May 26, 1942. R. B. NORRIS 2,284,225

DISPENSING CABINET

Filed Oct. 28, 1940 3 Sheets-Sheet 1

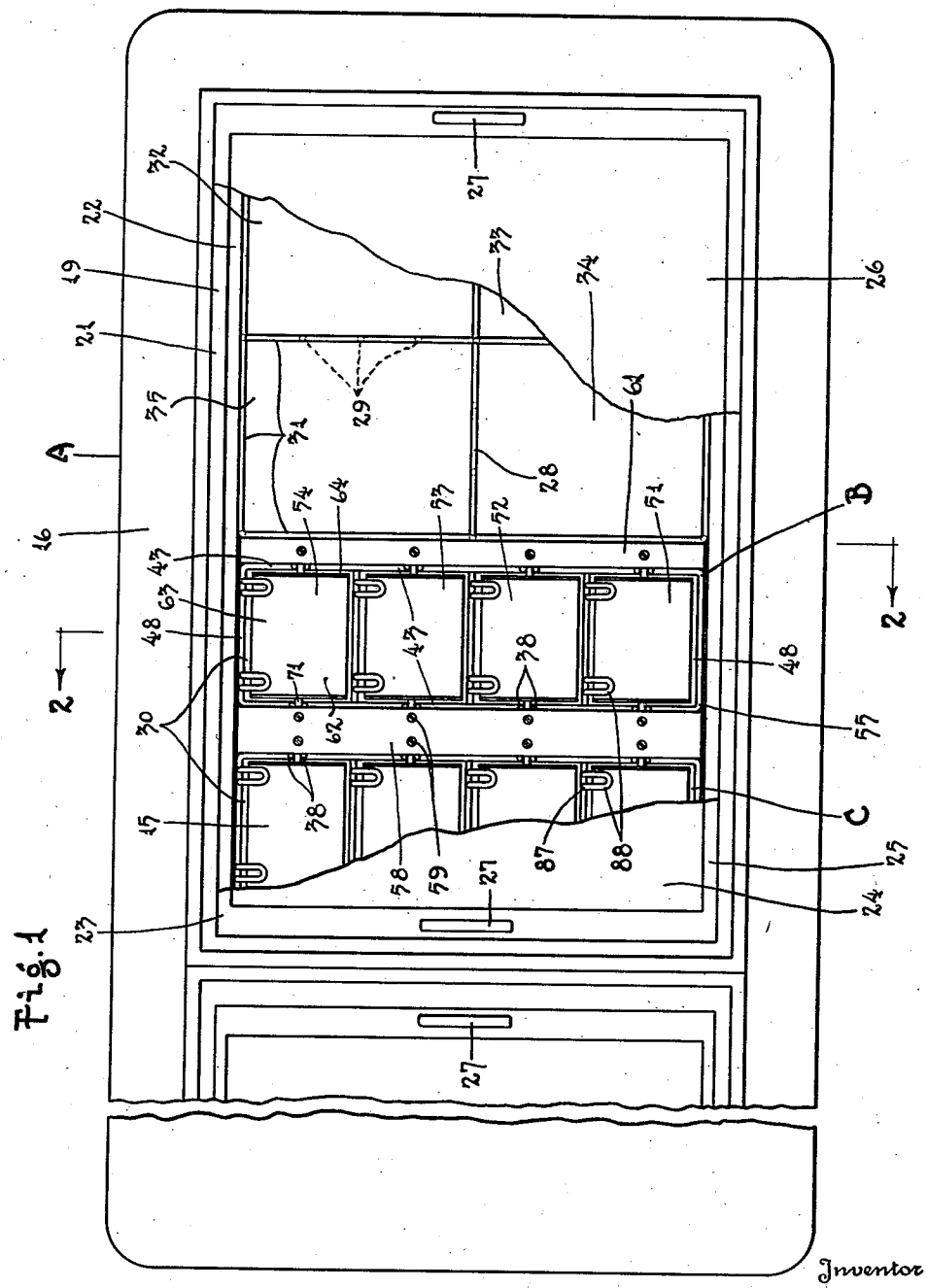


Fig. 1

