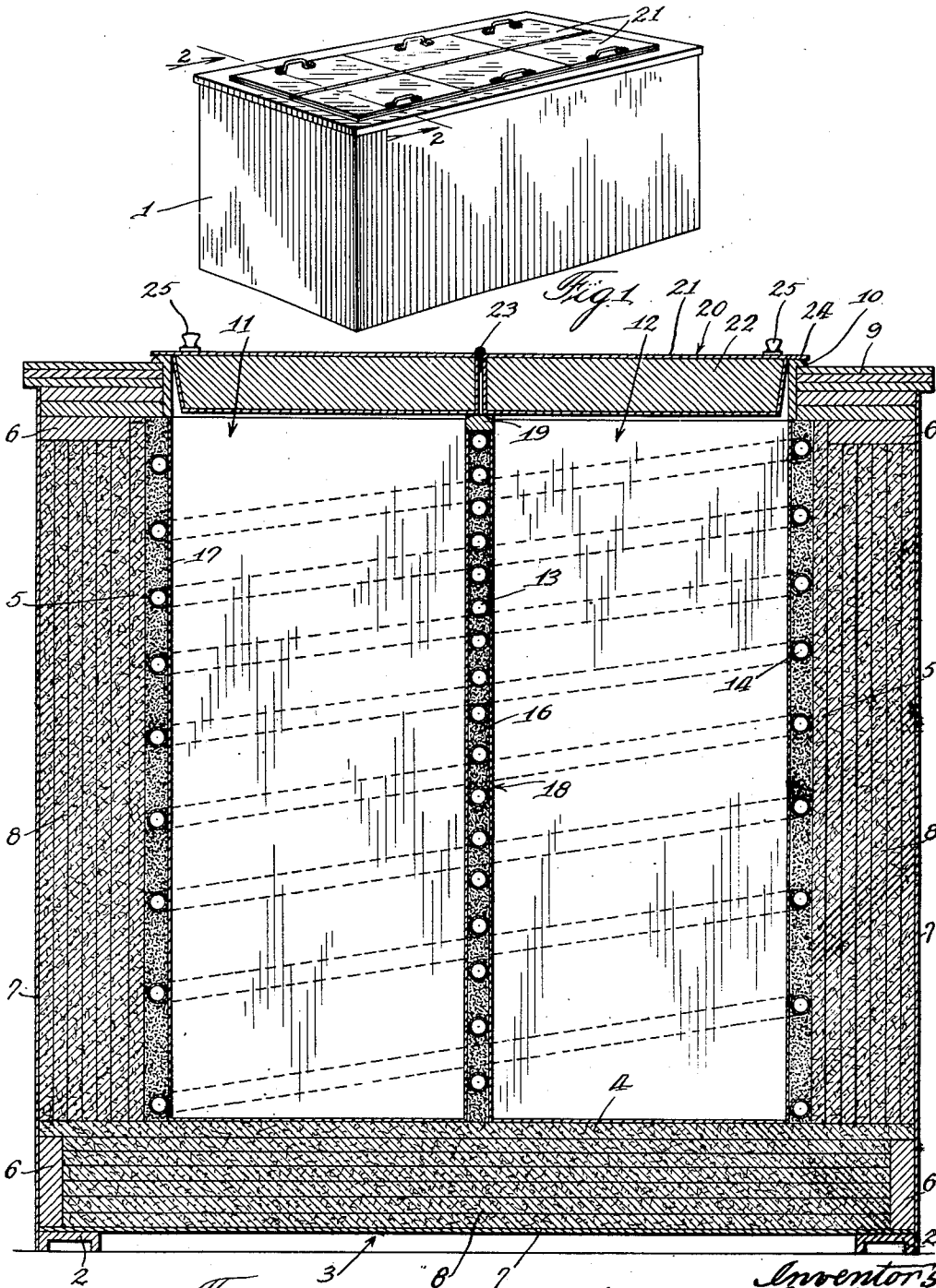


Fig. 2.

