

Aug. 10, 1937.

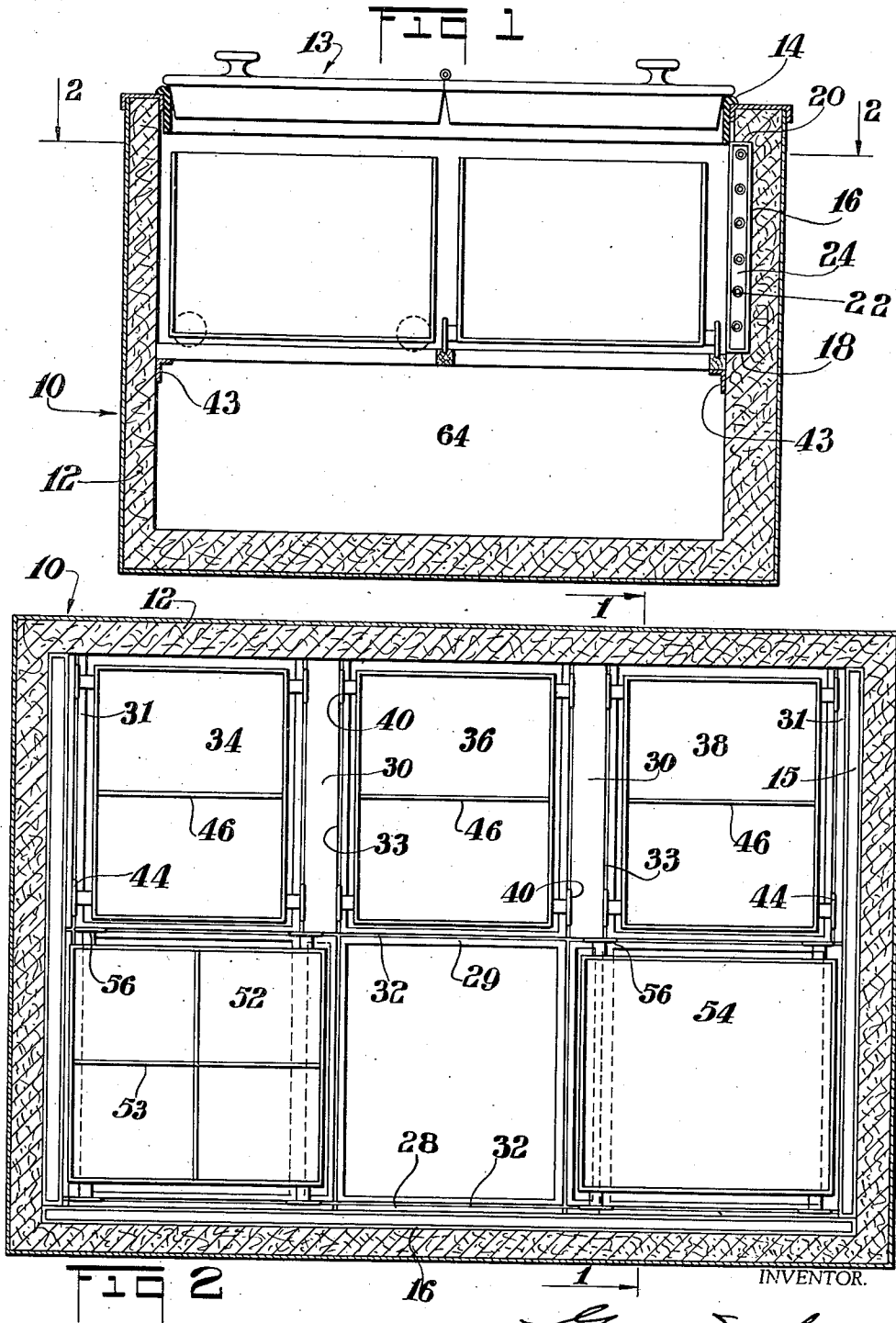
G. W. COCKS

2,089,341

STORAGE CABINET

Filed Oct. 1, 1936

3 Sheets-Sheet 1



