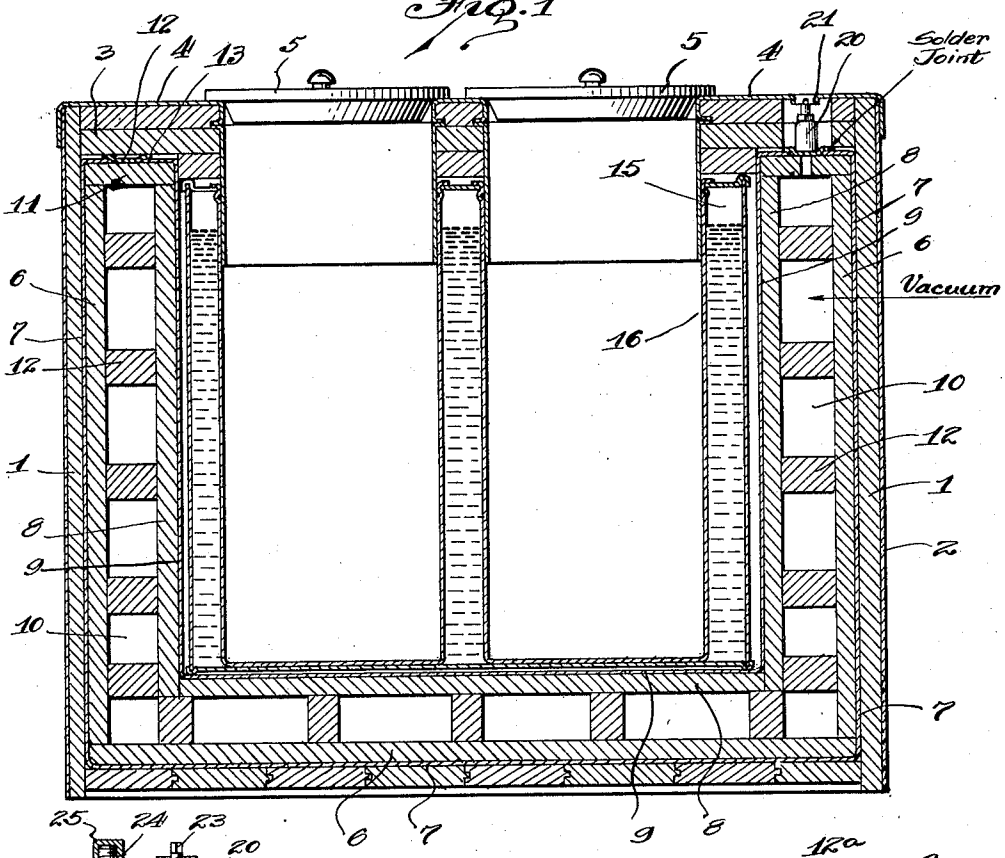
June 16, 1931. P. FARMER 1,809,929

CABINET CONSTRUCTION

Filed Oct. 13, 1927

Fig. 1



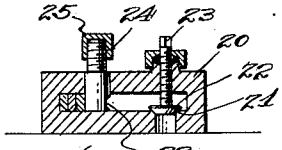


Fig. 4

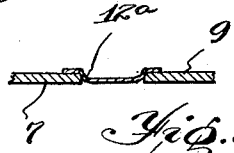


Fig. 3

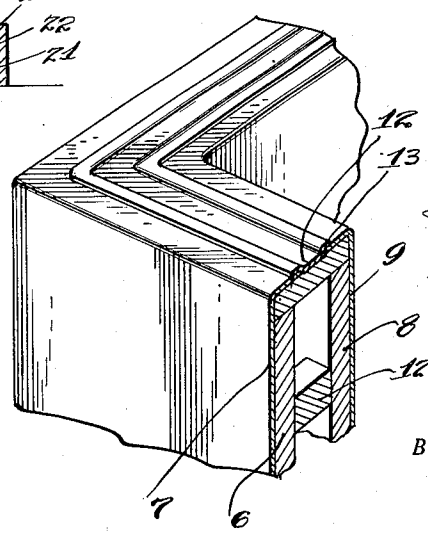


Fig. 2

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CABINET CONSTRUCTION

Application filed October 13, 1927. Serial No. 225,887.

This invention relates to cabinet construction, and more especially a cabinet for holding frozen food stuffs such as ice cream.

Ice cream cabinets are commonly used for holding and keeping the ice cream in a frozen condition at places where the cream is dispensed to the retail trade. The present invention contemplates such a cabinet of increased efficiency inasmuch as the construction affords a vacuum chamber to prevent the transference of heat. The cabinet is one which can be used with ice or with a mechanical cooling apparatus.

Features of the invention reside in a novel and simplified construction which provides for a vacuum chamber in the cabinet; a novel manner by which interior portions of the cabinet are joined to exterior portions of the cabinet so as to minimize the transference of heat from the relatively warm exterior portion to the interior portion. The cabinet is constructed primarily of base members of sufficient tensile strength to resist the exterior atmospheric pressure when the vacuum is created, and the base construction may itself be of material of poor heat conducting properties. Furthermore, the invention contemplates reinforcements within the vacuum chamber of reinforcing the walls of the cabinet against the exterior atmospheric pressure.

In the accompanying drawings:

Fig. 1 is a sectional view taken through a cabinet constructed in accordance with the invention.

Fig. 2 is an enlarged perspective, partly in section, showing in more detail, the manner in which the inner and outer portions of the cabinet are joined to minimize the transference of heat.

Fig. 3 is a detail in section showing a different manner in which the construction between the inner and outer portions may be made.

