Oct. 19, 1937. T. J. SCOFIELD 2,096,690

STORAGE BIN FOR REFRIGERATOR CABINETS

Filed July 12, 1935

Fig. 1.

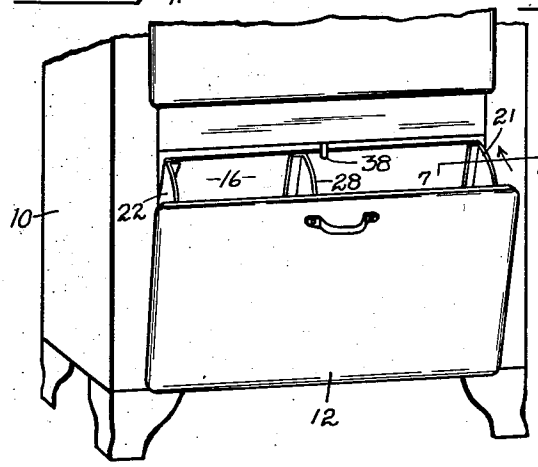


Fig. 2.

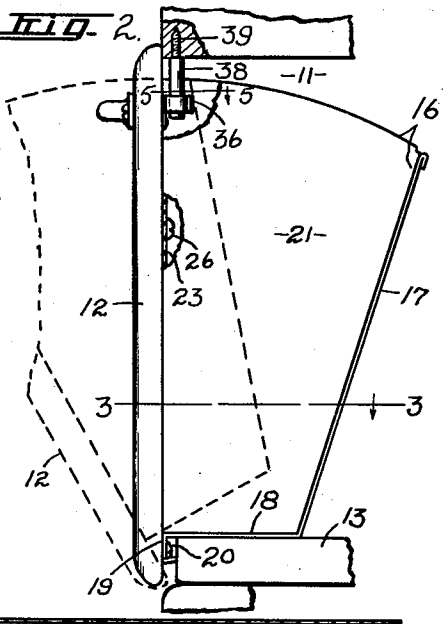


Fig. 3.

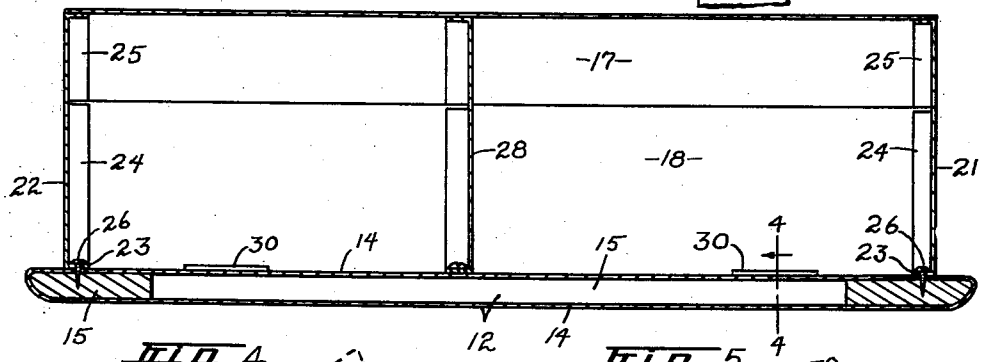


Fig. 4.

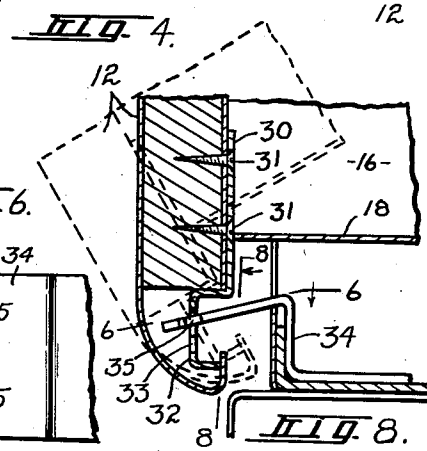


Fig. 5.

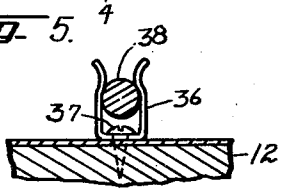


Fig. 6.

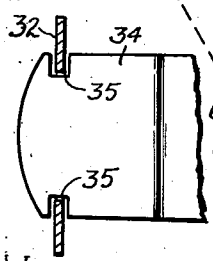


Fig. 7.

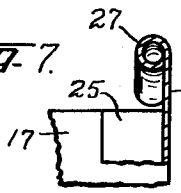
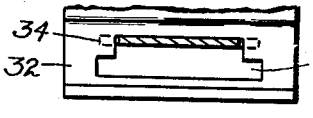


Fig. 8.