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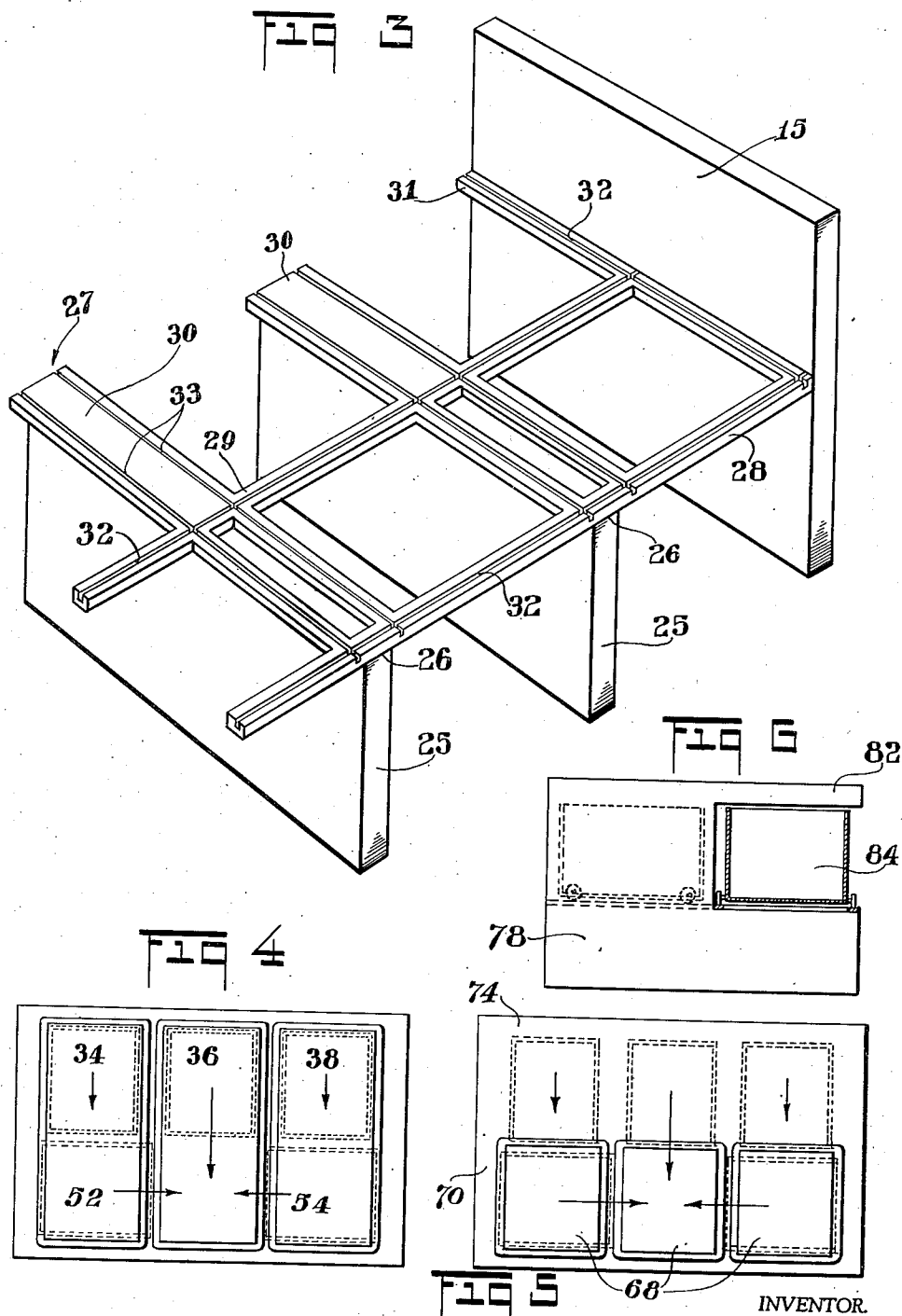
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