Feb. 7, 1933. D. A. BATTISTA 1,896,693

REFRIGERATED DISPLAY DEVICE

Filed July 7, 1932

Fig. 1

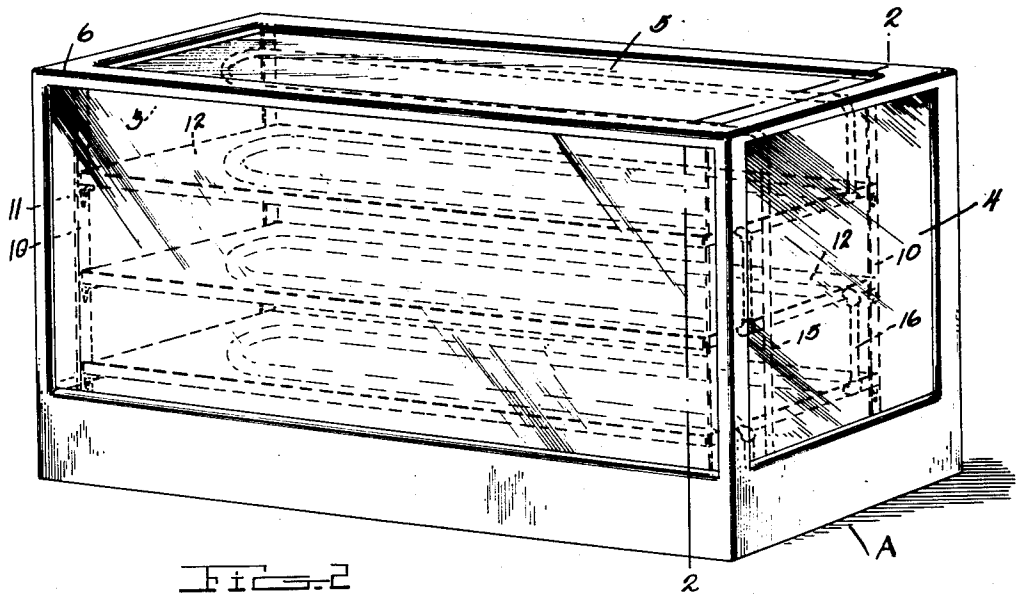


Fig. 2

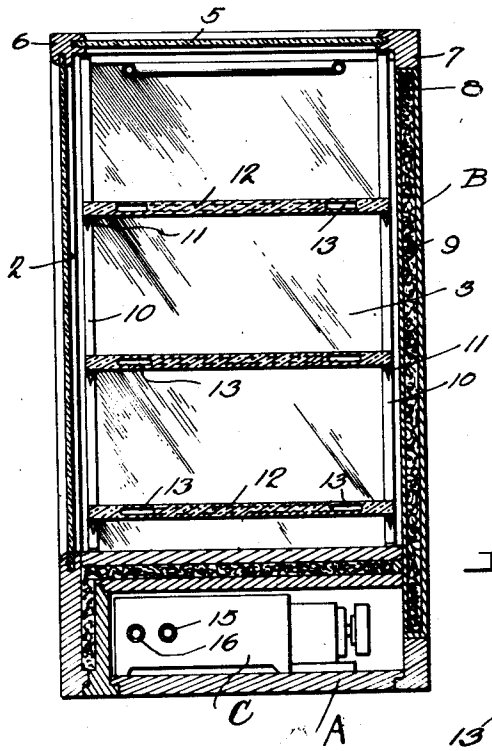


Fig. 3

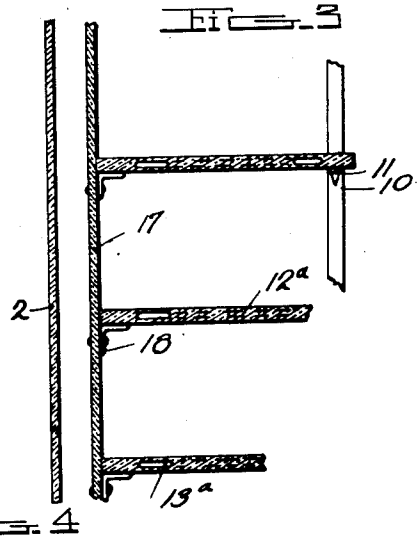
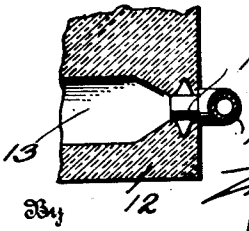