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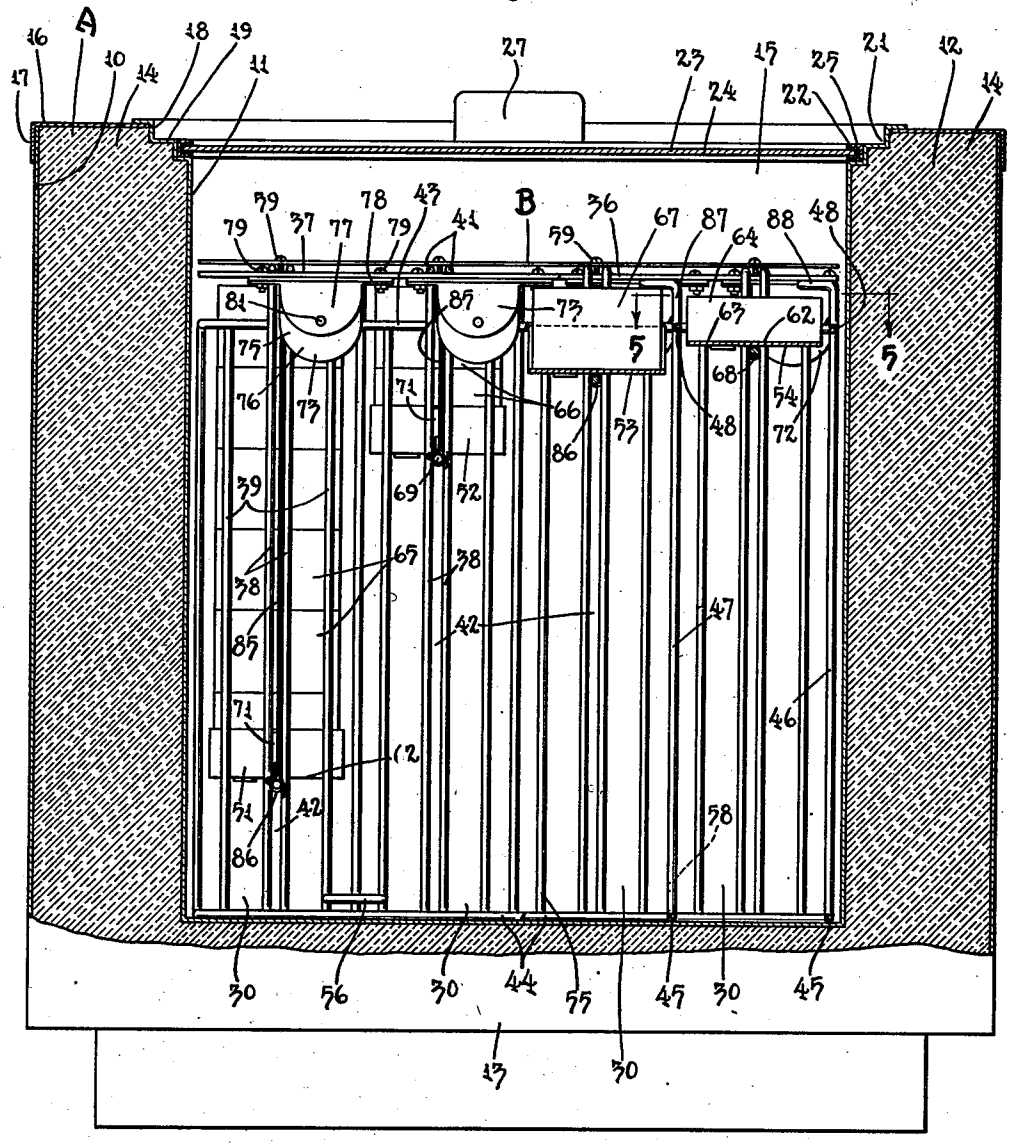
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Fig. 2