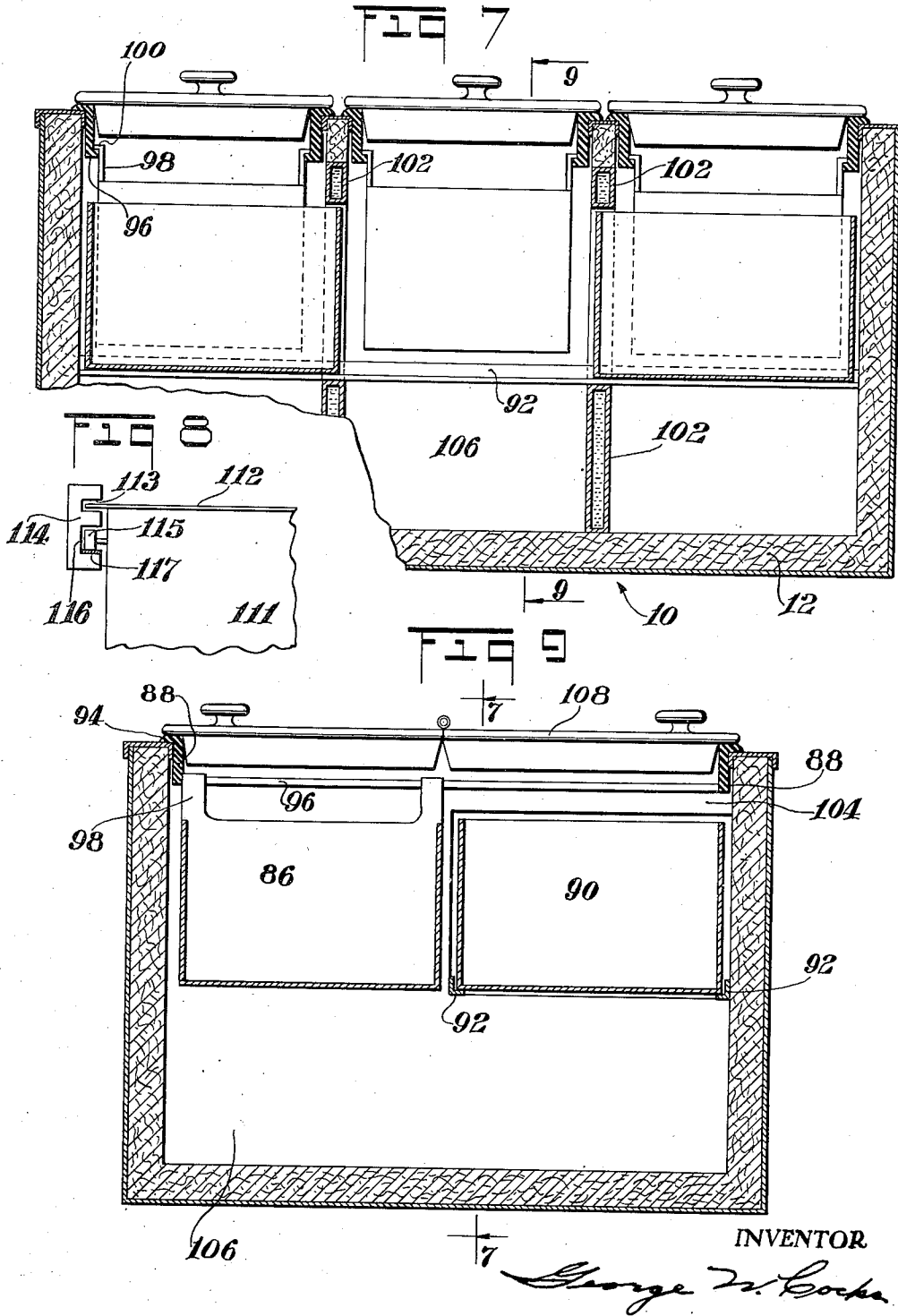
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UNITED STATES PATENT OFFICE

