Oct. 18, 1955 J. B. HORVAY 2,720,674

DOORCHECK FOR REFRIGERATORS

Filed Dec. 27, 1952

Fig. 1.

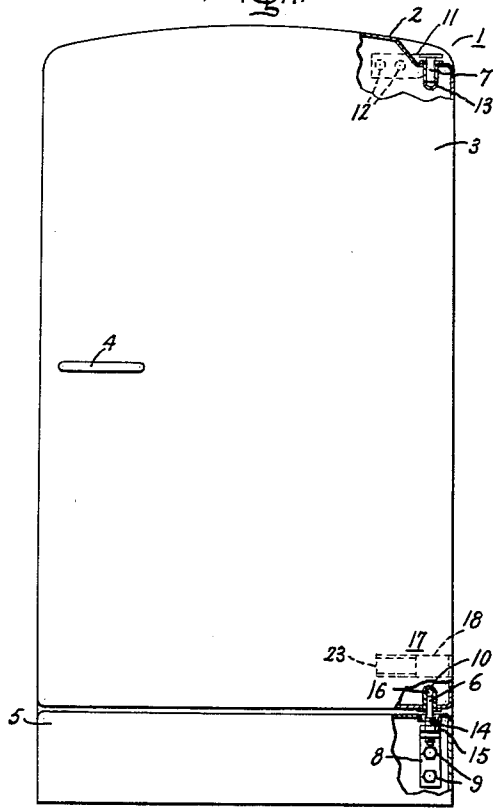


Fig. 4.

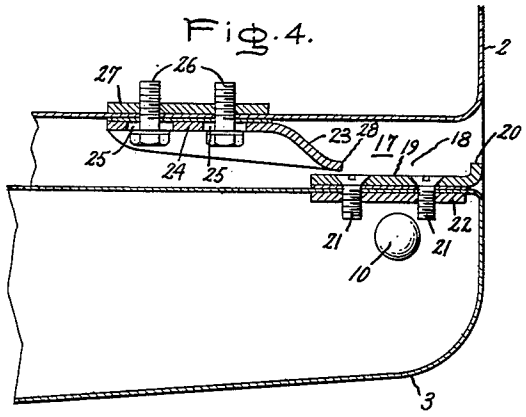


Fig. 5.

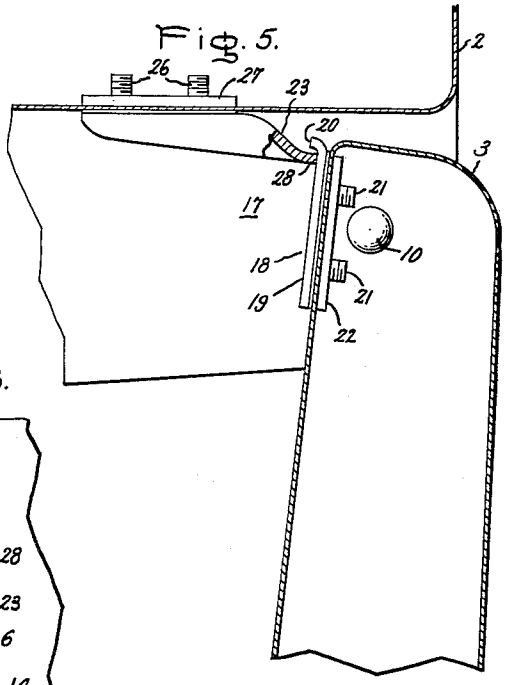


Fig. 2.

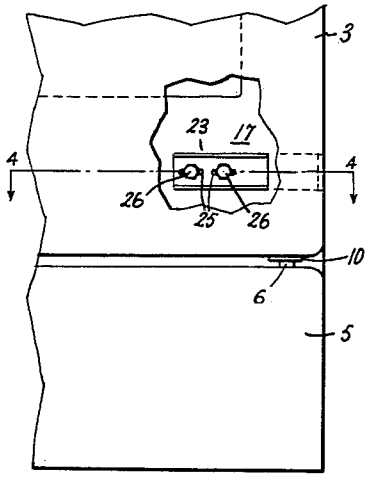
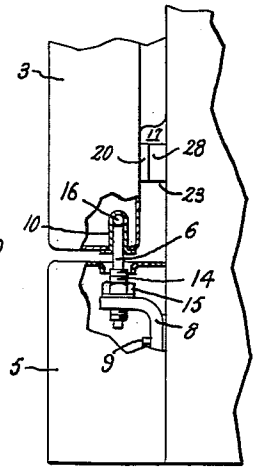


Fig. 3.



