J. T. HARRIS.

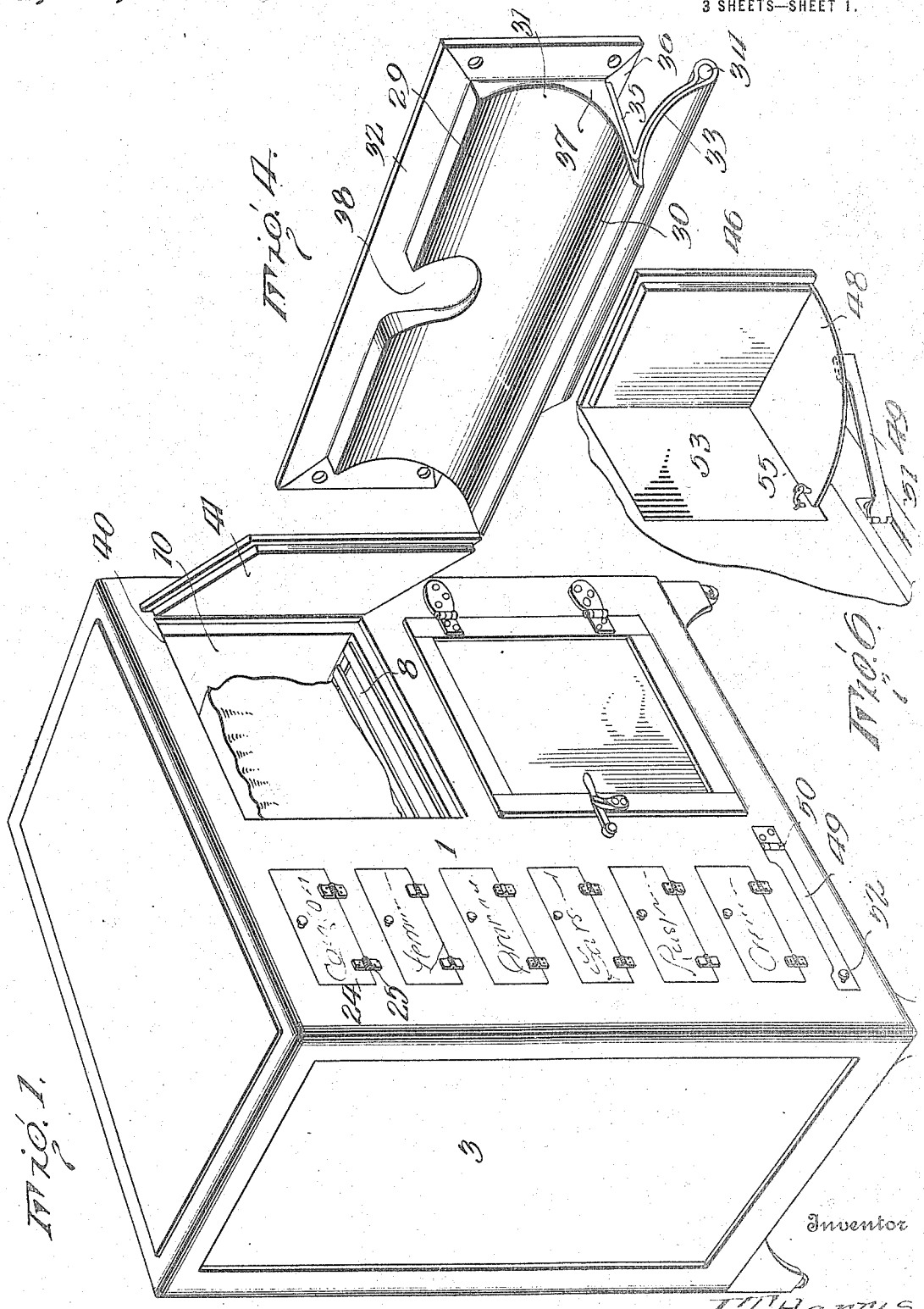
REFRIGERATOR.