Fig. 4



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UNITED STATES PATENT OFFICE

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REFRIGERATED DISPLAY DEVICE

Application filed July 7, 1932. Serial No. 621,262.

My invention relates broadly to improvements in refrigerator service display counters or showcases of the type usually employing a series of pipes or coils within the case through which a suitable refrigerating medium is circulated.

More specifically my invention relates to the construction and arrangement of transparent shelf means within the showcase whereby the said shelf means will take the place of the usual series of pipes or coils and further provide refrigerating zones therebetween which extend from end to end of the case.

Showcases of this general type have heretofore depended, for the maintenance of a desired temperature throughout the case, upon the natural circulation of air which is cooled by suitable refrigerating coils usually located within the upper portion of the case.

It is the primary object of my invention to provide a showcase for service use in which the shelves are arranged in vertical spaced relation and formed of a suitable transparent imperforate material, such as glass, in which is cast, or otherwise formed, a conduit or passageway for the circulation of a refrigerating medium throughout the extent of each shelf, thereby providing simple and efficient means for chilling articles displayed upon the shelves by direct conduction, and maintaining such articles in frozen condition by blanketing them in dense chilled air between adjacent shelves.

Such a display counter is particularly adapted for the display of frozen confections which are fully described and claimed in my Patent No. 1,786,387, dated Dec. 23, 1930, for "ice cream cake and method of making same".

Ice cream cakes made in accordance with my patent disclosure may take various forms and shapes and are usually coated and decorated in attractive designs, as is usual in the cake-making art. Due to the character and quantity of cake employed in their manufacture, it has been found unnecessary to maintain the finished frozen confections at extremely low temperatures in order to preserve their frozen condition. It is, therefore, unnecessary to maintain the glass shelves at such low temperatures as will cause them to frost and thereby become opaque.

A further object of my invention is, therefore, to provide a refrigerated showcase with transparent, imperforate shelves through which a refrigerating medium is circulated, whereby articles maintained in frozen condition upon the shelves are clearly visible through the shelves from points exterior of the showcase windows.

Referring now to the accompanying drawing, on which similar reference characters indicate similar parts:

Fig. 1 is a perspective view of a refrigerator showcase made in accordance with my invention and showing the arrangement of the transparent shelves and the means for supplying a refrigerating medium thereto, whereby to display through the shelves and showcase windows articles which are maintained in frozen condition upon the shelves.

Fig. 2 is a transverse section taken on lines 2—2 of Fig. 1, showing the construction of the transparent, refrigerating medium conducting shelves, and their relationship to each other, whereby to provide refrigerating zones between adjacent shelves;

Fig. 3 is a slightly modified form of shelving, in which the shelves are spaced and supported from a vertical glass plate which is slightly spaced from the window forming the front of the showcase, and forming, with the shelves, a closure for three sides of the refrigerating spaces between adjacent shelves; and

Fig. 4 is a detail sectional view showing the means for connecting the passageways formed within the shelves to suitable supply and discharge pipes for conducting a refrigerating medium to and from said shelves.

In the drawing the portions indicated as A represent a base or support for the showcase B, the base being adapted to enclose a suitable refrigerating unit C which supplies a refrigerating medium to the case B as will be hereinafter described.