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2 Sheets-Sheet 2

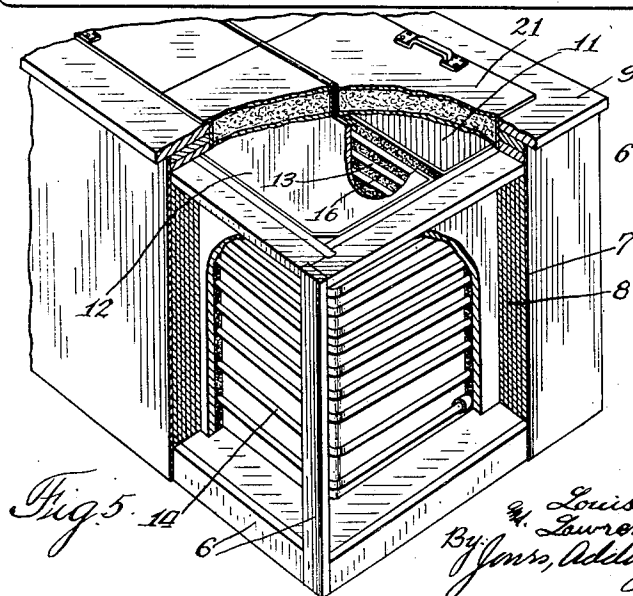
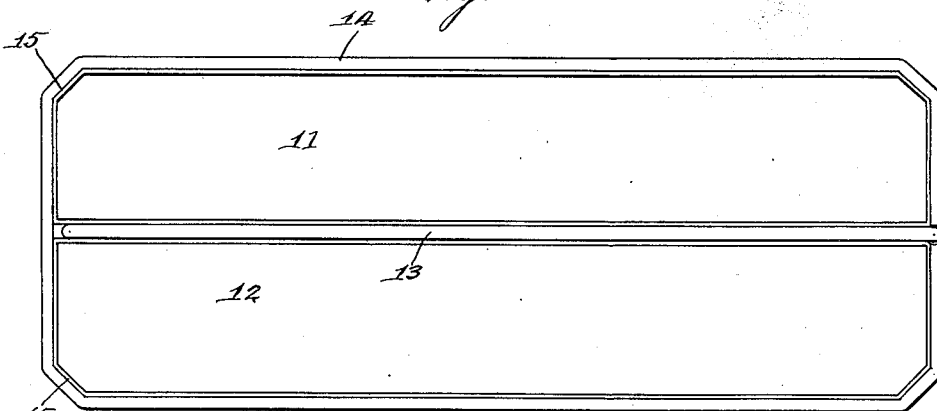
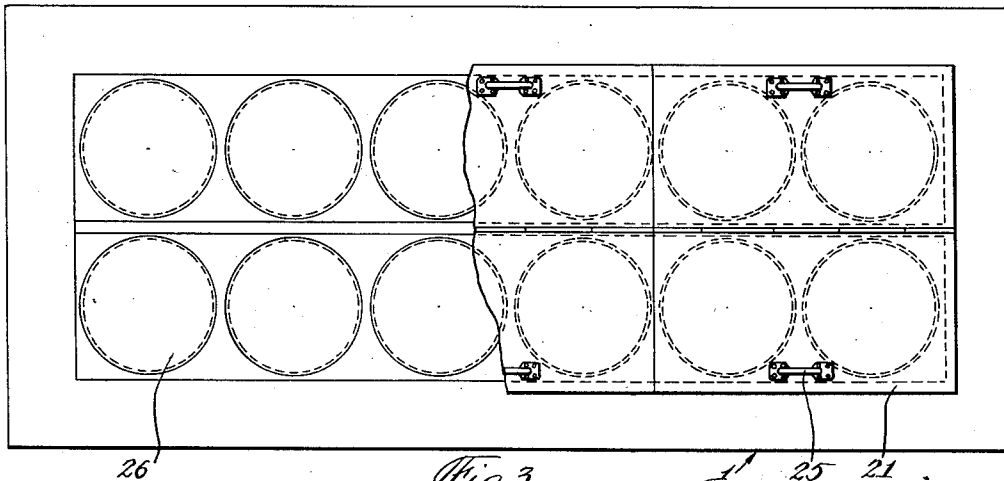


Fig 4.

Fig. 5.

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UNITED STATES PATENT OFFICE

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CABINET

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3 Claims. (Cl. 62—99)

This invention relates to cabinets and more particularly to refrigerating cabinets commonly called cooling or hardening cabinets in which ice cream in bulk form may be stored, and wherein the ice cream is readily accessible for retail distribution.

It is an object to provide a cabinet for the convenient storage of ice cream cans or packages and providing compartments and doors of such shape and arrangement that the compartments are readily accessible for the purpose of inserting or removing cans or packages of ice cream.

Another object of the present invention is to provide a cabinet of the character described which provides a maximum cold wall surface to absorb the heat from the ice cream contained therein and which is particularly arranged to apply a refrigerant in the most effective manner.