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Fig. 3

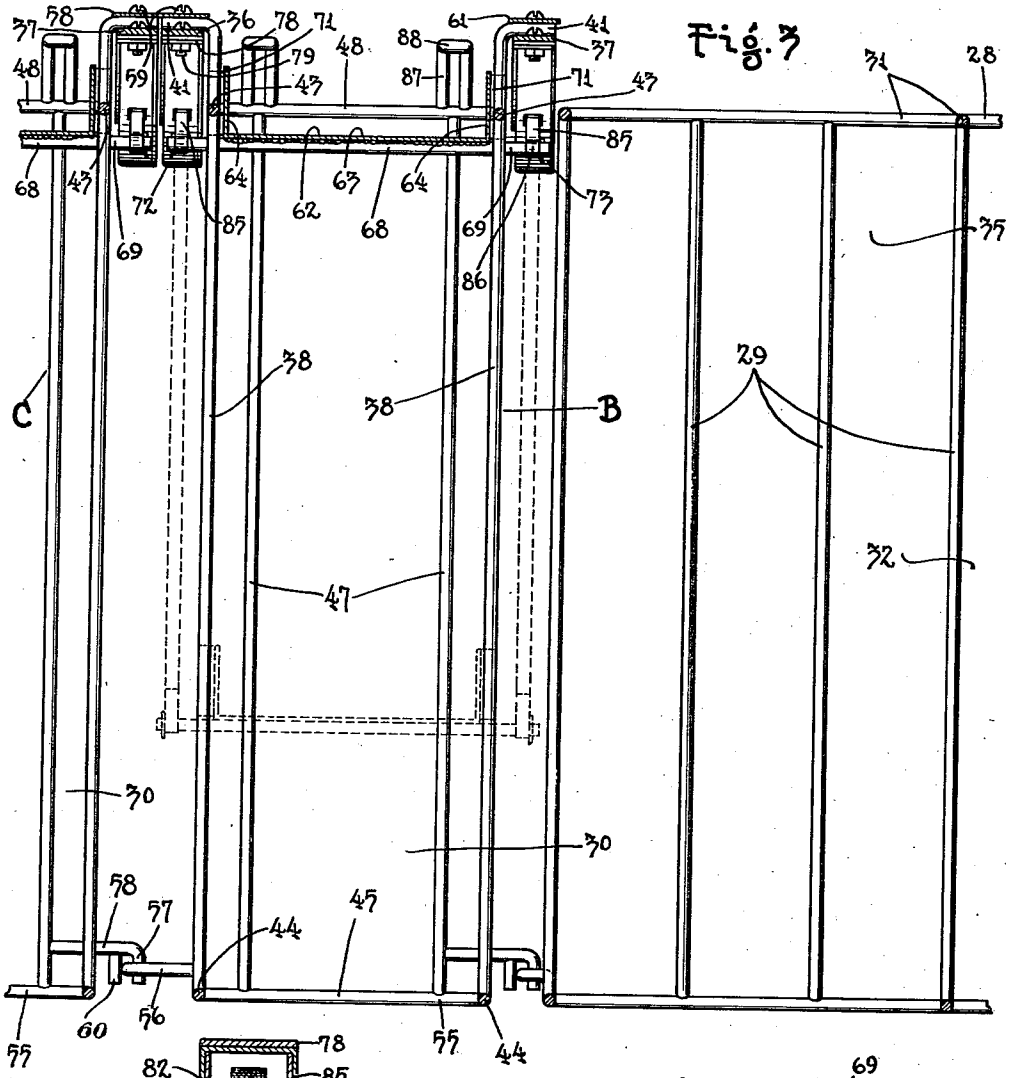


Fig. 4

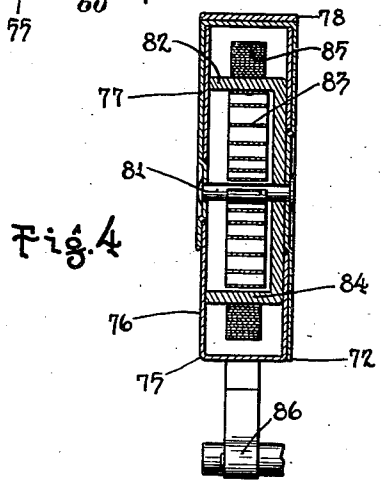
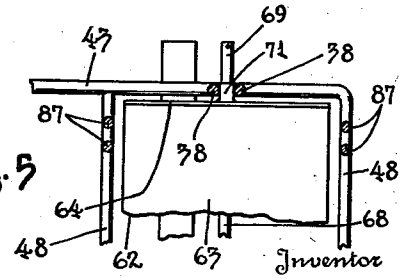


Fig. 5



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UNITED STATES PATENT OFFICE

2,284,225

DISPENSING CABINET

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Application October 28, 1940, Serial No. 363,104

7 Claims. (Cl. 312—71)

My invention relates to dispensing cabinets and particularly to cabinets for dispensing frozen foods and other similar articles.

