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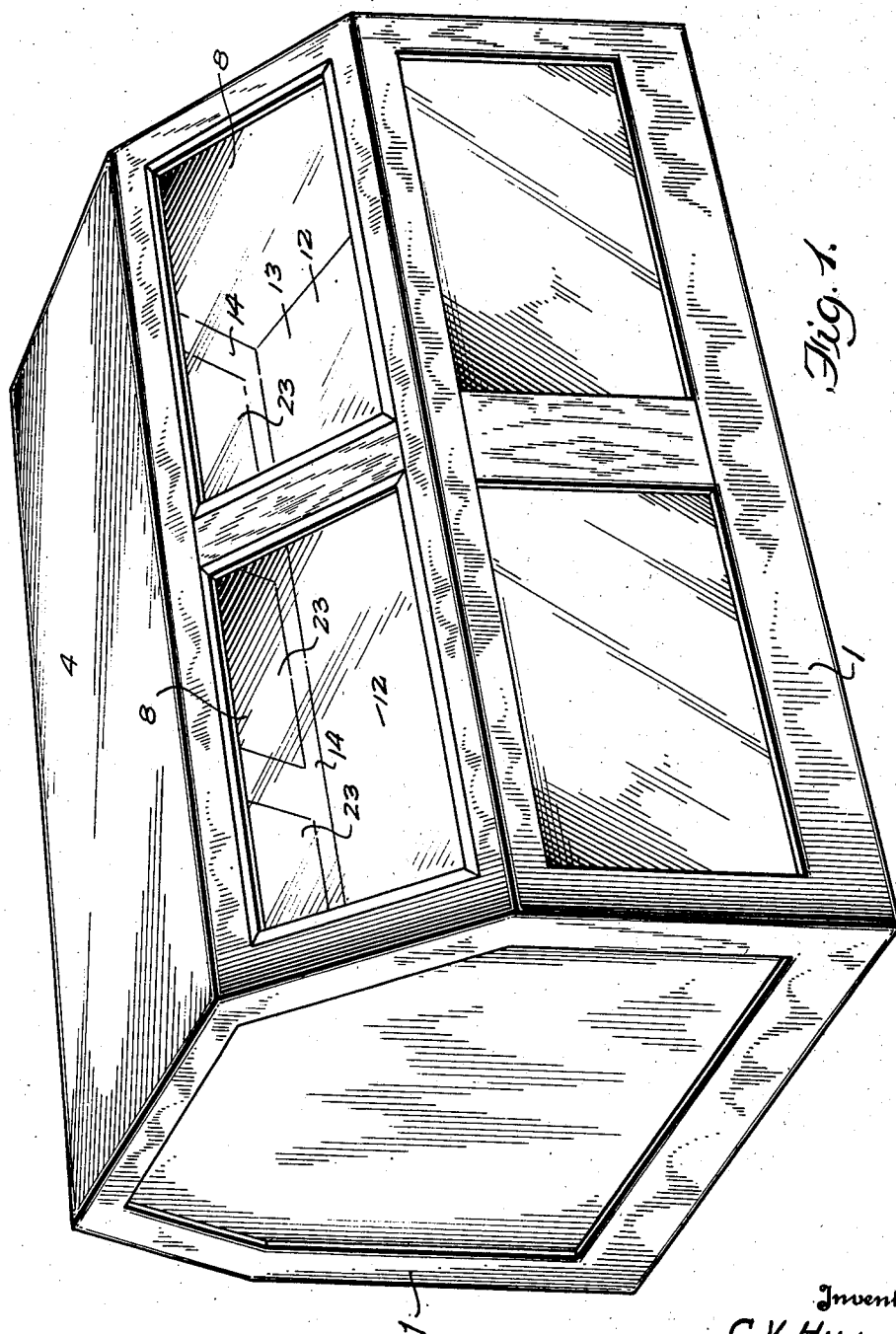
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1,857,545