A further object is the provision of a retailer's cabinet in which all of the contents may be readily accessible without permitting warm air to flow into other portions of the cabinet.

The present invention is also arranged to provide for complete opening of the container space with no overhanging edges or other projections to interfere with the removal or insertion of ice cream cans or packages or with the retailing of ice cream therefrom.

Another object is the provision of a comparatively small cabinet with maximum capacity, maximum accessibility, and more efficient refrigeration. A maximum cold surface is provided for a minimum size cabinet.

The present invention also provides an ice cream cabinet having the above noted advantages, among others, and which is also cheap to manufacture, easy to assemble, and which will not easily get out of order.

Further objects will be apparent from the specification and the appended claims.

In the drawings:

Figure 1 is a perspective view of the complete cabinet.

Fig. 2 is a transverse sectional view through the cabinet and taken on a line corresponding substantially to line 2—2 of Figure 1.

Fig. 3 is a top view of the cabinet with a portion of the doors or covers broken away.

Fig. 4 is a top plan view of the containers and refrigerating pipes thereon.

Fig. 5 is a perspective view of one end of the cabinet with a portion broken away for purposes of illustration.

Referring to the drawings in detail, the embodiment illustrated comprises a rectangular

box-like cabinet 1, having an open top and preferably supported on longitudinal channel irons 2, which latter may be secured adjacent the longitudinal bottom edges. The cabinet comprises a base portion 3, having a floor 4, and side and end wall linings 5, preferably of an insulating material commonly known to the trade as "Temlock", and secured to wooden frame members 6. "Temlock" is a comparatively rigid manufactured insulating lumber which is furnished in large sheets. These sheets form the floor 4 and the side and end inner lining 5 of the walls of the cabinet and serve to tie together the wooden frame members 6 to which they are secured.

The outside of the frame 6, including the bottom and side and end walls, is preferably covered with suitable sheet metal 7, thereby forming insulating spaces in the walls which may be filled with suitable insulating material 8. In the present invention, "Temlock" or similar material is preferably used for insulation and is cut into sheets of suitable size and inserted in the insulating spaces and may be retained by the sheet metal covering 7.

The top of the cabinet is provided with a rectangular frame or wall cap 9 which forms a finishing cap or trim for the walls and also provides a suitable frame or jamb for the doors or covers. The frame 9 may be of wood if desired. A sealing strip 10 of rubber or other suitable material is also provided.

The interior of the cabinet is provided with suitable closely adjacent longitudinal containers 11 and 12. These are sheet metal open-top containers or receptacles, as illustrated in Figs. 2 and 4, and extend the entire length of the cabinet. A so-called "coil" comprising a continuous refrigerating pipe or conduit 13 is positioned between the containers and may be secured to the container walls by soldering or otherwise, thereby providing a thin refrigerating partition between the containers.

A second refrigerating conduit 14 is spirally wound around both containers, as illustrated in Figs. 2 and 4, and is connected to the coil 13 to provide a continuous refrigerant conduit which may be connected to a suitable refrigerating unit. The outer corners of the containers are preferably angular or may be rounded at 15 to permit the conduit to be easily wound thereon. The conduit 14 may be soldered or otherwise secured to the containers and connected in series with the conduit 13 before the containers are inserted in the cabinet, thereby providing a simple and convenient sub-assembled refrigerating container

unit. The coils form a continuous conduit around and between the containers and through which a suitable refrigerant may be supplied.

During the construction of the cabinet, the containers 11 and 12, with the pipes thereon, are inserted as illustrated in Fig. 2, whereby the adjacent walls form a thin partition therebetween. Hot tar is then poured into the central conduit space 16 and the outside conduit spaces 17. This hot tar hardens and completely fills the spaces and thereby prevents accumulation of moisture due to sweating of the pipes.

The adjacent sides of the containers, together with the conduits and tar therebetween, provide a comparatively thin, rigid, central longitudinal partition 18 extending the entire length of the cabinet. This partition is preferably provided along its top longitudinal edge with an insulating strip of wood 19 or other suitable material for supporting suitable doors 20 at spaced points along the strip. The doors 20 preferably each comprise a sheet metal shell 21 having suitable insulating material 22 therein. The doors are preferably all hinged together by means of a single longitudinal hinge member 23 extending substantially the entire length of the cabinet, although a separate hinge may be provided for each pair of doors, if desired. The hinge is directly over, and in the plane of, the partition 18, and when the doors are closed their inner edges may rest upon the top of the partition. The doors are provided with outwardly extending flanges 24 which rest upon the sealing strip 10, thereby completely closing the cabinet. The doors 20 are provided with handles 25, and these handles are preferably located in such a manner that they provide cooperating stops for the doors when the doors are opened. That is, when one of the doors is opened, its handle will rest upon the handle of the other door and be supported thereby.

