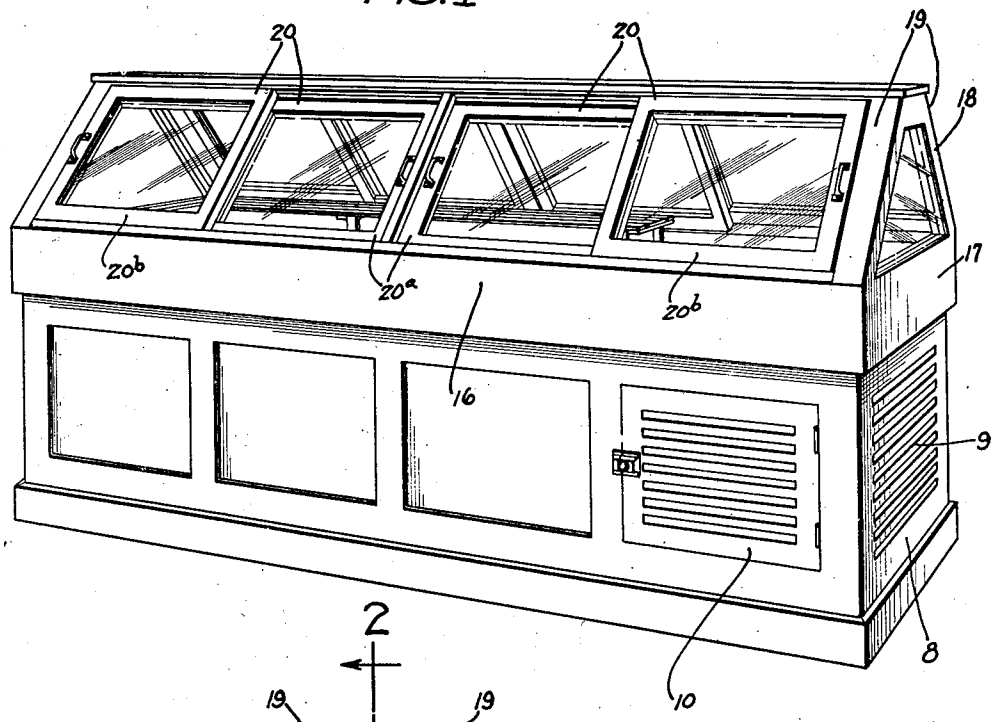
Oct. 11, 1932. T. G. HARRISON 1,881,541

REFRIGERATING GOODS DISPLAY DEVICE

Filed Aug. 21, 1929 2 Sheets-Sheet 1

FIG. 1



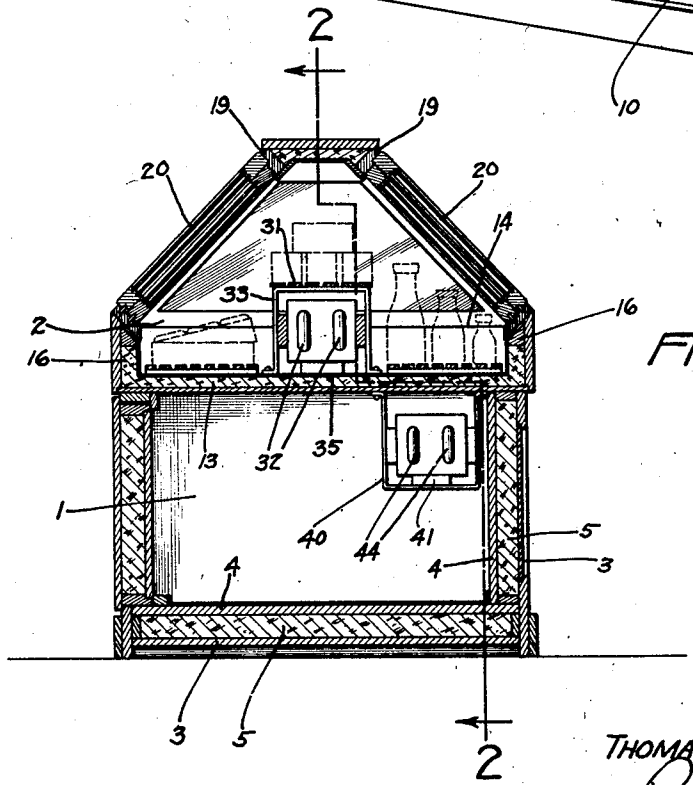




FIG. 3

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REFRIGERATING GOODS DISPLAY DEVICE