REFRIGERATOR SHOW CASE

Filed Oct. 9, 1930

3 Sheets-Sheet 1



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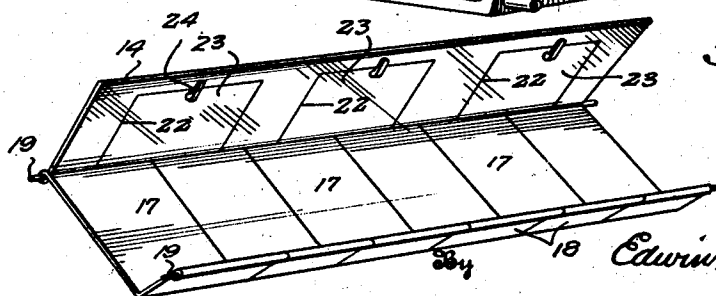
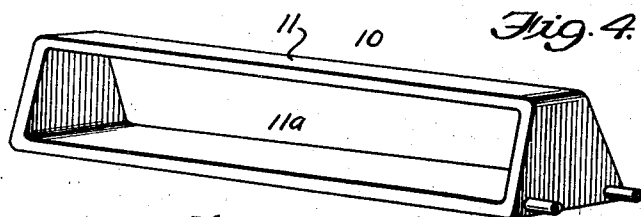
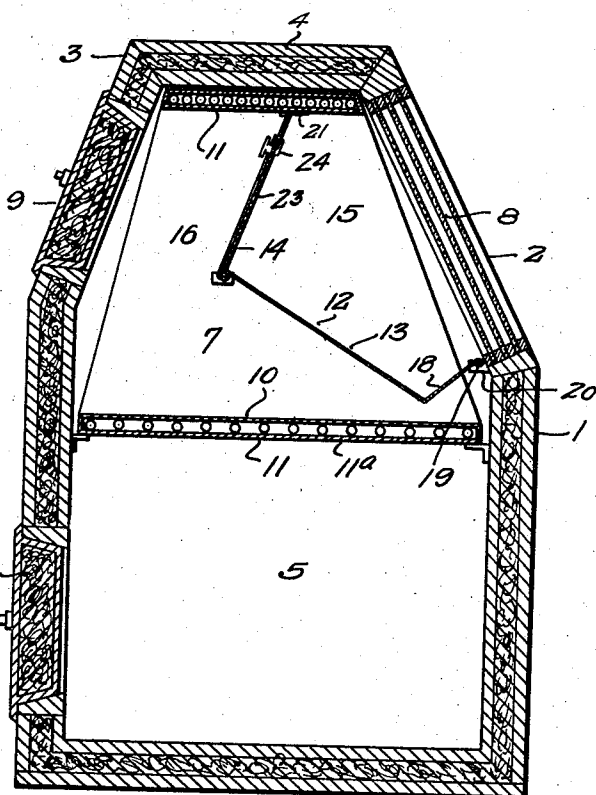
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3 Sheets-Sheet 2



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Fig. 3.

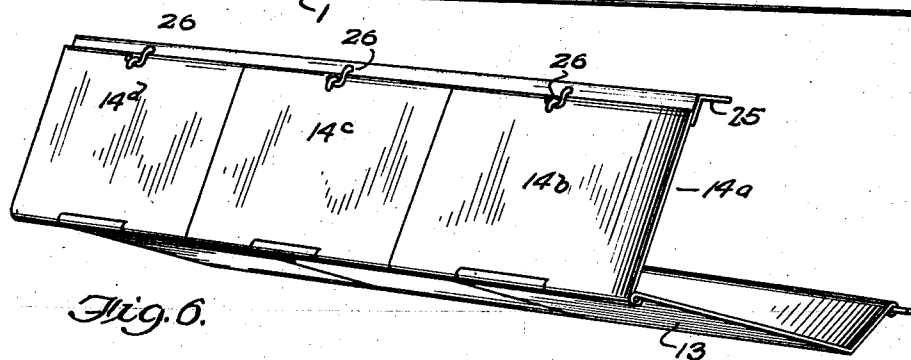
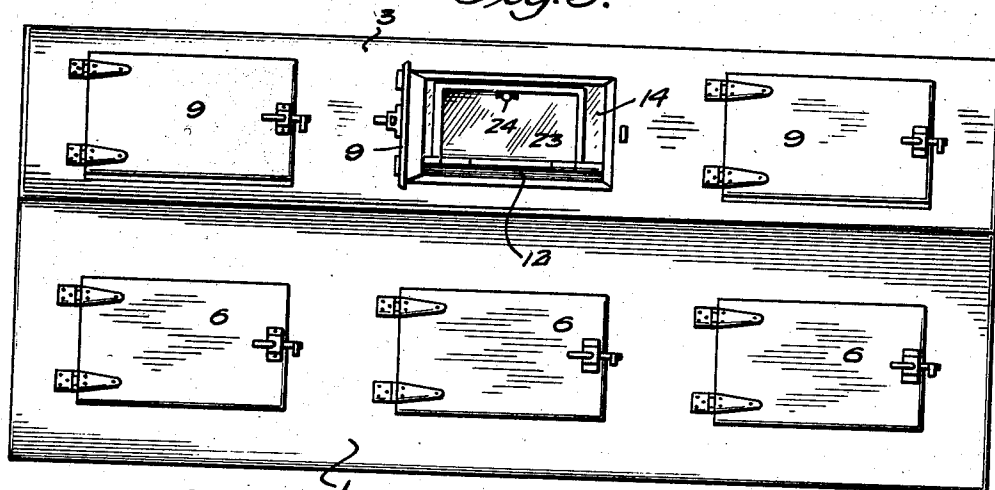