As the service case B is intended primarily for the displaying of articles which are maintained in frozen condition, the front wall 2, end walls 3 and 4, and top wall 5 are pref-

erably formed of glass. These walls or windows are suitably connected and sealed at their sides and ends in grooved rails 6 supported from the base A. The rear wall 7 is preferably formed with one or more service openings 8 having doors 9 closing said openings and may therefore be of any well-known or approved refrigerator wall construction. Also supported upon the base A so as to be connected at their upper ends to the rails 6 are shelf-supporting standards 10. These standards may preferably take the form of flat strips of iron or the like, having bracket members 11 formed at intervals by striking up portions of the metal so as to underlie the corners of the shelves 12.

The shelves 12 each comprise a plate or panel of glass or other transparent material through the thickness of which extends a continuous passageway 13 in the form of a loop. In order to conserve space and material the passageways are so shaped that their greatest diameter extends in the transverse direction of the shelves.

Leading from the refrigerating unit C in the base B is a pipe 15 which extends vertically adjacent one end of the case and then horizontally adjacent the top wall 5 so as to overlie the uppermost shelf 12. The pipe 15 is looped upon itself adjacent the opposite end of the case so as to return above said shelf and is provided with a vertical extension having connection with one end of the looped passageway extending through the thickness of the upper shelf. The connection between the vertical extension of the pipe 15 and passageway of the shelf 12 is effected by means of a pipe union having an integral bushing 14 cast within the shelf so as to form a rigid part thereof. Similar pipe connections 16 are made between the opposite ends of passageways in adjacent shelves and between the bottom shelf and refrigerating unit within the base, providing a complete circuit for circulation of a refrigerating medium from said refrigerating unit through the piping and conduits, or passageways, of the vertically spaced transparent shelves.

In the modified form of the invention shown in Fig. 3, numeral 17 designates a plate or panel of glass which extends parallel to the front transparent wall 2 and is preferably rested upon the base A. This plate or panel 17 is spaced relative to the front wall and abuts the front edges of the several shelves 12^a. Connection between this plate 17 and the shelves is provided by means of brackets 18 which serve to support the forward ends of said shelves from said plate. As in the preferred form of the invention the shelves 12^a are provided with passageways 13^a for the circulation of the refrigerating medium therethrough, the vertical transparent wall 17 cooperating with the vertically spaced shelves 12^a to provide three sides of refrigerating zones between adjacent shelves to prevent rapid circulation of the chilled air from between the shelves in maintaining a desired temperature in the spaces between the shelves.

Having fully described a preferred embodiment of my invention and a modification thereof, it is to be understood that I do not wish to be limited to the exact details herein set forth, which may obviously be varied without departing from the spirit of my invention as set forth in the appended claims.

I claim:

1. In a display counter of the character described having glass side walls, a pair of transparent shelves supported in spaced relation between the walls of the counter, said shelves being formed with a passageway extending therethrough, and means connecting the passageways of each shelf to form a continuous circuit for circulating a refrigerating medium through the passageways of the shelves.

2. In a display counter, a plurality of transparent shelves supported in spaced relationship within the counter, each of the shelves having a continuous passageway formed intermediate the upper and lower surfaces thereof, means connecting the passageways of adjacent shelves, and means for circulating a refrigerating medium in a cyclic stream through the passageways of the shelves and their connecting means.

3. A display device comprising a transparent shelf having a continuous conduit formed intermediate the upper and lower surfaces thereof, said conduit having its greatest width in the transverse dimension of the shelf.

4. In a display counter of the character described having transparent walls, a glass panel supported within the counter in spaced relationship to one of said walls, a plurality of spaced transparent shelves abutting the panel, each of said shelves having a continuous conduit formed therethrough for receiving a refrigerating medium, said panel and shelves having a series of refrigerated display spaces fully enclosed on three sides.

5. The method of refrigerating and displaying frozen confections which comprises supporting said confections in vertically spaced relationship on transparent cooling mediums, said mediums being so arranged as to form refrigerating zones therebetween for said confections and through which mediums said confections may be readily viewed.

In testimony whereof I affix my signature.

DONALD A. BATTISTA.