An important feature of the present invention is the fact that the device is so constructed that the wood frame 5 does not contact directly with the cold tank surface, and therefore the heat transfer through the insulating walls is reduced to a minimum. Also, metal is not permitted to extend completely through the structure at any point, and this also minimizes the heat transfer.

These cabinets are mainly used by retailers for storing ice cream either in cans or in bricks, or both, for retail distribution; and it has been found that most of such retail establishments are comparatively small and any saving of room is therefore of great importance. The present invention is therefore arranged to provide a minimum width, as well as length, for a maximum capacity. The arrangement of the spirally-wound pipes on the containers permits the central partition to be made extremely thin and at the same time the multiplicity of pipes in this partition provides an efficient refrigerating unit at the central longitudinal vertical plane of the cabinet and in a position where it is most efficient, and losses are not sustained by heat transfer through the cabinet wall as there are no walls in proximity to the partition except adjacent the ends.

In winding the conduits 14 on the containers, it has been found preferable to wind the coils closer together adjacent the top of the containers than at the bottom. This maintains a more even temperature throughout the entire cabinet. The multiplicity of conduits in the central partition provides the greatest amount of refrigerant at

the most effective point, that is, remote from the side walls.

The present invention has many advantageous features over prior devices in that, due to the construction and relation of the doors and the fact that there are no transverse partitions, it provides for maximum visibility, maximum accessibility, and maximum capacity all in a single cabinet. The containers may be very easily cleaned, if desired, without removing all of the stock therein, as the stock can be shifted from one end of the container to the other or from one container to the other, and it is only necessary to open one door at a time. Also, due to the arrangement of the doors, any desired part of the interior may be accessible without exposing the remainder to incoming warm air. The doors open on each other in such a way that they take up no extra space on the cabinet top and they do not extend beyond the cabinet when open. They also provide for complete opening of the containers with no overhanging edges to interfere with lifting ice cream cans or packages from the hardening space.

The containers are of a width corresponding to the diameter of the usual ice cream cans in which the cream is delivered to the retailer, and of a length corresponding to a plurality of pairs of cans whereby, if desired, two cans may be positioned under each door. These cans are indicated by the reference numeral 26 in Fig. 3, and each door is preferably of a width to permit access to two cans.

Modification may be made in the embodiment illustrated, and it is desired, therefore, that the invention be limited only by the prior art and the scope of the appended claims.

Having thus described this invention, what is claimed and desired to be secured by Letters Patent is:

1. A cabinet of the character described comprising an insulated box having two elongated and closely adjacent unobstructed open top rectangular longitudinal chambers therein with a thin partition therebetween, a refrigerant conduit in said partition, a plurality of reversible pairs of freely removable transversely opening doors covering said open top, each pair of doors being hinged together in the plane of said partition and having their outer ends supported by the side walls of said cabinet and their inner ends supported by said partition and cooperating therewith to seal said chambers.

2. A cabinet of the character described comprising two elongated rectangular containers having top openings the full size of the containers, said containers being closely adjacent to provide a thin partition between the containers, a refrigerant conduit around said containers and in said partition, a plurality of reversible and interchangeable pairs of freely removable transversely opening doors completely closing said containers and hinged together in the plane of said partition with their inner ends supported thereon and forming a seal therewith and with their outer edges supported on the side walls of said cabinet whereby when all of the doors on either side are open the entire top of a corresponding container will be open to provide free and unobstructed access to the entire corresponding container.

3. An ice cream cabinet comprising an elongated open top box having side and end walls formed of a plurality of adjacent sheets of comparatively rigid insulating material, a pair of lon-

gated open top sheet metal receptacles arranged side by side and having straight vertical walls with their inner walls spaced slightly to provide a thin partition, the outer walls of said receptacles spaced slightly from said box walls to form
5 a narrow space therebetween, a refrigerant coil in said space and in said partition, a plurality of reversible and interchangeable pairs of freely removable transversely opening doors completely
10 closing said receptacles and hinged together in

the plane of said partition with their inner ends supported thereon and forming a seal therewith and with their outer edges supported on the side walls of said cabinet whereby when all of the doors on either side are open the entire top of a
5 corresponding receptacle will be open to provide free and unobstructed access to the entire corresponding receptacle.

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