APPLICATION FILED DEC. 4, 1916.

1,264,180.

Patented Apr. 30, 1918.

3 SHEETS—SHEET 1.



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REFRIGERATOR.

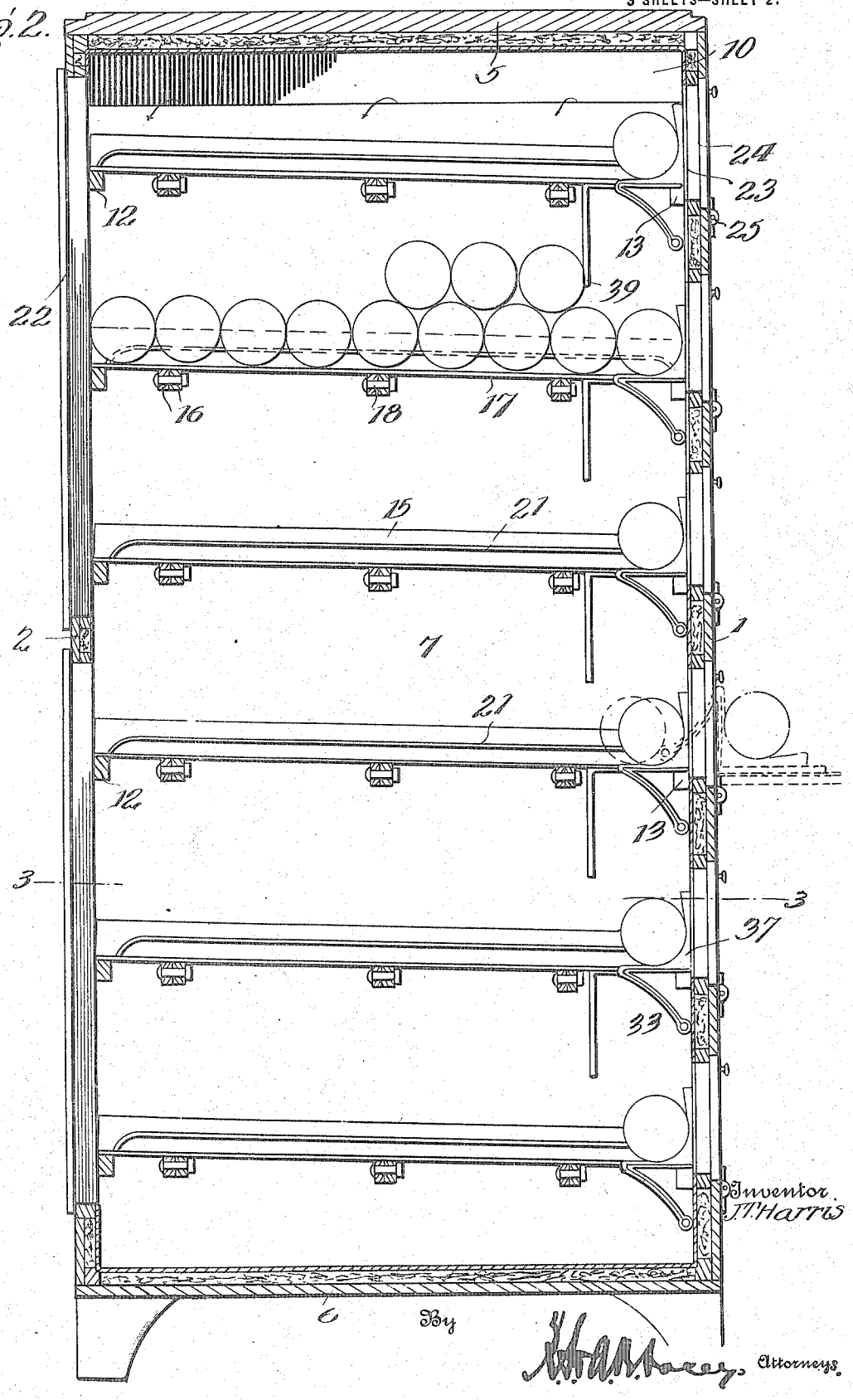
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3 SHEETS—SHEET 2.