Fig. 6.

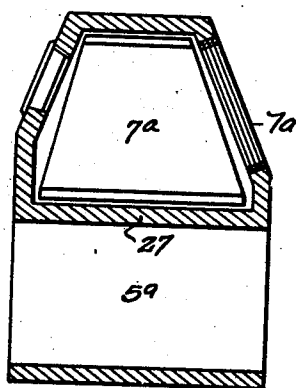


Fig. 7.

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REFRIGERATOR SHOW CASE

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This invention relates to improvements in refrigerator show cases of that type provided with refrigerating means for preserving articles of food contained therein, and also provided with a storage chamber or chambers having a transparent panel through which the articles of food may be observed from in front of the show case.

Certain kinds of meats and other frozen or frosted food products now on the market require the use of a refrigerator case differing from a standard refrigerator case in its ability to establish and maintain a temperature below 32° F., generally from zero to 20° F., for keeping the frozen or frosted products in such condition, and such super-cold refrigerators depend largely for their efficiency on maintaining a still cold, namely, a cold air with little or no circulation, in order to prevent the formation and deposit of moisture upon and spoiling of the food product and the deposit of moisture and formation of vision obscuring fog or frost upon the transparent panel.

Refrigerators of the character referred to are commonly provided with a door or doors at the rear to allow access to the case, and a difficulty in their use is that each time the door is opened warm air rushes through the doorway and across to the front of the case and fogs the transparent panel, thus rendering such panel useless for observation purposes.

One object of my invention is to provide a novel construction and arrangement of baffle means for use within the show case to prevent warm air entering through an opened door from coming in proximity to and causing fogging of the panel.

It is desirable to so construct the show case as to keep articles arranged for display separate from those articles intended to be immediately dispensed or sold or those stored and held in reserve for future display and dispensation, and another object of my invention, therefore, is to provide a baffle or partition which will separate a display portion of the case from a service or storage portion of the case, so as to allow filling of a service or storage compartment or removal

of articles therefrom without entrance of warm air into the display compartment or fogging of its transparent display panel.

Still another object of the invention is to provide baffle means coacting with a refrigerating unit in such manner as to give maximum refrigerating efficiency, and which is removable from the case to allow periodical defrosting, i. e., scraping of interior refrigerator wall surfaces for removal of frost deposits, without interference.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Fig. 1 is a perspective view looking toward the front of a show case embodying my invention.

Fig. 2 is a vertical front-to-rear section through the same.

Fig. 3 is a rear elevation of the show case, showing one of the main doors opened and exposing a part of the baffle partition.

Fig. 4 is a perspective view of the cooling unit in Figs. 1, 2 and 3.

Fig. 5 is a perspective view of the baffle partition looking toward the same from the front thereof.

Fig. 6 is a rear perspective view showing a modification in the construction of the baffle partition.

Fig. 7 is a sectional view similar to Fig. 2 showing a modified form of refrigerator show case.

The invention may be applied to refrigerator show cases of varying types or forms, and hence the invention is not restricted in this connection except when particularly specified in the appended claims, certain embodiments of the invention in connection with refrigerator cases of certain forms being disclosed for exemplification purposes only.

Referring now more particularly to Figs. 1 to 5, inclusive, of the drawings, 1 designates a refrigerator show case which, in the exemplification shown, is of oblong rectangular form below its horizontal center and pro-

vided with upwardly converging front and rear walls 2 and 3 above its horizontal center connecting with a substantially flat top wall 4, which may be used as a display shelf or service counter. This refrigerator case is provided with a lower storage chamber 5 having one or more doors 6 at the rear for the introduction and removal of articles, and said case has an upper storage and display chamber 7 provided in its front wall 2 with a transparent observation or display panel 8 and in its rear wall 3 with one or more doors 9 for the introduction and removal of articles. The panel 8 may be of a construction commonly employed consisting of a plurality of panes of glass spaced to provide insulation spaces between the adjacent panes of glass.