An object of the invention resides in providing a cabinet having a dispensing opening at the upper portion of the same and in providing means for raising the articles into proximity to said opening whereby the same may be separately removed from the cabinet.

Another object of the invention resides in arranging the articles to be dispensed in stacks and in elevating the stacks to maintain the uppermost article at dispensing level.

A feature of the invention consists in the specific construction of the frame structure in which the articles are guided for movement.

Another object of the invention resides in the specific construction of the mechanism for raising the articles.

A feature of the invention resides in providing units, each having a number of dispensing devices therein, said units being separable and adapted to be easily removed from the cabinet.

Another object of the invention resides in providing a dispensing device which may be easily cleaned.

A still further object of the invention resides in providing a dispensing cabinet capable of holding a maximum number of articles or packages to be dispensed.

A still further object of the invention resides in providing a dispensing cabinet in which the articles to be dispensed are easily reached and easily removed from the cabinet.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is a plan view of a dispensing cabinet illustrating an embodiment of my invention.

Fig. 2 is an elevational sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is an elevational sectional view of a number of the dispensing units removed from the cabinet and drawn to a greater scale than Fig. 2.

Fig. 4 is a sectional view of one of the lifts used with the invention and drawn to a greater scale than Fig. 3.

Fig. 5 is a sectional detail view taken on line 5—5 of Fig. 2.

My invention comprises a cabinet which I have indicated in its entirety by the reference character A, and a number of dispensing units disposed within the cabinet, two of said units being shown which are designated by the reference characters B and C. These parts will now be described in detail.

The cabinet A may be of standard construction and in the form illustrated comprises an outer shell 10 of metal or any other suitable material, and an inner liner 11 of similar construction, and of smaller dimensions to provide a space therebetween which is filled with a suitable insulating material 12. The shell 10 and liner 11 are arranged to provide a bottom 13 and lateral walls 14 connected therewith, the uppermost portion of the cabinet having a dispensing opening 15 therein through which access to the interior of the cabinet may be had. The shell 10 has a top 16 secured thereto which is provided with a flange 17 overlying the uppermost end of the shell. This top is constructed with an opening 18 somewhat larger than the opening 15 in the cabinet proper. In this opening is set a number of frames 19, best shown in detail in Figs. 1 and 2. Where the cabinet is a relatively long cabinet, several such frames may be employed, and where a small cabinet is used a single frame may be utilized. Since these frames and the closures operating in conjunction therewith are identical, only the frame 19 will be described in detail.

The frame 19 is constructed of sheet metal which is bent to form two rabbets 21 and 22 arranged in off-set relation with respect to one another and disposed one above the other. The inner edges of the said frames are welded or otherwise secured to the upper edges of the shell 11 to form a leak-proof construction. The upper portion of the said frames rest upon the top 16 and may be secured thereto in any other suitable manner.

Slidable in the rabbet 22 is a closure 23 which is constructed from a pane of glass 24, having a metal binding 25 extending about the edges thereof. The binding 25 is adapted to fit in the rabbet 22 and serves to guide the closure for sliding movement lengthwise along the frame 19. In the rabbet 21 is provided a similar closure 26 which is similarly constructed and is likewise adapted to slide from one end of the cabinet to the other. The two closures 23 and 26 are of a length slightly greater than one-half the length of the frame 19 so that the same overlap when in closing position, and when in open position expose either half of the space within the said frame. Handles 27, secured to the said closures, facilitate sliding thereof.

In one end of the cabinet A, disclosed in Fig. 1 and beneath the frame 19, are disposed the two dispensing units B and C, as previously stated. In addition a rack 28 is also provided which consists of vertical rods 29 connected to suitable cross-rods 31 which divide the rack into four compartments 32, 33, 34 and 35. This rack is fixed in position within the interior of the cabinet and serves to hold articles which are not readily adapted to be dispensed from the dispensing units B and C.