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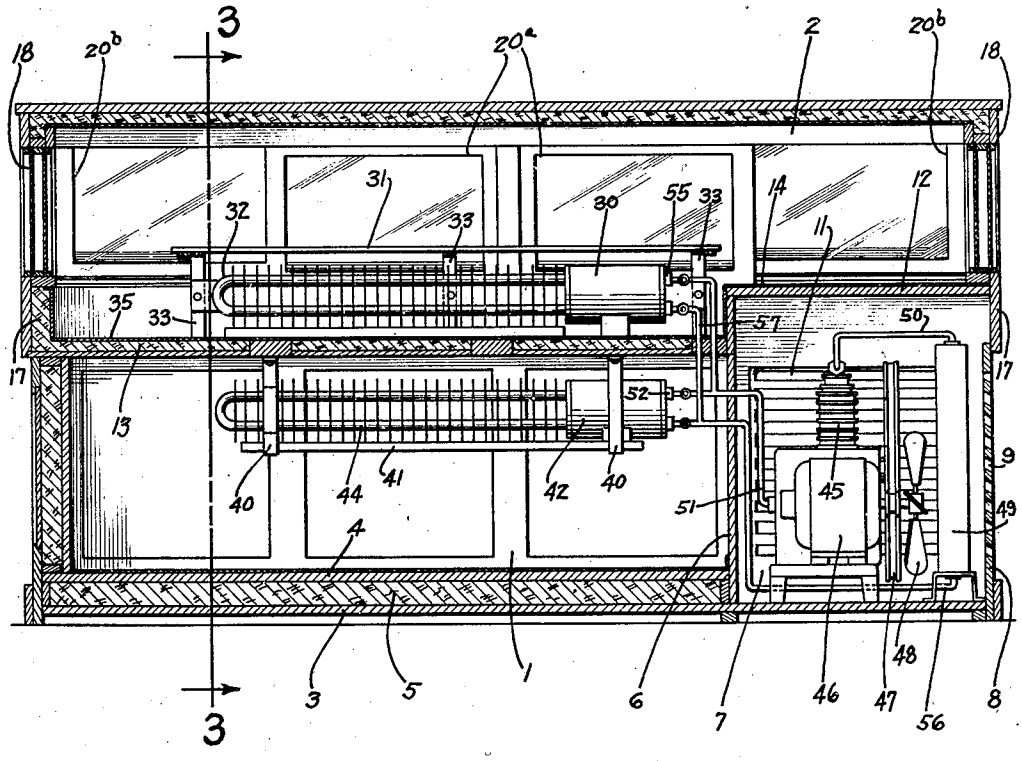



FIG. 2

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Patented Oct. 11, 1932

1,881,541

# UNITED STATES PATENT OFFICE

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## REFRIGERATING GOODS-DISPLAY DEVICE

Application filed August 21, 1929. Serial No. 387,531.

This invention relates to improvements in refrigerating and goods-display devices, and particularly concerns a self-serving refrigerating display counter usable for dairy products.

Among the objects of the invention are: To provide means for exhibiting the articles during refrigeration; to provide refrigerating storage space beneath the display chamber; to arrange refrigerating devices in both chambers and to operate them from a common refrigerating plant; to provide a separate compartment for the refrigerating machinery of a minimum size; to have a portion of the walls forming the machinery-containing chamber extended into the upper display chamber to form a shelf which is raised above the display level of other goods; to provide a top for the display chamber having slanting sides each closed by a plurality of sliding doors; to arrange the refrigerating device for the top chamber centrally and to have it form a base or support for a central display shelf; to provide water-proof lining for the display chamber and to have that lining continuous over the bottom of both lower and higher bottom portions of said upper display chamber; and generally to provide an improved compact and simple construction for the purposes in hand.

Features of the invention include all details of construction as well as the general and specific arrangement of the compartments.

Objects, features and advantages of the invention will appear in the drawings forming a part of this application; and in said drawings

Figure 1 is a perspective view illustrating the general configuration of the device constructed according to the teachings of this invention;

Figure 2 is a vertical longitudinal section substantially on a line 2—2 of Figure 3; and

Figure 3 is a vertical transverse section substantially on line 3—3 of Figure 2.