The case is provided with a refrigerating unit 10 of coil type for the circulation of a suitable refrigerant, for the purpose of maintaining the chambers or compartments 5 and 7 at the desired low temperature. This unit preferably consists of a single continuous pipe coil in the form of a loop whose upper and end limbs or portions, respectively, lie close to and parallel with the top wall 4 and end walls 4' of the chamber 7 and whose lower limbs or portions extend horizontally across the base of the chamber 7 and between the same and the top of the chamber 5. This coil is preferably encased in a correspondingly shaped sheet metal jacket 11, the top, end and bottom walls of which are formed of substantially flat plates and provide a smooth surfaced casing for the parts of the coil of such a degree of conductivity as not to interfere thermally with the refrigerating action of the coil. The bottom portion of this jacket or casing also serves with the bottom limbs of the coil as a smooth walled partition separating the chambers 5 and 7 from each other and forming a shelf to support articles disposed for storage in the chamber 7. In practice the jacket or casing may be hermetically sealed and the hollow walls thereof and the spaces between the convolutions of the coiled loop therein filled with a suitable insulating material so as to exclude all air or moisture from the jacket or casing. The insulating material employed may be hydrolene which is poured in a hot liquefied condition into the casing through an opening at a suitable point in the casing and allowed to solidify in the casing, after which such opening is permanently closed. The refrigerator unit cools both compartments while preventing any circulation of cold air between them.

This refrigerator is designed to hold frozen or frosted meats or other frozen or frosted products which should be kept at a temperature below the freezing point and ordinarily at a temperature of between zero and 20° F., and the construction of the refrigerator cas-

ing and refrigerating unit should be such that the refrigerated atmosphere within the refrigerator case will be substantially still, or without circulating or traveling currents, in order to prevent abstraction of moisture from or deposit of moisture on the goods or on the transparent panel. In the use of such a refrigerator, however, if unprovided with my improvements, whenever the door 9 is opened for the purpose of gaining access to the chamber 7, warm air rushes through the doorway into the chamber and on striking the top of the chamber is deflected downwardly and forwardly and comes in contact with the glass of the panel 8, resulting in the latter being more or less heavily fogged so that the contents of the chamber on display can not be seen through the panel. Condensation of moisture from the warm air is also liable to come in contact with the frozen articles and produce deleterious results. My invention provides a means for overcoming these objections, for also keeping the panel clear and permitting the displayed articles to be readily seen, while admitting of the removal of other articles, and also for permitting ready and convenient defrosting of the walls or surfaces of the refrigerator chamber whenever required and without removing the refrigerated articles from the case.

In carrying my invention into practice I provide within the top chamber 7 a baffle partition 12 comprising a bottom plate or section 13 and a top plate or section 14 hingedly connected at the upper rear edge of the plate 12 and the lower edge of the plate 14, this refrigerator baffle being so disposed in the chamber 7 as to separate the same into a front compartment 15 for holding articles to be displayed through the panel 8 and a rear compartment 16 to hold articles adapted to be readily and conveniently removed for sale or dispensation by opening the door 9, and the supply of which articles may be replenished from time to time from the chamber 5 serving as a main storage compartment.

In practice, the hinged connection between the baffle plates 13 and 14 may be of any suitable type, and the plates themselves may be of any suitable form and construction to suit the purpose. In the present instance, however, I have shown the plate 13 as consisting of a plurality of downwardly and forwardly inclined individual plates 17 extending from a point between the vertical center of the chamber 7 and the door 9 and above the base of the latter to a point adjacent to and above the front portion of the bottom part 11^a of the refrigerator unit, and having upstanding foot flanges 18 inclined upwardly and forwardly toward the panel 8. The plates 17 may be formed at their upper rear ends and at the free ends of their flanges 18 with eyes for the passage of rods 19 whereby they are detachably connected, and the ends of these

rods may project beyond the sides of the baffle and be engaged with notched brackets 20 disposed upon the sides of the case and sides of the refrigerating unit to support the partition in position. These rods will hold the lower baffle plate section securely in position in the chamber 7, and the upper rod 19 may engage eyes or knuckles at the lower edge of the baffle plate 14 to hingedly connect said plate 14 with the plate 13.