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DOORCHECK FOR REFRIGERATORS

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1 Claim. (Cl. 16—82)

My invention relates to doorchecks and pertains more particularly to the provision of means for limiting the opening movement of refrigerator doors.

In some refrigerators, the opening movement of the doors is limited by doorchecks associated with or integrally part of the hinge structures whereby the doors are hung on the refrigerator cabinets. Relying on this type of doorcheck limits the user as to the types of hinges he may employ in hanging the doors. Further, with door hinges including doorchecks it is often difficult, if at all possible, to adjust the doorchecks for varying the extent of the opening movement of the doors. Still further, door hinges including doorchecks can prove costly in manufacture since the hinges must be constructed sturdy enough to withstand the shocks resulting from stopping the opening movement of the doors.

The primary object of my invention is to provide a new and improved doorcheck for limiting the opening movement of a refrigerator door.

Another object of my invention is to provide a refrigerator doorcheck adapted for being effective independently of the refrigerator door hinges, enabling the employment of less expensive hinges and a variety of types of hinges.

Another object of my invention is to provide a refrigerator doorcheck, including means for easily adjusting the extent of the opening movement of the door.

Another object of my invention is to provide a simple, inexpensive refrigerator doorcheck.

Further objects and advantages of my invention will become apparent as the following description proceeds and the features of novelty which characterize my invention will be pointed out with particularity in the claim annexed to and forming part of this specification.

In carrying out the objects of my invention, I provide a first element or bumper for being secured to the face portion of the refrigerator door and a second element or stop for being secured to the face portion of the outer case of the refrigerator cabinet. The bumper is engageable with the stop when the door is opened thereby to limit the opening movement of the door. The stop is adjustable horizontally on the refrigerator case for varying the point at which the bumper is engageable with the stop thereby to vary the extent of the opening movement of the door.

For a better understanding of my invention, reference may be had to the accompanying drawing in which:

Fig. 1 is a front elevation view of a refrigerator cabinet partially broken away to illustrate the door hinging arrangement;

Fig. 2 is an enlarged fragmentary detailed view illustrating the mounting of the stop;

Fig. 3 is an enlarged fragmentary detailed view illustrating the lower hinge;

Fig. 4 is an enlarged fragmentary sectional view taken along the lines 4—4 in Fig. 2 and illustrating the bumper in its door closed position; and

Fig. 5 is an enlarged fragmentary sectional view illustrating the bumper in engagement with the stop for limiting the opening movement of the door.

Referring to the drawing there is shown a refrigerator cabinet **1** including an outer case **2**. Provided for closing an access opening to a food storage compartment in the cabinet **1** is a door **3** having a handle **4**. Both the outer case **2** and the door **3** include face portions which are in substantial register when the door is closed. Provided for closing an access opening to a machinery compartment at the bottom of the refrigerator cabinet **1** is a kick plate **5**.

As seen in Figs. 1 and 3, the door **3** is mounted for movement about a vertical axis. This movement is effected by a pair of elongated vertical pins **6** and **7**. The pin **6** is disposed at the lower portion of the cabinet and is mounted on a bracket **8**, which is suitably secured to the cabinet, as by a pair of bolts **9**. The pin **6** projects upwardly through a suitable aperture in the upper wall of the kick plate **5**. Provided in the lower wall of the door **3** is another suitable aperture for receiving the pin **6**, this aperture being provided with a cup-shaped element **10** secured to the lower wall of the door **3**. The pin **7** is mounted on a bracket **11**, which is secured to the face of the outer case **2** by screws **12** or other suitable fastening devices. The pin **7** extends vertically downward from the bracket **11** and is received in a cup-shaped element **13** positioned in an aperture in the upper wall of the door **3** and secured to the upper wall of the door.