Inasmuch as both of the dispensing units B and C are identical in construction, only the unit B will be described in detail. Each of the dispensing units has a number of separate dispensing devices independently operable, whereby a number of different kinds of articles may be separately dispensed. In the cabinet shown each dispensing unit is provided with four such dispensing devices which are designated by the reference numerals 51, 52, 53 and 54. The unit B consists of a frame structure 55 which is constructed to provide a compartment 30 for each of the dispensing devices 51, 52, 53 and 54 in which the articles to be dispensed are separately contained and from which the same are dispensed. This frame structure comprises two transversely disposed bars 36 and 37 which extend completely across the cabinet. Attached to these two bars are a number of uprights 38 which are formed with ears 41 bent outwardly therefrom and welded or otherwise secured to the said bars 36 and 37. The uprights 38 are arranged in pairs which are closely positioned to provide grooves 42 therebetween and form guides for guiding the supports for the articles to be dispensed for vertical movement, as will be hereinafter more fully described. As will be noted in the drawing there is one pair of uprights 38 for each of the dispensing devices 51, 52, 53 and 54. Extending between the pairs of uprights 38, near the upper portions of the same and below the bars 36 and 37 are transverse rods 43 which tie the same together. Depending from these transverse rods are other uprights 39 which lie in the same planes as the uprights 38. All of the uprights are connected together at their lower ends by transverse rods 44. The transverse rods 44 and the various uprights are held in spaced parallel planes by means of cross-rods 45 which extend between the rods 44. The rods 45 are disposed at the ends of the unit and at equally spaced localities intermediate the ends of the unit. In addition to the uprights 38 and 39, uprights 46 are provided at the ends of the unit and other uprights 47 are employed, which uprights extend upwardly from the cross-rods 45 and which are secured thereto. The uprights 46 and 47 are secured at their upper ends to cross-rods 48 which are disposed directly above the rods 45 and which are themselves secured to the transverse rods 43. The uprights 47 divide the space within the interior of the unit into the compartments 30 in which the articles to be dispensed are positioned, there being three sets of such uprights which provide one compartment for each of the dispensing devices 51, 52, 53 and 54. All of the rods and uprights of the dispensing unit may be constructed cylindrical, if desired, and are welded or otherwise secured together to form a rigid and substantial construction.

The two units B and C are connected together in the following manner: At the lowermost portion of the frame structure 55, of unit B, are provided two eyes 56 which are attached to the lowermost portions of certain of the uprights 38. These eyes have received in them pins 57 bent downwardly from brackets 58, secured to the corresponding uprights 47 of the unit C. Other pins 60 attached to the brackets 58 and spaced from the pins 57 engage the eyes 56 exteriorly. This construction holds the units in place at the lowermost portion of the cabinet. Extending across the juxtaposed bars 36 of the two units B and C is a plate 58 which is secured to said bars by means of screws 59 extending through said plate and threaded into the said bars. A similar plate 61, at the free end of the unit B, is attached to the bar 37 and conceals the ears 41 and gives the upper surface of the frame structure the same appearance at both sides. In this manner the various frame structures are held attached to one another and in proper position within the cabinet. While I have shown only two units in the space beneath the frame 19, it will readily be comprehended that the rack 28 may be dispensed with in other sections of the cabinet and the entire space filled with dispensing units.

Inasmuch as all of the dispensing devices are identical only the dispensing device 54 will be described in detail, which is best shown in Figs. 2 and 3. This dispensing device comprises a support 62 in the form of a tray having a bottom 63 and spaced side walls 64. This tray serves as a shelf for supporting the articles to be dispensed. In connection with the dispensing device 51, packages indicated at 65, are employed which rest upon the support or tray 62 and which are of an appreciable height. The two dispensing devices 52 and 53 have been illustrated as having packages or boxes 66 and 67 mounted thereon of lesser height than the boxes or packages 65. The dispensing device 54, for the sake of illustration, has been shown as having no articles placed thereon and being disposed in its uppermost position. Extending across the bottom 63 of the support or tray 62 is a cross-rod 68 which is welded thereto. This rod has the ends thereof projecting outwardly beyond the sides 64 of said tray to form lugs 69 which are adapted to slide in the grooves 42 formed between the uprights 38. These lugs are best shown in connection with the dispensing device 54 in Fig. 3 and with the dispensing devices 51 and 52 of Fig. 2. By means of these lugs the trays are supported for vertical movement between the guides of the frame structure 55, whereby the said trays and the articles contained thereon may be raised. To prevent tilting of the trays guide fingers 71 are employed which are welded to the lugs 69 and to the flanges 64 of tray 62. These fingers extend upwardly between the uprights 38 and are disposed in the grooves 42. The fingers 71 thus hold the trays in proper position.