In carrying out my invention, I construct the boxing so as to provide a lower storage chamber 1 extending throughout the greater portion of the longitudinal extent of the case, and entirely transversely thereacross. An upper display chamber 2 extends longitudinally and transversely over substantially the entire floor area occupied by the case. All walls are constructed in the manner usual for refrigerating devices. A description of the construction of one wall will suffice for all. Referring to Figure 2 and to the bottom wall, it is composed of inner and outer enclosing elements respectively designated 3—4, having a filler 5 therebetween composed of mineral wool or cork.

A partition 6 (see Figure 2) divides the lower portion of the device into two compartments, to-wit: the storage compartment 1 and a machinery compartment 7. The end wall 8 of the machinery compartment is slatted as shown at 9, and a slatted door is provided in each side wall, these doors being respectively designated 10—11. The top wall 12 and the partition wall 6 are projected above the bottom wall 13 of the upper chamber (or the top wall of the lower chamber) to give increased head room for the refrigerating machinery, and to provide a goods display shelf 14, the level of which is above that of the bottom of the upper compartment 2. The detailed arrangement of these compartments are features of the invention.

Referring now to Figure 3, the upper compartment includes short vertical side walls 16 and corresponding end walls 17. All the walls being constructed to decrease heat conduction. The short vertical walls of the upper compartment are surmounted by windowed end panels 18, and by slanting side panels 19, each of which is provided with a plurality of sliding doors 20, overlapped as shown, the endmost doors in this instance overlying the centrally arranged doors, see Figure 1. The arrangement of these doors is a feature of the invention, and it will be noted that the two central doors $20^a$ open by a movement away from one another and toward the ends of the case, while the end doors $20^b$ open by a movement in the opposite direction, that is toward the center of the case or inwardly and lengthwise. In this manner an elongated display chamber is possible and

each region of the display chamber is accessible by sliding a corresponding door in the appropriate direction, without interference of the sliding movement of one door with another. I am aware that overlapping sliding doors are old, but I do not know of any device wherein four doors are paired as shown herein, so that two centrally arranged doors open by movements towards the end of the case, and two end doors open by movements in an opposite direction toward the first mentioned doors and toward the middlemost portion of the case.

Another valuable feature of the invention is the arrangement of a substantially elongated refrigerating device generally indicated at 30, centrally and longitudinally of the display chamber and directly in the display chamber. Another feature is the positioning of a goods-display shelf 31 in a manner to overlie and be supported either directly upon or only against lateral or endwise movements, by the refrigerating unit. The detailed construction of the refrigerating device is not described because it is of a well known type including the elongated pair of coils 32. The shelf or slatted rack 31 may be suitably supported as by irons 33, in turn suitably secured to the floor of the upper chamber, or to the lining 35 thereof. These elements 33 also act to prevent lateral or endwise motion of the refrigerating device, and this is a feature of the invention, whereby the refrigerating device can be separately secured to engage the shelf in a manner to prevent lateral or endwise motions of the shelf-supporting elements, or whereby the shelf-supporting elements can be secured and arranged in a manner to prevent endwise or lateral motion of the refrigerating device. The shelf can be quickly removed to permit access to the cooling unit. It will be further noted that the shelves 14—31 may be arranged at substantially the same level.

Another feature of the invention relates to the arrangement of the refrigerating device in the lower chamber 1. In this case hangers 40 are attached to the ceiling or top of the lower chamber, and, in this instance, adjacent the rear portion thereof, see Figure 3. Upon these hangers is arranged a plank 41 which forms the support for the refrigerating device 42. This device is of the same general type as the one in the upper or display compartment and is about the same length.

Another feature of the invention is the arrangement of the refrigerating machinery compartment 7, and the arrangement whereby a single refrigerating device can be very easily connected to operate both coils 32—44. The present invention is not concerned with the detailed construction of the refrigerating device, or the particular means for obtaining the cooling effects, with the exception of the elongated units and their placement. However, for the sake of clearness the general construction and operation of this refrigerating device will be referred to. A compressor is indicated at 45, and a motor at 46 for operating the compressor, the operating connection in this instance being a belt 47, and the motor also operating a fan 48 adapted to cool the condensing coils diagrammatically indicated at 49. The condensing coils 49 have a connection with the compressor 45 as at 50. The compressor is connected on its suction side by a pipe 51 with the expansion chamber 42 as at 52, and this pipe is connected with the expansion chamber 30 of the upper chamber by a branch pipe as at 55. It may be assumed that there is a receiver in the lower portion of the element 49, and this receiver is connected by means of a pipe line 56 to the receiving side of the lower apparatus 40, while the same pipe is connected through branch 57 with the corresponding side of the expansion side of the upper unit 30. The general operation of the device is so well understood that it is thought unnecessary to describe it. Automatic means may, of course, be used in the low pressure line of the refrigeration device, said means being operable to control current to the motor which operates the compressor.