The pins **6** and **7** are of course assembled so as to be disposed along the same vertical line which forms the hinge axis of the door **3**. In mounting or hanging the door **3**, the door is first placed in position on the pin **6**, projecting into the cup-shaped element **10** in the lower wall of the door. The pin **7** is then inserted into the cup-shaped element **13** in the upper wall of the door **3** and the bracket **11** is secured to the face portion of the case **2** by the screws **12**. The door **3** may also be mounted in a reverse manner. In this reverse manner, the bracket **11** is assembled on the face portion of the outer case **2** and the door is first placed in position with the pin **7** extending into the cup-shaped element **13** in the upper wall of the door. Then the pin **6** is inserted into the cup-shaped element **10** in the lower wall of the door **3**. Another method for mounting the door, and the one most suitable for production line assembly, is carried out with the outer case **2** lying on its back and the door **3** placed on the face of the outer case. The pins **6** and **7** are then assembled simultaneously by two workmen. In all of the described methods of mounting the door, the final adjustment to hold the door firmly in assembled position is accomplished by threaded engagement of a threaded portion **14** of the pin **6** and a nut **15** mounted on the bracket **8**. This affords vertical adjustment of the pin **6** for completing the assembly. To facilitate swinging movement of the door **3**, a ball **16** is provided in the cup-shaped element **10** between the upper end of the pin **6** and the upper portion or bottom of the element **10**.

Provided for limiting the swinging or opening movement of the door **3** and generally indicated by **17** is my new and improved doorcheck. As best seen in Figs. 1, 2 and 3, my doorcheck **17** is located between the lower face portions of the outer case **2** and the door **3**.

As best seen in Figs. 4 and 5, my doorcheck **17** includes a first element or bumper **18**. The bumper **18** comprises an elongated portion or base **19** and a rearwardly projecting portion or lip **20**. By means of a pair of screws **21** and a nut strip **22**, the bumper **18** is secured to the lower face portion of the door **3** adjacent the vertical axis about which the door swings. The bumper **18** is so disposed that the outer edge of the lip **20** thereof is in substantial alignment with the side walls of the outer case **2** and the door **3**.

Provided for cooperating with the bumper **18** is a second element or stop **23**. The stop **23** is channel-like in construction and includes an elongated portion or base **24**. Formed in the base **24** is a pair of horizontal slots **25**. Received in the slots **25** is a pair of bolts **26**. The bolts **26** pass through suitable apertures in the lower face portion of the outer case **2** and thread into a nut strip **27**. In this manner, the stop **23** is secured in a horizontally adjustable manner to the case **2**. The stop **23** further includes a portion or nose **28** projecting forwardly from the face portion of the outer case **2** adjacent the vertical axis about which the door swings.

As seen in Fig. 4, the mounting of the bumper **18** on the door **3** and the mounting of the stop **23** on the case **2** is such that when the door is closed the lip **20** of the bumper and the nose **28** of the stop **23** are spaced apart. When the door **3** is opened the portion of the bumper **18** just inwardly of the lip **20** is engageable with the nose **28** of the stop **23** in the manner shown in Fig. 5 for limiting the swinging or opening movement of the door.

By means of the bolt and slot construction whereby the stop **23** is secured to the face portion of the case **2**, adjustments may be made to the doorcheck **17** for varying the point at which the nose of the stop is engageable by the bumper thereby to vary the extent of the opening movement of the door. This may be accomplished by loosening the bolts **26**, opening the door to the position at which it is desired that the opening movement be limited, moving the stop **23** into engagement with the bumper **18** while the door is held in this position and thereafter tightening the bolts **26**.

Thus, it will be seen that I have provided a refrigerator doorcheck which is simple and may be inexpensively constructed and which is effective independently of the hinges whereby the door is mounted on the refrigerator cabinet. This independence of the doorcheck with respect to the hinges permits the employment of any one of a variety of types of hinges for mounting the door. Further, with my doorcheck the brunt of the force or shock resulting from stopping the swinging movement of the door is

transmitted directly to the refrigerator case rather than indirectly through the hinges. Thus, less expensive hinges may be employed for hanging the door. Still further, my doorcheck provides for easy adjustments thereto for varying the extent of the opening movement of the door.

While I have shown and described a specific embodiment of my invention, I do not desire my invention to be limited to the particular form shown and described, and I intend by the appended claim to cover all modifications within the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

A door stop for a door hinged to a case for limiting the opening movement of a door comprising a bumper mounted on a face portion of the door, a stop mounted on a face portion of the case which registers with said face portion of said door when said door is closed, said bumper including a lip projecting toward said face portion of said case, said stop including a nose projecting toward said face portion of said door when said door is closed, said nose being engageable by said bumper adjacent said lip during opening movement of said door for thereby limiting the opening movement of said door, and means for horizontally adjusting the mounted position of said stop on said case for varying the point at which said nose of said stop is engageable by said bumper thereby to vary the extent of said opening movement of said door.

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