From the foregoing, it will be seen that when the baffle partition is arranged in position, its plate 13 and flange 18 forms a shelf or support for articles to be held for display through the panel 8, and the baffle partition separates the display compartment 15 so formed from the rear compartment 16 which is designed to contain articles which are to be dispensed on call to customers, such articles resting on and being supported by the shelf 11 formed by the bottom of the refrigerator unit. Also it will be seen that this arrangement of the baffle partition 12 will isolate and insulate the articles contained in the compartment 15 from those contained in the compartment 16, so that when the door or doors 9 are opened no warm air can pass into the compartment 15 and fog or frost the goods contained therein or the panel 8, so that the panel and displayed goods will at all times be maintained in the best possible condition for observation of the displayed articles through the panel at the front of the case.

In practice, any suitable means such as a latch bolt 21 engageable with a keeper on the top wall of jacket 11 may be provided to hold the upper partition plate 14 against swinging movement, while permitting it to be released and swung downwardly and rearwardly on the upper rod 19 as a pivotal axis, on the opening of the door or doors 9, to permit an attendant to have full and free access to both compartments 15 and 16 for the purpose of inserting or removing goods, or for cleaning or defrosting the interior of the chamber 7 without wholly removing the baffle partition. The partition as a whole, may, however, be released by disengaging the rods 19 from the notched brackets 20 and the latch 21 from its keeper and folding the part 14 down upon the part 13 to permit of the passage of the partition through the rear doorway if a single elongated doorway is used. The construction of the section 13 of the partition in sections also provides for the disconnection of these sections for introduction or removal and from subsequent assemblage where the doorways are too small to permit of the insertion or removal of the entire partition. The plate 14 may, and preferably is, made of a single sheet or of unitary character as, when disconnected from the plate 13, its edgewise introduction or removal through even a small doorway need be effected.

As above explained, the hinge plate 14 may, if desired, be released by retracting the latch 21 and swinging said plate 14 downwardly and rearwardly to wholly open the compartment 15 at the rear. It is desirable, however, under many conditions, to afford restricted access to such compartment, for insertion or removal of goods or for other purposes, while keeping such compartment closed as much as possible against outflow of cold air or inflow of warm air. To this end, the plate itself may be provided with one or more door openings 22, each adapted to be closed by a small door 23, held in closed position by a latch 24, any one of which doors may be opened, as may be found most convenient on opening a door 9, to permit access to the compartment 15 in the manner described.

Instead of constructing the upper or back plate of the baffle partition as a single plate, as shown in Figs. 1 to 5, inclusive, I may construct the same as shown in Fig. 6, in which the back plate 14^a is shown as formed of a plurality of sections, three sections 14^b, 14^c and 14^d being shown in the present instance, although it is to be understood that two sections only or more than three sections may be employed as desired, said sections being hinged at their lower edges to the bottom plate 13, so that each section 14^b, 14^c and 14^d forms a door capable of being opened and closed independently of the others. Fig. 6 also shows a different mode of holding the plate 14^a in position, that is to say, holding each door section 14^b, 14^c and 14^d in closed position, by providing on the top part of the refrigerator unit an angle iron keeper plate 25 and connecting each door section 14^b, 14^c and 14^d thereto by latch bolts 26 or their equivalent, whereby the door sections may be independently opened and closed in a ready and quick manner to allow access to be obtained to any part of the display compartment, as will be readily understood. This mode of fastening the back plate to the upper part of the refrigerator case or refrigerator unit may also be employed where the back plate is of unitary type, as in Figs. 1 to 5, inclusive.

Fig. 7 shows another one of the many possible forms of refrigerator cases to which my invention may be applied. In this construction of refrigerator case, the upper half of the case 1^a is substantially of the same form and construction as the case 1, except that the case itself is provided with a permanent horizontal insulated partition wall 27 separating the case into non-communicating chambers 5^a and 7^a. The chamber 5^a is open wholly at the back and serves as a storage compartment for desired goods while the chamber 7^a serves as a refrigerating chamber having a partition baffle of either of the constructions disclosed separating it into display and serv-

ing compartments 15 and 16 as previously described. This construction provides a case having the same top chamber features and advantages as the case shown in Fig. 1, but adapted for use where the bottom chamber is not intended or required to be used for refrigerating purposes.