I am aware that others have attempted to produce devices of the general nature herein treated, but all devices for this purpose known to me are complicated in construction and the refrigerating means is inaccessible and the refrigerating effects are produced by currents of cold air passing beneath or around a tray containing the goods, or require icing.

I claim as my invention:

1. A device of the class described having a goods-display chamber, having transparent sides and having a floor, different portions of which are at different levels, a refrigerating unit supported by that floor portion which is at the lowest level, said unit being of substantially less area than the floor portion on which it rests, and a goods-display support arranged above the unit and at a higher level than any of the floor portions.

2. A device of the class described having an elongated goods-display chamber having transparent sides, a refrigerating unit arranged on the floor of the chamber medially in a transverse direction and elongated in a direction lengthwise of the chamber, and a goods-display support arranged directly above the unit, comparatively large areas of the floor of said chamber being exposed at the sides of said unit to receive and display goods other than those on the support.

3. A refrigerating display structure comprising an elongated display chamber having the long sides transparent and upwardly convergent, elongated refrigerating unit of

the plate-coil type disposed substantially at the transverse middle of the floor of the chamber and extending lengthwise of the chamber, the plan areas of the unit and of the bottom of the chamber being so proportioned that a substantial floor area is provided at the sides of the unit, for display of goods, and a goods-display support arranged above and close to the unit and extending the full length thereof, said chamber having at one end a raised platform which is at a level between the display support and floor.

4. A device of the class described having a goods-display chamber having transparent sides, a refrigerating unit arranged on the floor of the chamber, and a goods-display support arranged above the unit and including a plurality of supports which rest on the floor and are connected by horizontal elements which engage the refrigerating unit to space the supports, and a shelf supported by the supports close to the unit, said connecting elements acting to prevent horizontal motion of the supports.

5. A device of the class described having a goods-display chamber having transparent sides, a refrigerating unit arranged on the floor of the chamber medially in a transverse direction and a goods-display support arranged directly above said unit and supported by the floor, the area of the apparatus being substantially less than the area of the bottom to provide goods-display space at the sides of said display support.

6. A device of the class described comprising upper and lower chambers the floor of the upper forming the top of the lower chamber, a terminal chamber extending through the floor and above it to form a raised goods-display platform, doors giving entry to respective chambers, an elongated refrigerating unit in each of the upper and lower chambers arranged longitudinally thereof, the unit of the upper chamber being at the bottom thereof and being of substantially less area than the transverse width of the chamber, a refrigerating apparatus in the terminal chamber, and refrigerant circulating connections between the apparatus and both refrigerating devices.

7. A device of the class described including a goods-display chamber having transparent longitudinally disposed sides, a refrigerating coil arranged adjacent the floor of the chamber medially in transverse direction and elongated in a direction lengthwise of the chamber, and of substantially less area than the floor of the chamber, to provide goods-display space about the coil, and an open-work goods-display support arranged close to and over said coil.

8. A device of the class described comprising a closed structure divided by horizontal partitioning means into an upper elongated goods-display chamber, and two lower chambers, one an elongated storage chamber and the other a smaller machinery chamber, the display and storage chambers respectively having a refrigerating unit therein, and the machinery chamber having a refrigerating apparatus therein operatively connected with the units.

9. A device of the class described comprising a closed structure divided by horizontal partitioning means into an upper elongated goods-display chamber, and two lower chambers, one an elongated storage chamber and the other a smaller machinery chamber, the display and storage chambers respectively having a refrigerating unit therein both supported by said partitioning means, and the machinery chamber having a refrigerating apparatus therein operatively connected with the units, doors for each chamber, said upper chamber having side walls composed principally of glass.

In witness whereof, I have hereunto set my hand this 9th day of August, 1929.

THOMAS G. HARRISON.