2,089,341

STORAGE CABINET

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Application October 1, 1936, Serial No. 103,513

10 Claims. (Cl. 312-150)

This invention relates to improvements in storage cabinets for food, ice cream bottles and the like.

The invention is more particularly adapted for refrigerated storage cabinets for holding ice cream of various flavors so that a large assortment may be on hand in one cabinet. The storage cabinets set forth herein are adapted for other uses and preferably include a plurality of movable containers in the upper region and a storage space therebeneath within the cabinet. The movable containers are so arranged that they may be moved to permit access to the lower storage space. To do this the upper region is divided into a number of sections and is provided with one less container than the number of sections to leave a space into which a container may be moved to permit movement of any of the other containers.

In my preferred form, the containers are provided with rollers and are arranged in two rows with the containers in one row being movable longitudinally of the storage cabinet and the containers in the other row being movable transversely of the cabinet. By leaving one section vacant and arranging the containers are above set forth, the containers may be moved around to permit access to any portion of the bottom storage space in the cabinet. I am not to be restricted to the numbers of rows of containers or the numbers of containers above described, as these numbers may be changed without departing from the spirit of my invention.

In my refrigerating cabinets are also provided a plurality of walls or partitions which preferably contain refrigerating coils or other refrigerating means so as to afford a better refrigeration of the cabinets. Portions of these partitions extend between certain of the movable containers and in this way a larger refrigerating area is obtained. These partitions may also be provided with extensions which extend above the tops of containers.

In another form of my invention certain of the movable containers are slidably mounted on the opening frames which support the covers for the cabinet and the rest of the containers are slidably mounted on members within the cabinet.

Instead of providing covers for all the sections, I may provide covers for only one row of sections so that the rest of the top of the cabinet can be used as a work space for making sandwiches and the like.

Yet another object of the invention is the provision of an improved storage cabinet for ice

cream and other frozen products wherein, by virtue of the restricted cover structure in combination with storage space arrangements, the syrup rack of a soda fountain may be normally positioned on the top space which is available and may be used for many other useful purposes, without detracting from the feature of increased access to any desired division of storage space.

In the drawings:

Fig. 1 is a vertical transverse section of a cabinet made according to my invention and taken substantially on line 1-1 of Fig. 2;

Fig. 2 is a horizontal section taken substantially on line 2-2 of Fig. 1;

Fig. 3 is a perspective showing of the arrangement of trackways and partitions within a cabinet, parts being omitted to facilitate the disclosure.

Fig. 4 is a diagrammatic showing of a top of a cabinet as shown in Figs. 1 and 2 with arrows indicating the directions in which the containers are movable;

Fig. 5 is a diagrammatic showing of another form of a top of a cabinet having an available working space unobstructed by the covers for the cabinet sections;

Fig. 6 is a front elevation of another form of partition adapted for use in a cabinet made according to my invention, showing the relative positioning of two containers;

Fig. 7 is a vertical longitudinal section taken substantially on line 7-7 of Fig. 9;

Fig. 8 is a broken vertical section showing a modification in the container supporting means; and

Fig. 9 is a transverse section taken on line 9-9 of Fig. 7 and represents another form of a cabinet made according to my invention in which one set of containers is slidably supported from the opening frames and the other set of containers rests on and is supported by a bottom rail or guide.

Referring now more particularly to the drawings, and to the form of my invention shown in Figs. 1, 2, 3 and 4, the reference character 10 designates a storage cabinet provided with insulation 12 and hinged covers 13 received in opening frames 14. A substantially rectangular refrigeration chamber 15 is provided at each end of the cabinet, each of which chambers may contain any suitable refrigeration means. One of these chambers is shown in perspective in Fig. 3. Along one side of the cabinet a refrigerating chamber 16 is provided which does not extend for the full height of the cabinet and which

preferably rests on a shoulder 18 formed in the cabinet wall. Chamber 16 is positioned within a cut-out portion 20 of the cabinet. This chamber 16 may contain any suitable refrigerating means such as cooling pipes 22 and a cooling liquid 24, but this is only shown as one available form of refrigerating means. The refrigerant may be supplied to refrigerating spaces 15 and 16 from any known and suitable source.