For the purpose of elevating the trays or the support 62, two lifts 72 and 73 are employed which are attached to the two transverse bars 36 and 37. Inasmuch as both of these lifts are identical in construction, only the lift 72 will be described which is shown in detail in Fig. 4. This lift comprises a case 75 which has a semi-cylindrical portion 76 adapted to be telescoped into a rectangular portion 77. The rectangular portion is provided with a flange 78 by means of which the case may be bolted to the bar 36 through machine screws 79. The two parts of the case are held together in any suitable manner. Extending across the case 75 is a pintle 81 which is rigidly attached thereto. Within the

case 75 is provided a pulley 82 which is journaled on the pintle 81. This pulley is hollow and has disposed within the same a spiral spring 83 which is attached at one end to the pintle 81 and at the other end to the rim 84 of the said pulley. The pintle 81 may be welded or otherwise secured to the case 75 so that rotation thereof is prevented. Encircling the rim 84 of the pulley 82 is a flexible metal ribbon 85 which is secured at one end to the said rim and which projects outwardly through the case 75 at one side of the same. This ribbon is formed with a loop 86 at the outer end thereof which extends about the lug 69 of the tray 62. The spring 83 is normally tensioned sufficiently to hold the tray in its uppermost position and, when the tray is lowered along the guides 38, the said spring becomes further tensioned and is capable of raising the loaded tray upwardly.

Extending upwardly from the cross-rods 48 are arms 87 which have formed on the ends thereof stops 88 over-reaching the bottom 63 of the tray 62. These stops are adapted to engage the packages, articles or boxes placed upon the trays and hold the uppermost article or package of the stack at the desired dispensing elevation. Thus each of the uppermost articles or packages is available to be dispensed.

In operation the packages or articles to be dispensed are placed one upon the other in the respective compartments to form a stack of articles, the lowermost article resting upon the tray of the dispensing device and the uppermost article engaging the stop thereof. As the packages are accumulated in the stack, the tray is lowered until the same reaches the bottom of the cabinet. When the stack is released the stops 88 engage the uppermost package at one edge thereof, and hold the stack from further upward movement. When the articles are to be dispensed the uppermost article is grasped by placing the finger between the stacks of articles and raising the article at the edge opposite the stop 88 so as to disengage the article from the stop 88 and release the same. Thereupon the article may be removed from the compartment 30. As soon as the article is out of the way the springs 83 raise the support or tray 62 and bring the next article in the stack into engagement with the stops 88. This continues until all of the articles have been removed from the compartment, whereupon the support takes the position of support 62 of the dispensing device 54 shown in Fig. 2. As the articles are raised by the various dispensing devices, the same are confined to vertical movement by the various uprights forming the various compartments 30 in which the dispensing devices operate.

The advantages of my invention are manifest. The dispensing cabinet is extremely simple in construction and practical in operation. The articles to be dispensed are all at the uppermost level of the cabinet where the same are visible through the glass closures of the cabinet. The articles are easily reached and easily removed from the stacks. So long as there are any articles in the stacks, the cabinet has the appearance of being completely filled. By means of the particular construction of the lifts employed, the articles are raised without appreciable loss of height in the cabinet, thus giving maximum capacity. The dispensing device and the frame structures in which the same operate are constructed in a manner to make the dispensing units extremely sanitary. The dispensing units are readily removable to permit of cleaning and repair when required. While I have shown no refrigeration within the cabinet, it will be readily comprehended that suitable refrigeration coils may be attached to the walls of the liner 11 and disposed within the space formed between the said liner and shell 10. Such construction being well known in the art, has not been shown in this application. If desired, refrigerated air may also be circulated through the cabinet to maintain the products dispensed at the proper temperature. While the cabinet is particularly desirable for frozen food, nevertheless the same may be used for other articles where refrigeration is not required.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination a cabinet having a dispensing opening at the top thereof, a vertical guide within the cabinet comprising a pair of spaced rods forming a slot therebetween, a support for a stack of articles to be dispensed, means on said support extending into said slot and guiding said support for up and down movement along said guide, a stop at the upper end of the guide and at the locality of the dispensing opening in the cabinet for engagement with the uppermost article of the stack, and resilient means for urging the support upwardly and the uppermost article into engagement with the stop, the articles being manually removable one at a time from the stack and from beneath the stop, said resilient means upon removal of the uppermost article bringing the following article into position for removal.