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STORAGE BIN FOR REFRIGERATOR CABINETS

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2 Claims. (Cl. 312—155)

This invention relates to a new and improved storage bin and more particularly to a storage bin for refrigerator cabinets primarily useful as a storage space for food products outside of the refrigeration chamber.

Accessibility to the refrigeration chamber is a prime desideratum in household refrigerator construction. In order to obtain the desired accessibility, the refrigeration chamber must necessarily be raised a considerable distance off the floor, with a resultant loss of space in the cabinet below the cooling chamber. Some manufacturers have utilized a portion of this space to house the condenser and compressor mechanism of the refrigerator. I have found that further utilization of the space below the cooling chamber is possible and highly desirable.

It is an object of this invention to convert as much of the normally waste space in a refrigerator cabinet into food storage space as is consistent with practical manufacturing conditions.

A more specific object of the invention is to provide a food storage bin within a compartment below the refrigeration chamber in a household refrigerator cabinet.

A further object of the invention is the provision in a refrigerator cabinet having a machinery compartment below the cooling chamber and a removable door therefor, of a food storage bin secured to the inside wall of the door.

Other objects and advantages relate to the construction and arrangement of the various parts of my invention and will appear more fully in the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a perspective view of the lower portion of a refrigerator cabinet showing the storage bin of my invention in the open position;

Figure 2 is a side elevation view of the storage bin of my invention;

Figure 3 is a sectional view taken along line 3—3 of Figure 2;

Figure 4 is a sectional view taken along line 4—4 of Figure 3 showing the method of hinging the bin to the refrigerator cabinet;

Figure 5 is a sectional view taken along line 5—5 of Figure 2;

Figure 6 is a sectional view taken along line 6—6 of Figure 4;

Figure 7 is a sectional view taken along line 7—7 of Figure 1; and

Figure 8 is a sectional view taken along line 8—8 of Figure 4.

Referring to the drawing, the reference numeral 10 designates a refrigerator cabinet of the type having a compartment 11 extending inwardly from the front wall of the cabinet and positioned below the refrigeration chamber. The opening in the front wall of the cabinet across the compartment 11 is closed by a door 12 hinged along its lower side, in a manner to be hereinafter more fully described, to the frame 13 of the refrigerator cabinet. The door 12 may be constructed of sheet metal 14 covered over a wood frame 15.

The food storage bin of my invention, generally designated at 16, may be constructed from sheet metal of suitable thickness and is secured to the back wall of the door 12. The back and bottom members, 17 and 18 respectively, may be formed integrally from a single sheet of material. The forward end of the member 18 has a downwardly extending flange 19 adapted to be secured in abutting relation against the inside wall of the door 12 by means of screws 20 passing through the flange 19, metal sheet 14 and into the door frame 15. The back member 17 is preferably inclined outwardly so that the bin will be wider at the top than at the bottom. The respective ends of the bin are closed by members 21 and 22.

Each end member has three flanges, 23, 24, and 25, extending inwardly along its front, back and bottom edges respectively. The flanges 24 and 25 may be secured to the end portions of members 18 and 17 respectively as by spot welding or any other suitable method. These end members may be secured to the back wall of the door 12 by means of screws 26 passing through the flanges 23, the sheet metal cover 14 and into the wood frame 15.

By thus securing the sheet metal members of the bin to the inside wall of the door 12, the inside wall of the door is utilized as the front wall member for the bin. The end members 21 and 22 are preferably provided with a rolled upper edge 27 of arcuate configuration as shown in Figure 7. The object of the rolled edge is to prevent accidental injury to the hands of persons while gaining access to the bin during normal usage, which injuries might occur if the normal edges of the end members were allowed to remain exposed.

The bin 16 may be divided into any desired number of compartments by utilizing the required number of partitions 28, only one being shown in Figures 1 and 3 of the drawing. The partition 28 is preferably of the same form as end member 21 and may be secured in like manner to the back and bottom members 17 and 18, and to the back of the door 12 by flanges.

A preferred method of hinging the door 12

to the lower frame member 13 of the refrigerator cabinet, is shown in detail in Figures 4, 6, and 8. The lower edge of the door 12 is provided with a pair of hinge leaves 30, which may be secured to the frame 15 by means of screws 31. The lower end of each hinge leaf 30 is provided with a U-shaped offset portion 32 having an inverted T-shaped slot 33, as shown in Figure 8.

The slot 33 is adapted to engage the forward notched portion of a hinge butt 34, the other end of which may be secured as by welding to the frame 13 of the refrigerator cabinet. The forward or protruding end of each hinge butt 34 is provided with two opposed notches 35 positioned in the opposite side edges of the butt and adjacent its free end. The lower or longer portion of slot 33 in hinge leaf portion 32, is slightly longer than the width of the hinge butt 34 so as to readily receive the latter. The upper portion of slot 33 is slightly longer than the distance between notches 35 so that opposite abutting edges of the upper portion of slot 33 will drop into the notch.