10 In Fig. 3 I have shown a perspective view of an arrangement within a cabinet comprising one end refrigerating space 15, and two intermediate partitions or walls 25, which are preferably hollow and are adapted to receive suitable refrigerating means and so increase the refrigerating area within the cabinet. These partitions are rectangular in shape and extend upwardly from the base substantially one half the depth of the cabinet. Upon the upper edges 26 of these partitions, a metal frame 27 is supported, said frame having a plurality of trackways for receiving the wheels mounted on the lower ends of the containers hereinafter described. The frame may be either cast or stamped and may be made from one or a plurality of pieces of material.

In the structure shown in Fig. 3, the frame is provided with a longitudinal member 28 which is positioned at the front of the cabinet and a second longitudinal member 29 intermediate of the cabinet. It is also formed with two intermediate members 30 and terminal members 31. The terminal and the longitudinal members are provided with a single groove or trackway 32 and the intermediate members with a pair of spaced grooves 33.

The containers 34 and their arrangement will now be described. As shown in Fig. 2, there are three containers, 34, 36 and 38, adapted to be moved transversely of cabinet 10. The middle container 36 has small wheels or rollers 40 which roll in the grooves in the opposed transverse members 30. These members which, as aforesaid, are desirably formed integrally with the longitudinal member 28 and 29, extend across the full width of the cabinet and are suitably supported at their terminals by brackets 43 shown in Fig. 1. The end containers 34 and 38 have rollers 44 on each side thereof which likewise roll in the grooves in the transverse members. Containers 34, 36 and 38 are illustrated as being provided with removable partitions 46 positioned substantially midway between the ends thereof, which partitions are suitably supported in any desirable manner, as by pins, rods or the like.

55 In the other row there are two containers, 52, 54, each of which has rollers 56 on opposite sides thereof to roll in the grooves 32 in the longitudinally extending members 28 and 29. In connection with containers 52 and 54, it is to be noted that these containers are of a larger size than containers 34, 36 and 38 and that in the embodiment shown, their combined length is substantially two-thirds of the longitudinal space in which they move, so that an available space is left of substantially the same length as one of the containers 52, 54. In my invention it is necessary to have a space which will receive one of the containers when the containers are to be rearranged. By providing this available space, it is within the contemplation of my invention to extend both rows to include more containers in each row without affecting the accessibility to the containers or to the bottom refrigerating chamber. The container 52 is illustrated as be-

ing provided with a pair of transverse partitions 53 to form separate compartments therein.

All the containers are held within the upper part of the cabinet leaving a refrigerating space or chamber 64 at the bottom of the cabinet which is adapted to receive bottles, food and the like, or any articles which are to be kept cold. The containers are primarily intended to hold ice cream of different flavors, but may be used to hold any other articles which are desired to be kept cool. For instance, this space may be used for the storage of package ice cream and unopened bulk packages, as well as for bulk dispensing if desired. In this latter case, the bottom containers may be stationary or they may have rollers and trackways as is illustrated for the upper portion of the cabinet.

In Fig. 4 I have shown a top view of a covered cabinet with the containers in dotted lines and with arrows denoting the direction in which the containers may be moved. If it is desired to get to the chamber 64 beneath container 34, for example, container 52 is moved to the right and then container 34 is moved into the space originally held by container 52 and the corner of the bottom chamber may be reached. In a similar way, the other containers are movable in order to reach any part of the bottom refrigerating space 64 of the cabinet.

In Fig. 5 I have shown three single covers 68 which are received in openings in the sections, and these covers are not hinged and do not extend for the full width of the cabinet as shown in the form of my invention represented in Fig. 1. By providing such fewer opening frames and covers, the rest of the top 70 of the cabinet provides a flat surface 74 where an attendant may make sandwiches or may use it in many other ways. For instance, the syrup rack may be positioned directly above the rear portion of the cabinet without restricting full access to the storage space thereunder. Another advantage of this construction is the fact that the operator may do all his dispensing from the front row, whether rear covers are provided or not. In Fig. 5, the top having the flat imperforate surface 74 and openings for covers 68 may be used with cabinets having only one tier of movable carriers and with no bottom space in the cabinet. This form of top may also be used with other cabinets having an upper tier of carriers and a bottom space as shown in Fig. 1, for example.