FIG. 2.



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3 SHEETS--SHEET 3.

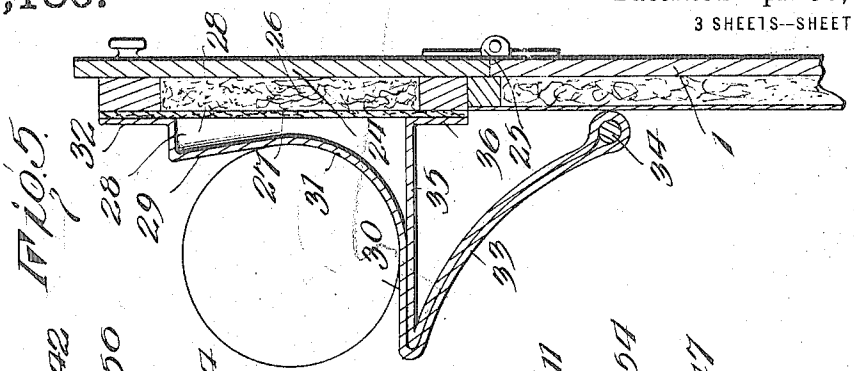


Fig. 5.

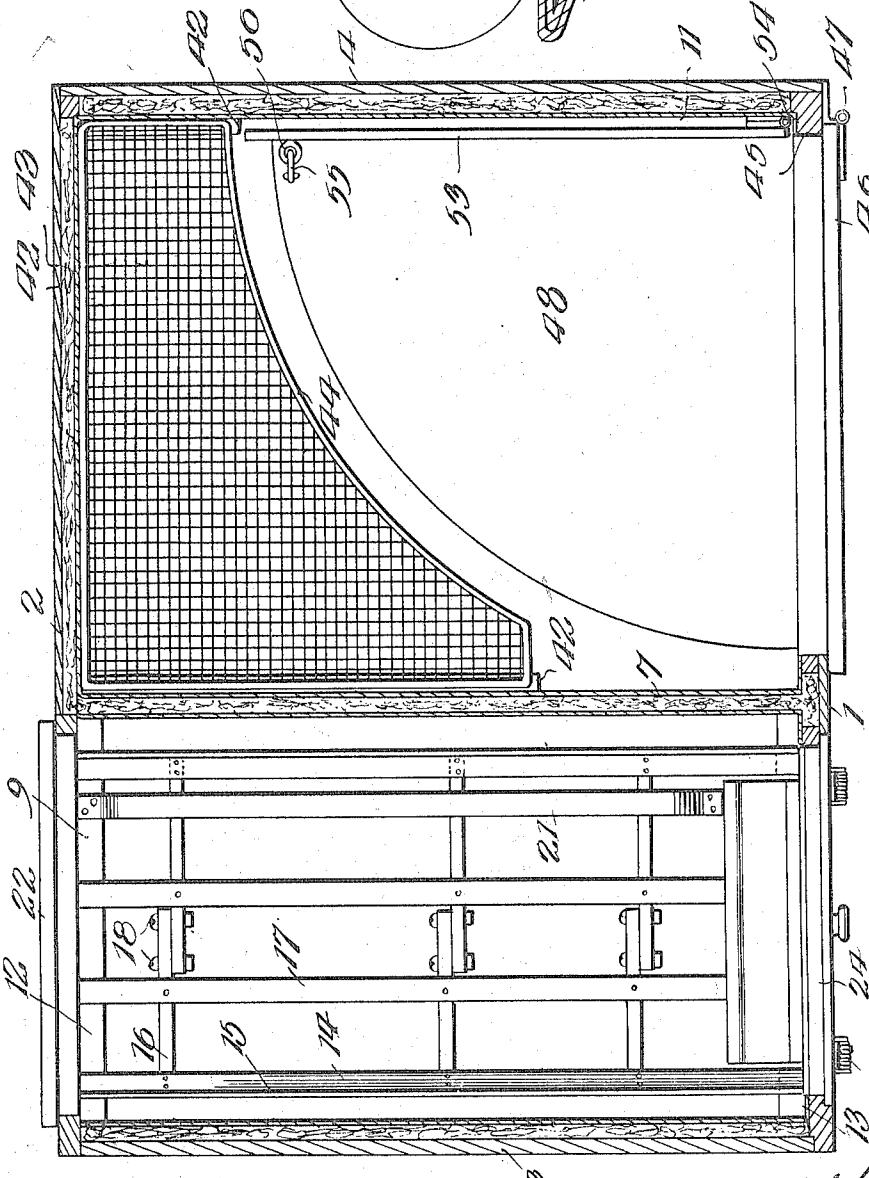


Fig. 3.

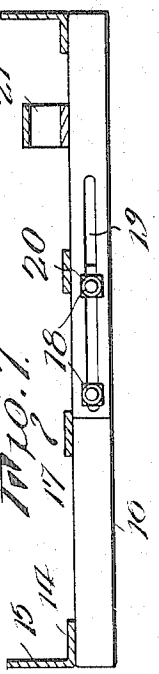


Fig. 7.

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UNITED STATES PATENT OFFICE.

JAMES T. HARRIS, OF NEWBERN, NORTH CAROLINA.

REFRIGERATOR.

1,264,180. Specification of Letters Patent. Patented Apr. 30, 1918.

Application filed December 4, 1916. Serial No. 134,976.

To all whom it may concern:

Be it known that I, JAMES T. HARRIS, a citizen of the United States, residing at Newbern, in the county of Craven and State of North Carolina, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification.

This invention relates to refrigerators and more particularly to a refrigerator designed for the storage of bottled beverages. At present it is customary to pack bottled beverages of various kinds in cracked ice in ice-chests and much annoyance is experienced in removing from the ice any particular bottle even when care is exercised in so packing the bottles that the different beverages or different brands of the same beverage will occupy different places in the box. Furthermore, in thus storing the beverages the bottles when removed from the ice are moist and frequently have particles of ice adhering thereto which is liable to prove objectionable to the customer. The object of the present invention is therefore to provide a refrigerator so constructed that various kinds of bottled beverages may be stored therein in separate compartments and out of contact with the ice and yet in such a manner as to insure of thorough cooling thereof, and, incidentally the invention aims to provide means whereby the bottles may be discharged singly from the compartments in a dry state and without the necessity of the merchant reaching into the refrigerator.

The invention further aims to provide for the discharge of the bottles singly from their respective compartments without, however, admitting any considerable warm air into the refrigerator and, on the other hand, without permitting of the escape of cold air in any considerable volume.

Another aim of the invention is to provide a refrigerator with a number of compartments, each of which is intended to contain a number of bottles of a certain kind of beverage and to provide a hinged door for each compartment, which door is provided with means arranged, when the door is swung to open position, to take up and discharge a single bottle from the compartment. The means is, generally speaking, in the nature of an open pocket designed to receive the foremost bottle in the respective compartment and the invention aims to so construct this pocket that the foremost bottle seating therein will be insulated from the door as far as any radiated heat is concerned.

Another aim of the invention is to provide means within each of the compartments above mentioned which will permit of the discharge of the bottles singly without, however, interfering with the bottles being piled in several layers or rows.

The invention further aims to provide means upon the shelves constituting the bottoms of the compartments, for preventing tilting of the bottles as they by gravity assume positions at the front of the compartments.

Another aim of the invention is to provide each compartment with a bottom or shelf so constructed as to permit of the same being adjusted to accommodate bottles of different heights.

Another aim of the invention is to provide, in a refrigerator, a compartment of novel construction designed to contain articles of food such, for example, as butter, cheese, etc.