It will be seen that the refrigerator unit is not only very compact and serves to efficiently refrigerate an upper chamber and, if desired, a lower chamber as well, but, that it forms a bottom for the upper chamber and support for goods in the serving compartment 16, and, its walls being smooth, it allows ready and convenient defrosting (removal of frost deposits by scraping) and cleaning of the refrigerating chamber with the employment of a minimum amount of time and labor. This type of refrigerator unit also allows a baffle partition of the character disclosed to be mounted in a reliable and efficient manner to perform its described functions. While the refrigerator jacket is preferably made of sheet metal as set forth, it is to be understood that it may be made of other suitable materials.

It will be observed that the baffle partition is so formed and arranged and divides the chamber 7 into the compartments 15 and 16 in such manner as to form a sloping floor for the compartment 15, thus increasing the effective size or holding capacity of said compartment, while at the same time enabling the goods on display to be disposed so as to be seen to the greatest advantage, and, furthermore, the baffle partition makes the rear compartment of a size to hold a large amount of goods for immediate sale, which, on opening the doors 9 may be picked out very quickly and easily. As explained the partition keeps the display compartment closed against the entrance of warm air and hence the display panel is always kept clear to display the goods to the best advantage. The lower part of the case is used for storage and may be provided with drawers or shelves for the purpose and may be kept refrigerated or not as desired and according to the type of case employed.

While the constructions disclosed are preferred it will, of course, be understood that the case and its parts may be modified to material degrees, within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, I claim:—

1. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and

a baffle partition disposed in said chamber between the door and panel and separating the same into storage and display compartments.

2. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, a baffle partition disposed in said chamber between the panel and door and separating the chamber into storage and display compartments, and a door in said partition affording communication between said compartments.

3. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and a baffle partition disposed in said chamber between the panel and the door and separating the chamber into storage and display compartments, said partition including a movable part forming a door affording communication between said compartments.

4. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and a baffle partition disposed in said chamber between the panel and the door and separating said chamber into display and storage compartments, said panel having a portion adapted for movement to positions for opening and closing communication between said compartments.

5. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and a baffle partition disposed in said chamber between the panel and door and separating the chamber into display and storage compartments, said partition having a part adapted to be displaced from its normal plane to afford communication between said compartments.

6. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and

a baffle partition disposed in said chamber between the panel and door and separating the chamber into display and storage compartments, said partition having a part adapted to be let down in the direction of the door to afford communication between the compartments.

7. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, a partition disposed in said chamber between the panel and door and separating the chamber into display and storage compartments, and means removably mounting said partition, the partition having part movable to afford communication between the compartments.

8. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, a partition in said chamber between the panel and door and separating the chamber into display and storage compartments, said partition having an opening therein, and a closure for said opening.

9. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and a baffle partition disposed in said chamber between said panel and door and comprising a lower section sloping downwardly toward the panel from a point at the rear of the chamber in advance of the door and above the level of the bottom thereof and an upper section extending from said point upwardly to the top of the chamber, said upper section comprising or including a door affording communication with the chamber on opposite sides of the partition.

10. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and a baffle partition disposed in said chamber between said panel and door and comprising a lower section sloping downwardly toward the panel from a point at the rear of the chamber in advance of the door and above the level of the bottom thereof and an upper section extending from said point up-

wardly to the top of the chamber, said upper section being mounted for movement to positions to open or close communication between the chamber on opposite sides of the partition.

11. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and a baffle partition disposed in said chamber between said panel and door and comprising a lower section sloping downwardly toward the panel from a point at the rear of the chamber in advance of the door and above the level of the bottom thereof and an upper section extending from said point upwardly to the top of the chamber, said partition having a doorway therein and a door for opening and closing said doorway.

12. A refrigerator show case having a refrigerating chamber provided with a display panel and a door, a jacketed refrigerating coil in said chamber in the form of a loop bounding the top and bottom of the chamber and sides of the chamber except those in which the panel and door are arranged, and a baffle partition disposed in said chamber between said panel and door and comprising a lower section sloping downwardly toward the panel from a point at the rear of the chamber in advance of the door and above the level of the bottom thereof and an upper section extending from said point upwardly to the top of the chamber, said partition being pivotally mounted and constructed to provide a plurality of doors.

13. A refrigerator show case comprising a cabinet having an upper refrigerating chamber and a bottom storage chamber, the latter being open at one side and separated by an insulated division wall from the upper chamber, the said upper chamber having a display panel and a door in opposite walls thereof, a looped jacketed cooling coil in said upper chamber, and a baffle partition in said upper chamber disposed within the coil loop between the display panel and the door separating the chamber into display and storage compartments, a part of said partition forming a door affording communication between said compartments.

In testimony whereof I affix my signature.
CLEMENT V. HILL.