2. In combination a cabinet having a dispensing opening at the top thereof, a plurality of vertically extending rods disposed within said cabinet and forming a compartment for the reception of a stack of articles to be suspended, a support within said compartment for supporting the stack of articles, means extending along certain of said rods for guiding said support for movement along said rods, a stop at the upper end of the guide and at the locality of the dispensing opening in the cabinet for engagement with the uppermost article of the stack, and resilient means for urging the support upwardly and the uppermost article into engagement with the stop, the articles being manually removable one at a time from the stack and from beneath the stop, said resilient means upon removal of the uppermost article bringing the following article into position for removal.

3. In combination a cabinet having a dispensing opening at the top thereof, a shelf for supporting a stack of articles to be dispensed, means forming on opposite sides of said shelf vertical slots, a rod extending beneath said shelf and having the ends thereof projecting into said slot for guiding said shelf for vertical movement along said slots, a stop at the upper end of the guide and at the locality of the dispensing opening in the cabinet for engagement with the uppermost article of the stack, and resilient means connected to said rod for urging the shelf upwardly and the uppermost article into engagement with the stop, the articles being manually removable one at a time from the stack and from beneath the stop, said resilient means upon re-

moval of the uppermost article bringing the following article into position for removal.

4. In combination, a support for a stack of polyhedral articles, vertical guide means for the support and stop means at the upper end of the guide means for engaging the uppermost article of the stack solely along one edge of the upper surface of the article, said stop means being free from the other edges thereof, and resilient means for urging the support for movement toward the stop means, said stop means forming a hinge for the swinging of the portion of the article opposite said denoted edge outwardly of the stack and in the direction of movement of the support to disengage the article engaging the stop means.

5. In combination, a rack forming a well substantially rectangular in cross-section and at least partially closed on all sides for the reception of a stack of articles conforming in form to said well, resilient means for urging the stack of articles upwardly, stop means disposed at the upper end of the rack in proximity to one edge of the well and overhanging the well to engage the marginal portion of the uppermost articles in close proximity to one edge of said article, said stop means being free from the article at the other three edges thereof and forming a hinge for the swinging of the portion of the article at the edge thereof opposite said stop means outwardly of the well and in an upwardly direction to clear the uppermost portion of the rack at a locality opposite said stop means and to permit of withdrawing the article from engagement with the stop means.

6. In combination, a rack comprising a plurality of vertically extending spaced rods arranged to form a well substantially rectangular in cross-section for the reception of a stack of articles conforming in form to said well, said rods being disposed on all sides of the well, means for holding said rods in spaced relation, resilient means for urging the stack of articles upwardly, and stop means at the upper ends of two of the rods at one side of the well turned inwardly to engage the marginal portion of the uppermost article in close proximity to one edge thereof, said stop means forming a hinge for the swinging of the article upwardly and out of the well.

7. In combination, a rack comprising a plurality of vertically extending spaced rods arranged to form a well substantially rectangular in cross-section, two of said rods on each of two opposite sides of the well being closely positioned to form guideways therebetween, a support for a stack of articles to be dispensed, movable vertically within said well, lugs on said support slidable along said guideways and guiding said support for movement within the well, means for urging the support upwardly, the upper ends of said denoted rods having ears extending outwardly therefrom, a pair of attaching plates for each set of ears, one of said plates being disposed below the ears and the other above the ears, and means for clamping the plates together.

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