In the accompanying drawings:

Figure 1 is a perspective view of the refrigerator embodying the present invention;

Fig. 2 is a vertical front to rear sectional view therethrough;

Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a perspective view of one of the pockets for receiving the bottles and discharging the same from their respective compartments;

Fig. 5 is a detail vertical sectional view through the door of one of the compartments and the pocket supported thereby;

Fig. 6 is a fragmentary perspective view illustrating the door for the compartment which is designed to contain articles of food;

Fig. 7 is a vertical transverse sectional view through one of the shelves constituting the bottom of one of the compartments.

The body of the refrigerator embodying the present invention includes a front indicated by the numeral 1, a back 2, sides 3 and 4, a top 5 and a bottom 6 and interiorly the refrigerator is divided by a partition 7 which is vertically disposed in a plane extending from front to rear of the said body and at one side of the said partition the interior of the refrigerator is divided by a horizontally disposed partition 8. Thus the

refrigerator is divided interiorly into main compartments indicated in general by the numerals 9, 10 and 11 designed to contain respectively the bottles, the ice, and articles of food, and it will be understood by reference to Fig. 1 of the drawings that the compartment 10 is located above the compartment 11.

In order that the compartment 9 may be subdivided into compartments designed to contain different kinds of bottled beverages, a number of shelves are provided and are arranged at various elevations within the said compartment 9. These shelves are supported at their rear ends upon cleats 12 which are secured to the back 2 of the body of the refrigerator and extend transversely thereof, and at their forward ends the shelves are supported upon other cleats 13 which are secured to the front of the body of the refrigerator and extend transversely thereof and by reference to Fig. 2 of the drawings it will be observed that the cleats 13 are located in planes below the respective cleats 12 and that, consequently, the shelves are inclined downwardly and forwardly so that the bottles placed thereon will have a tendency to roll toward the front of the refrigerator. Each of the shelves above referred to comprises sections which are adjustably connected and each section comprises a side rail 14 which may be of angle iron construction or formed from sheet metal, the said rails including upstanding wings 15 against which the bottoms or tops of the bottles may abut. Extending laterally from each side rail 14 are cross bars 16 which support slats 17, these slats extending parallel to the side rails 14. The corresponding bars 16 of the two sections of each shelf overlap at their inner ends as clearly shown in Fig. 3 of the drawings and a pair of bolts 18 are passed through the end of one bar and through a slot 19 in the other bar, the bolts being provided with nuts 20 which may be tightened for the purpose of securing the said bars in positions of adjustment. Thus it will be seen that each shelf may be adjusted as concerns its width so as to receive and support bottles of various heights. In order that the bottles disposed upon any one of the shelves may be supported at their neck ends against tilting, the slat 17 at one extreme side of the shelf has mounted upon it a supporting bar 21 which is spaced above the said slat a sufficient distance to permit the necks of the bottles to rest thereon, as clearly shown in Fig. 2 of the drawings. At their rear ends the slats 17 preferably terminate substantially in the same vertical plane as the rear ends of the side rails 14 but at their forward ends the said slats terminate short of the forward ends of the said rails 14 for a purpose to be presently explained. The bottles may be introduced into the several compartments through openings in the back of the refrigerator body, which openings are normally closed by doors 22 and the front of the refrigerator body is provided, at the forward end of each individual bottle compartment, with a door opening 23 normally closed by a door 24 hingedly mounted as indicated by the numeral 25, and while latches may be provided for holding the doors closed, the weight of the bottles resting within pockets carried by the doors, as will be presently explained, will ordinarily prove sufficient to maintain the doors in this position.