Fig. 4 is a detail view in section of a valve construction which can be used with the cabinet.

The cabinet consists of an exterior wall construction 1, the sides and ends of which may, if desired, be covered with a sheet metal covering 2. This wall construction may be of suitable boards, or of wood and metal ply construction. The top of the cabinet, as shown at 3, is also preferably covered with a layer of metal 4, the top having suitable openings with removable covers 5.

Within this cabinet exterior portion is a section which permits the creation of a vacuum. This portion of the cabinet consists of an outer wall or frame construction 6 covered by a layer of metal 7, and an inner wall construction spaced from the outer wall consisting of frame construction 8 covered by metal 9. This affords a space 10 between these inner and outer walls for the creation of a vacuum. At the top of the cabinet these inner and outer walls are covered by members 11.

The wall portions 6 and 8, and the members 11 are made of material, such as wood, of sufficient tensile strength to resist the external pressure when a vacuum is created in the chamber 10. Balsa wood may be advantageously used for this purpose inasmuch as this wood is itself a very good insulator. For further strengthening the construction a multiplicity of supports 12 may be placed in the vacuum chamber for supporting and adding to the rigidity of the walls. These supports may be in the form of blocks of balsa wood.

The metal covering 7 for the vacuum chamber lies next adjacent to the exterior wall construction of the cabinet, and of course will be relatively warm by reason of the heat from the surrounding atmosphere. The metal 9 of the interior wall of the vacuum chamber will be relatively cold inasmuch as it lies next adjacent to the cool interior of the cabinet. These two metal members are brought over the top of the members 11, and in order to entirely close the vacuum chamber with metal it is necessary to join these two members. However, it is desirable to minimize the transference of heat from the relatively warm metallic wall member 7 to the metallic member 9.

For this purpose a joint is provided between these two metal wall portions which is arranged to minimize the transference of heat. Such a joint may be made by utilizing

metal or other material of suitable poor heat conducting qualities such as rubber, silica or bakelite. The metal wall portions will preferably be formed of some metal which resists corrosion, as for example, copper, which incidentally is a good heat conductor. In this case the metal strip 12 may be of a metal having relatively poor heat conducting properties as compared to the metal of the wall portions. This strip 12 may be soldered, welded or brazed to the wall portions, as at 13. This construction forms a break in the transference of heat and at the same time affords a complete metal covering for the vacuum chamber. The strip may be of a substance which can be cast or moulded in place.

In Fig. 3 there is shown a different form of construction wherein the wall portions are joined together by a strip of metal 12*a* which has a thickness materially less than the thickness of these wall portions. In this construction the strip 12*a* may be of the same metal as that of the wall portions and yet provide for minimizing heat transference; also this thin strip 12*a* may be a metal of lower heat conducting properties which gives a still further insulating effect to prevent the conduction of heat from the outer wall section to the inner wall section.

Within the cabinet is shown a tank 15 for holding brine or other suitable liquid cooled by mechanical refrigerating mechanism. This tank is provide with wells 16 in alignment with the openings in the top of the cabinet which are closed by the covers 5. The containers of cream are to be placed in these wells and the covers may be removed from time to time for dispensing the cream in the usual manner.

For the purpose of creating the vacuum in the chamber, and to permit test of the vacuum from time to time, a valve construction 20 is placed at some point in the wall of the vacuum chamber. An advantageous point for this valve is on the connecting strip at the top of the cabinet which may be provided with an opening 21 to permit access to the valve. This valve is provided with a valve seat 21 and a valve member 22 which is normally closed but which can be opened by means of a valve rod 23, preferably shaped as shown for receiving a suitable tool for rotating the stem. The valve also includes a connection 24 for receiving a gauge for testing purposes, or a conduit for use in creating the vacuum. This connecting outlet may be normally closed by a cap 25.

By removing the cap 25 and applying a gauge the vacuum in the chamber can be tested from time to time by opening of the valve 22. This valve construction can also be utilized in originally creating the vacuum, or in restoring the vacuum should the same be lost after the cabinet has been in use.

In accordance with this invention a vacuum chamber is provided which is entirely sealed by air tight walls which are reinforced by suitable frame construction for resisting the pressure incident to the vacuum. While the vacuum chamber is entirely sealed by metallic walls, the construction is such as to provide insulation to retard the transference of heat from the outer metallic wall portion to the inner metallic wall portion. It is probable that in use, there may be some warping or changing or shape of the walls of the vacuum chamber. For instance, the atmospheric pressure may warp the vacuum chamber so as to tend to separate the metallic wall members 7 at one or more points from the exterior walls of the cabinet. But this, however, will not be objectionable inasmuch as the vacuum chamber is concealed from view and the exterior walls of the cabinet will retain their original shape.

In the specification and claim it has been found advantageous to describe the cabinet as one suitable for frozen food stuffs or the like. However, this has not been done with the idea of limiting the invention to use for frozen food stuffs but it is intended that the invention may be used for food stuffs which are merely kept in a cooled or chilled condition without necessarily being frozen.

I claim:

A cabinet for containing food stuffs or the like, comprising in combination inner and outer substantially non-heat-conducting walls spaced to provide a vacuum space, valve means in the outer wall consisting of a port extending from the exterior side of the outer wall to the middle of said outer wall, a second port in the outer wall spaced from, and parallel to, the first mentioned port, and extending from the middle of the outer wall to the interior surface of the outer wall, said first and second ports being connected by a conduit, a valve member closing the second port and a closure for the first-named port, whereby the vacuum between the inner and outer walls may be tested without impairing said vacuum.

In testimony whereof I affix my signature.

PATTERSON FARMER.