Fig. 6 represents another form of my invention in which the partition 78 (corresponding to partition 26 in Fig. 3) is substantially U-shaped and has an extension 82 extending above the top of the longitudinally movable container 34.

Figs. 7 and 9 represent another form of my invention in which the transversely movable containers 86 are slidably mounted on the opening frames 88 of each section and the longitudinally movable containers 90 are slidably supported on angle irons or angular members 92 suitably held within the cabinet. The opening frames 88 are insulated and are formed with shoulders 94 to hold the frames in the cabinet. At its lower inner end, each frame 88 has a shoulder 96 and each container 86 has arms 98 extending upwardly therefrom and flanges 100 which are slidably mounted on shoulders 96 of the opening frames 88 so that the containers may be moved transversely of the cabinet.

Partitions 102 are preferably hollow to receive refrigerating means and are provided between the containers 86. These partitions are of a

general U-shape and have extension 104 extending above the tops of the containers 90 so as to provide better refrigeration without interfering with the sliding movement of containers 90. Additional cooling chambers may be provided. These partitions support angle members 92 upon which the containers 90 rest and upon which they are slidably mounted. In this form of construction, the container may be moved as described in connection with my preferred form shown in Figs. 1 and 2 in order to reach any part of the bottom refrigerating space 106. Hinged covers 108 may be used with sections as in the one form previously described above.

In Fig. 8 the container 111 is provided with an upper flange 112 which moves in a longitudinal recess or groove 113 in an insulating frame 114. The container is suspended from said frame by means of small wheels 115 which are positioned for rotative movement in a second groove 116. The lower surface of this groove is provided with a metal strip 117 upon which the wheels travel.

In this construction there is less heat ingress into the cabinet with each entry since the only air movement is that directly above the product container. Air of the lower areas or that surrounding the vertical walls of the container below the seal, is not moved with cover opening by reason of this seal.

From the foregoing description it will be seen that I have disclosed storage cabinets having a new arrangement of elements within the cabinets. The manner of operating the containers and using the cabinets has been included above and need not be repeated. When the storage cabinets are to be used as refrigerating cabinets and with the refrigerating chambers connected with a refrigerant supply, there are provided refrigerating chambers at the bottoms of the cabinets. Also, pluralities of rows of containers for receiving any articles to be cooled are provided, the containers being so arranged as to make available access to any portion of the bottom refrigerating space, in case such is provided, and also access to any container. While I have shown a particular arrangement of container, it is to be expressly understood that I am not to be restricted to the numbers of rows or the number of containers shown herein, as these may both be changed so that there are more than two rows, or more or less than the number of containers shown. It is only essential to leave a space between the containers for permitting movement thereof.

It is to be understood that the foregoing examples of my invention are given by way of illustration only and that the same may be modified in many particulars without departing from the spirit of my invention.

What I claim is:—

1. An apparatus of the character described, including, in combination, a storage cabinet having a plurality of rows of containers movably mounted in the upper portion thereof and having a bottom chamber beneath said containers, the number of containers being less than that sufficient to completely fill the upper portion of said cabinet leaving a space adapted to receive a container so that said containers may be moved about to make accessible any desired part of said bottom space, certain of said containers being movable transversely of said cabinet and certain other containers being movable longitudinally of said cabinet.

2. An apparatus of the character described, including, in combination, a storage cabinet having a plurality of rows of containers movably

mounted in the upper portion thereof and having a bottom chamber beneath said containers, the number of containers in one row substantially filling that row and the number of containers in the other row being less than that sufficient to completely fill said other row and leaving a space substantially equal to one container so that said containers may be moved about to make accessible any desired part of said bottom space, the containers in said complete row being movable only transversely of said cabinet and the containers in said incomplete row being movable only longitudinally of said cabinet.