As heretofore stated each of the doors 24 supports a bottle receiving pocket which constitutes a means for delivering a single bottle from any compartment when the respective door is swung to open position and these pockets will now be described. At this point it may be stated that the walls of the refrigerator body are of heat insulating construction and it is preferable that the doors 24 be of similar construction, each door having a filling 26 of heat insulating material and being provided upon its inner face with a sheet 27 of felt or other suitable heat insulating material designed to close the recess which houses the filling 26. The body of each pocket is preferably hollow so as to provide a dead air space 28 which will prevent the bottle which is resting within the pocket becoming heated due to radiation from the door and these pockets may be formed from sheet metal or may be cast either as desired, and the body of each pocket comprises a substantially vertically disposed wall 29 and a substantially horizontally disposed bottom wall 30 which walls are connected by a curved or concave intermediate wall portion 31 conforming more or less closely to the contour of the bottle to be received within the pocket. Where the pocket is formed from sheet metal the same will be provided at the upper side of its body with an attaching flange 32 to be secured to the inner face of the respective door 24 and in a manner to bind the upper edge of the felt sheet 27 as clearly shown in Fig. 5 of the drawings. From the flange 32 the sheet of material forming the pocket will extend downwardly and rearwardly to form the walls 29 and 30 and the wall portion 31 and beyond the wall 30 will be bent or folded upon itself to form a bracing portion 33 which is curved downwardly and forwardly from the rear edge of the wall 30 and normally rests at its forward edge against the inner face of the front of the refrigerator body below the respective door 24. In a manner to be presently explained, this portion 33 serves also as a stop to prevent the discharge of more than one bottle. In order to counterbalance the weight of the door it is preferable that

the portion 33 be provided at its forward edge in the fold in the metal forming the said portion with a suitable length of wire or a filling of lead or other metal, as indicated by the numeral 34, or that the said portion be weighted in any other suitable manner. After being bent upon itself to form the stop portion 33, the sheet of metal from which the pocket is formed is bent to extend forwardly, as at 35, or in other words, at the respective door 34 and thence to form a flange 36 corresponding in function to the flange 32. The space between the sheet 27 of felt or the like and the vertical and connecting wall portions 29 and 31 and the portion 35 constitutes a dead air space and is closed at its ends by end wall portions 37. Thus a bottle resting within the pocket is prevented from coming in direct contact with the door 24 which would be liable to prevent proper cooling of the bottle and its contents. In order that a bottle resting within the pocket may be readily removed therefrom when the door is swung to open position, the wall 29 of the pocket is formed with a finger recess 38 located preferably midway between the ends of the said pocket. By reference now to Figs. 2 and 5 of the drawings it will be understood that when the doors 24 are in closed position a bottle will be received within each door and the bottom or supporting wall 30 of the pocket will be braced by means of the bracing and stop portion 33 which rests at its lower edge against the inner face of the front of the refrigerator body. It will also be understood that when the door is swung to open position the walls 30 will retain the bottle within the pocket and the bottle will then rest upon the wall 29 which is preferably inclined upwardly and rearwardly from the inner face of the respective door so as to provide against the bottle rolling from the said wall when the door is in horizontal position. Furthermore, by reference to the said figures it will be understood that as the door is swung to open position the stop portion 33 will be brought into position in front of the bottle next adjacent the foremost bottle in the particular compartment which is closed by the said door and will be prevented from rolling forwardly in the door opening. Furthermore, the wall 30 of the pocket, in the open position of the door, will substantially close the door opening so as to prevent escape of any considerable volume of cold air from the refrigerator. Inasmuch as when any of the doors are in closed position the walls 30 of the respective pockets will occupy the same planes as the respective bottle supporting shelves, when the door is swung to closed position after the discharge of a bottle another bottle will roll into the said pocket.

In order that, when the bottles are piled in two or more tiers, those in the tiers above the lowermost may be restrained against forward movement when the door is opened, a depending stop finger 39 is secured upon the underside of one of the slats 17 of each shelf heretofore described and projects downwardly to such a distance, as to terminate at its lower end immediately above the lower row or tier of bottles, as clearly shown in Fig. 2 of the drawings, and these fingers are preferably located relatively close to the forward side of the refrigerator body so as to provide maximum space for the storage of bottles in each of the compartments. One of these stop fingers may also be secured upon the underside of the top of the refrigerator body so as to depend within the uppermost one of the bottle receiving compartments.