Notches 35 are made wide enough to permit considerable rocking of the hinge leaves 30 and, consequently, door 12 with respect to the hinge butts 34, but are sufficiently limited in width to prevent the hinge leaves from slipping off the butts. It will be noted that the protruding portion of hinge butts 34 are inclined slightly from the horizontal. This construction facilitates the engagement and disengagement of the hinge leaf and butt members, as will appear hereinafter.

The door 12 may be maintained in the closed position by means of a U-shaped catch member 36 secured to the inside wall of the door by means of a screw 37, as shown in Figures 2 and 5. The member 36 is adapted to resiliently engage a stop member 38 projecting downward from the upper wall of the compartment 11. The forward ends of the member 36 may be bent inwardly toward each other and then outwardly to facilitate guiding the member 36 into clamping engagement with the stop member 38. The stop member 38 is provided with a threaded end portion 39 which may be screwed into the upper wall of compartment 11. The stop member 38 is also of sufficient length to engage the back wall 17 of the bin 16 when the door 12 is opened thereby limiting the normal outward movement of the door when access to the bin is desired.

When it is desired to remove the door assembly including the door 12 and the bin 16, the door is rocked about its hinge members until it is substantially at right angles with the inclined portion of hinge butts 34 and is then raised sufficiently to permit the disengagement of hinge leaves 30 from the hinge butts 34. Sufficient clearance is provided between the upper edge of the bin 16 and the upper wall of the compartment 11 to permit the door assembly to be raised the requisite amount for releasing the hinge members. Upon releasing the door from its hinged position, the lower portion thereof may be withdrawn a distance to let the lower portion of the bin 16 clear the forward edge of the frame 13, which will then allow the door assembly to be lowered still further, thereby providing adequate clearance between the back wall 17 of the bin and the stop member 38.

In replacing the door assembly, the door 12 is maintained substantially at right angles with respect to the inclined portion of the hinge butts 34 during its movement toward the compartment 11. After the back wall 17 has cleared the stop 38, the assembly is raised and the slots 33 of the hinge leaves 30 are guided over the ends of the butts 34. When the hinge leaves come into registration with notches 35, the door assembly will drop down permitting the edges of slots 33 to engage the sides of the notches 35. The door assembly may then be rocked about its hinge members to the closed position.

From the foregoing description, it is apparent that I have provided a convenient storage space for food products ancillary to the normal refrigerated storage space, which utilizes more effectively the space below the refrigeration chamber which normally is wasted. It is also to be noted that the means that I have employed in utilizing a portion of the normally wasted space, does not in any way interfere with the access to the refrigerator condenser and compressor mechanism which is housed in the compartment 11 behind the bin 16.

Although I have shown and described a particular refrigerator construction, it is to be understood that the same is for the purpose of illustration and that changes and modifications may be made by those skilled in the art without departing from the spirit and scope of the appended claims.

I claim:

1. In a food storage bin adapted to fit within the machinery compartment of a refrigerator, said food storage bin being of the type wherein the outer wall thereof constituting a door is substantially flat and rests against the margin of the frame forming the compartment, a hinge structure for said bin comprising a pair of hinge lugs secured at the lower edge of the door, each of said hinge lugs having an inverted T-slot therein, a pair of hinge butts secured to and extending outward from the lower wall of said compartment and projecting into said T-slots, said hinge butts each having a pair of notches at their side edges, said hinge lugs and hinge butts normally being adapted to register so that the upper edges of said T-slots rest upon the upper surfaces of said hinge butts and in said notches, the construction and arrangement being such that the bin may be manually raised so that the hinge butts lie in the lower portion of said T-slot whereby the hinge lugs may be moved out of locking engagement with said hinge butts and the bin removed from the compartment.

2. In a food storage bin adapted to fit within the machinery compartment of a refrigerator, said food storage bin being of the type wherein the outer wall thereof constituting a door is substantially flat and rests against the margin of the frame forming the compartment, a pair of hinge lugs secured at the lower edge of the door, each of said hinge lugs having a slot therein, a pair of hinge butts secured to and extending outward from the lower wall of the compartment and projecting into said slots, means included in said hinge lugs and hinge butts for locking them in pivotal relation, the construction and arrangement being such that the bin may be manually raised so that the hinge lugs are released from the hinge butts and the bin removed from the compartment and the outer wall of said door having a portion thereof depending below the hinge lugs and hinge butts so that the entire hinge is hidden from view.

THEODORE J. SCOFIELD.