3. An apparatus of the character described including in combination, an insulated storage cabinet provided with covering means and having a plurality of rows of containers movably mounted in the upper portion of said cabinet, said cabinet beneath said containers having a bottom refrigerating space, means for cooling the interior of said cabinet, the number of containers in one row being less than that to completely fill said row, certain of said containers being movable transversely of said cabinet and certain other of said containers being movable longitudinally of said cabinet so as to expose and make accessible different parts of said bottom refrigerating space.

4. An apparatus of the character described, including in combination, a storage cabinet having a plurality of rows of containers movably mounted in the upper portion thereof and having a bottom chamber beneath said containers, the number of containers in one row being less than that sufficient to completely fill said row leaving a space adapted to receive a container so that said containers may be moved about to make accessible any desired part of said bottom space, said containers being provided with rollers, and trackways supported in said cabinet upon which said rollers are mounted.

5. A construction of the character described, including in combination, a storage cabinet having a plurality of rows of containers movably mounted in the upper portion thereof and having a bottom chamber beneath said containers, the number of containers being less than that sufficient to completely fill the upper portion of said cabinet leaving a space adapted to receive a container so that said containers may be moved about to make accessible any desired part of said bottom space, and hollow partitions in said cabinet and adapted to receive refrigerating means, said partitions having portions extending between certain of said containers and serving to guide the movements of said containers adjacent thereto, said partitions being provided with hollow extensions adjacent the top portion of said cabinet which project above the top of one row of containers so as to afford better refrigeration for said last mentioned row of containers.

6. An apparatus of the character described, including in combination, a storage cabinet provided with a plurality of rows of containers, means for movably supporting said containers in said cabinet, said containers being movable in straight lines only, said cabinet having a chamber beneath said containers, the number of containers being less than that sufficient to completely fill the upper portion of said cabinet leaving a space adapted to receive a container, certain of said containers being movable transverse-

ly of said cabinet and certain others being movable longitudinally of said cabinet.

7. An apparatus of the character described, including in combination, a cabinet having a plurality of opening frames at the top thereof adapted to receive covering means, a plurality of rows of containers in the upper portion of said cabinet, one container in one row being omitted to leave a space to permit movement of the other containers, the containers in one row being movable transversely of said cabinet and the containers in the other row being movable longitudinally of said cabinet, and means whereby said transversely movable containers are slidably supported by said opening frames.

8. An apparatus of the character described, including in combination, a cabinet having a plurality of opening frames at the top thereof adapted to receive covering means, a plurality of rows of containers in the upper portion of said cabinet, one container in one row being omitted to leave a space to permit movement of the other containers, the containers in one row being movable transversely of said cabinet and the containers in the other row being movable longitudinally of said cabinet, and means whereby said transversely movable containers are slidably supported by said opening frames and means within said cabinet for supporting said longitudinally movable containers for sliding movement.

9. An apparatus of the character described, including in combination, a cabinet having a

plurality of opening frames at the top thereof adapted to receive covering means, said cabinet having a plurality of rows of containers movably mounted in the upper portion thereof and having a bottom chamber beneath said containers, the number of containers being less than that sufficient to completely fill the upper portion of said cabinet leaving a space adapted to receive a container so that the containers may be moved about to make accessible any desired part of said bottom space, certain of said containers being movable transversely and certain other of said containers being movable longitudinally of said cabinet, said transversely movable containers being supported by said opening frames.

10. A construction of the character described, including in combination, a storage cabinet having a plurality of rows of containers movably mounted therein in the upper portion thereof, the number of containers being less than that sufficient to completely fill said cabinet leaving a space adapted to receive a container so that said containers may be moved about to make accessible any desired part of said cabinet, certain of said containers being movable transversely of said cabinet and certain other containers being movable longitudinally of said cabinet and a cover for said cabinet, said cover having openings for only one row of containers so that the rest of the cover is imperforate and may be used as a working space.

GEORGE W. COCKS.