The compartment 10 heretofore referred to is designed to contain ice and is provided with a door opening 40 normally closed by a door 41 and, as before stated, the compartment 11 is designed to contain various articles of food and in order to adapt it for this purpose the compartment is provided upon its side walls at different elevations with cleats 42 upon which rest the side edges of supporting shelves 43. These shelves are preferably of the marginal shape shown in Fig. 3 of the drawings, and each has an arcuate forward edge or side 44. The compartment is provided in its front with a door opening 45 normally closed by a door 46 hinged, as at 47, at one side of the said door opening and secured to the inner face of the said door is a cheese shelf 48 which is preferably of segmental form and is therefore adapted to support a quarter of a head of cheese or any smaller quantity, the arcuate edge of the shelf occupying such a position that the shelf may move through the door opening as the door is swung to open or closed position. To brace the said shelf 48 when the door is in open position and the cheese is being cut, a bracing arm 49 is pivotally mounted as at 50 upon the front of the refrigerator body and is normally housed with a countersink 51 formed in the said front and this arm is provided at one end with a finger knob 52 which may be grasped for the purpose of swinging the arm into and out of position it being illustrated in Fig. 6 of the drawings as in supporting position and in Fig. 1 of the drawings as in inactive position. In the former instance the arm extends at its outer end beneath the shelf 48. As some little time is required to cut and weigh cheese it is desirable that means be provided for closing the compartment 11 while the door 46 is in open position and the shelf 48 is located exteriorly of the refrigerator body and the means which I contemplate employing is clearly shown in

Figs. 3 and 6 of the drawings and comprises an auxiliary door 53 hinged as at 54 within the compartment 11 at the same side as that which the hinges 47 are located, the said door extending beside that straight edge of the shelf 48 other than the one which is secured to the said door 46. A hook 55 is carried by the rear corner of the shelf 48 and is engageable with a keeper eye 56 upon the face of the door 53 and when the hook is engaged with the eye the door 53 will be swung to position closing the door opening 45 when the door 46 is swung to open position, as clearly shown in Fig. 6 of the drawings. By providing the particular connection between the door 53 and shelf 48, however, the door 53 may be allowed to remain in the position shown in Fig. 3 of the drawings if found desirable by disengaging the hook 55 from the keeper eye 56.

Having thus described the invention, what is claimed as new is:

1. In a device of the class described, a compartment having a door opening, a door mounted for swinging movement closing said opening, and a pocket upon the inner face of the said door, the said pocket having a portion extending downwardly from its inner side and arranged to constitute a supporting brace for the pocket when the door is in closed position and to constitute a stop for articles within the compartment when the door is in open position.

2. In a device of the class described, a compartment having a door opening, a door mounted for swinging movement closing said opening, and a pocket upon the inner face of the door having a wall inclined upwardly and inwardly with relation to the plane of the said face of the door, a wall extending approximately horizontal, a curved wall portion, connecting the said inclined and horizontal walls, said horizontal wall having an extension secured to the door, and a top wall extending from the upper edge of the inclined wall and secured to the door.

3. In a device of the class described, a compartment having a door opening and an inclined bottom leading to the door opening, a swinging door mounted to close said opening, a pocket having a top wall secured to the inner face of the door, a bottom wall also secured to the inner face of the door and extending to the inclined bottom of the compartment when the door is closed, and a curved wall connecting the top and bottom walls, and a brace extending downwardly and forwardly from the inner edge of the bottom wall to bear at its lower free edge against the front wall of the compartment when the door is closed and in the open position of the door to arrest movement of articles on the inclined bottom of the compartment, the bottom wall of the pocket approximately filling the door opening when the door is opened.

In testimony whereof I affix my signature.

JAMES T. HARRIS. [L. S.]