Jan. 11, 1949. S. B. HASELTINE 2,458,591

DOOR FASTENER

Filed Sept. 22, 1945

Fig. 1.

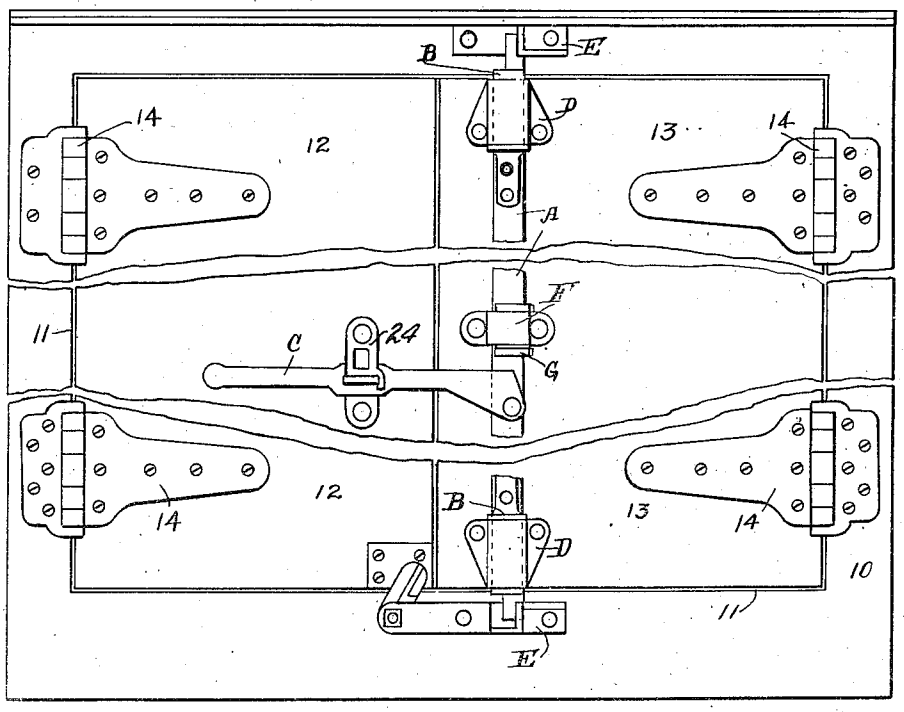


Fig. 2.

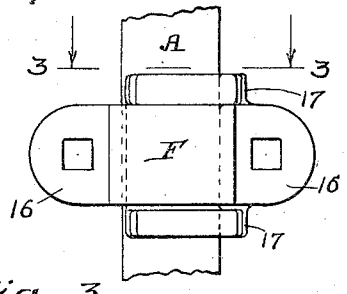


Fig. 3.

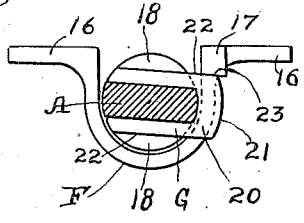


Fig. 4

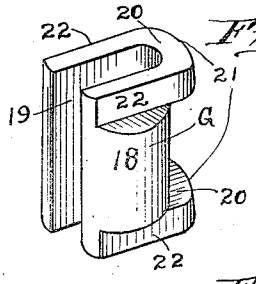
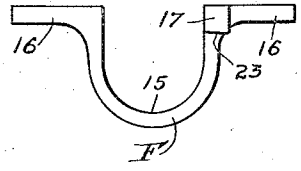


Fig. 5



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DOOR FASTENER

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Application September 22, 1945, Serial No. 618,016

2 Claims. (Cl. 292—241)

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This invention relates to improvements in door fasteners for hinged doors.

One object of the invention is to provide a door fastener comprising a rotary operating bar having keeper engaging crank members at opposite ends thereof cooperating with keepers, operated by a lever on the bar, stop means for arresting rotation of the bar to hold the operating lever spaced from the outer side of the door when the latter is in unlocked condition.

A more specific object of the invention is to provide a door fastener mechanism as set forth in the preceding paragraph wherein a bearing or guide bracket is provided on the door for rotatably supporting the bar between its upper and lower ends, and the stop means comprises a bearing block on the bar rotatably mounted in the bearing bracket and provided with a stop projection having shouldered engagement with the cooperating stop on the bracket to arrest rotation of the bar to hold the operating lever spaced from the outer side of the door when the door has been forced open.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing forming a part of this specification, Figure 1 is a broken, front elevational view of a wall provided with a door opening, and a pair of hinged doors for closing said opening, illustrating my improvements in connection therewith. Figure 2 is a front elevational view, on an enlarged scale, of the mechanism at the mid portion of the bar, as shown in Figure 1, the upper and lower end portions of the bar being broken away. Figure 3 is a horizontal sectional view, corresponding substantially to the line 3—3 of Figure 2. Figure 4 is a perspective view of the bearing block of my improved mechanism. Figure 5 is a top plan view of the bearing or guide bracket which supports the operating bar between the top and bottom ends thereof.

In said drawing, 10 designates the side wall of a refrigerator car having a door opening 11 therein, which is closed by a pair of hinged door members 12 and 13. Each door member is provided with the usual sets of hinges 14—14 along the vertical outer edges thereof, by which the door is swingingly supported. The door 12, which is that first closed, and the door 13 have meeting edges which are beveled and so inclined that the door 13 will maintain the door 12 in closed position and wedge the same shut when the door operating mechanism is actuated. The edges of the doors and the cooperating edges of the

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door frame are provided with the usual insulating packing material, not shown.

My improved door fastener mechanism comprises broadly a rotary locking bar A; a pair of keeper engaging end casings B—B; an operating handle lever C; top and bottom guide brackets D—D; a pair of keepers E—E with which the end castings cooperate; an intermediate guide or bearing bracket F having stop shoulders thereon; and a bearing block G carried by the bar and having stop shoulders cooperating with the shoulders of the bracket F.

The bar A is of substantially rectangular cross section and has the end castings B—B secured thereto.

The end castings B—B, which are at the upper and lower ends of the bar respectively are of similar design, but reversely arranged. Each end casting B is of well-known design, comprising a forked portion embracing the flat bar A on opposite sides and riveted theerto and a crank member at the outer end thereof cooperating with the corresponding keeper E. The bar A is rotatably supported by the keeper engaging end members B—B in the usual manner.

As clearly shown in Figure 1 of the drawings, the operating bar A is vertically disposed and has the crank portions thereof projecting above and below the door to engage the keepers E—E to force the door shut when the bar is rotated. The bar is rotated by means of the operating handle lever C, which is pivotally secured to the bar so that it may be dropped to vertical position.

Intermediate its top and bottom ends, the bar A is supported and guided by the bracket F, which is secured to the door 13. The guide bracket F is in the form of a U-shaped strap 15 having laterally projecting ears or securing lugs 16—16 by which the bracket is mounted. The curved U-shaped strap portion 15 accommodates the bearing block G for rotary movement. As will be seen upon reference to Figures 3 and 5, the bearing bracket F is open at the rear side, said opening being of such a width as to permit insertion of the bearing block G into the bracket in lateral direction. At the top and bottom sides thereof, the strap portion 15 of the bracket F is provided with upstanding and depending stop lugs 17—17 which are located at the right hand side of the bracket, as clearly shown in Figures 1, 2, 3, and 5.

The bearing block G comprises a substantially cylindrical portion 18 which is engaged in the bearing opening of the bracket F and is freely rotatable therein. The cylindrical portion 18 is

of the same height as the strap portion 15 of the bearing bracket F and the block G has top and bottom, laterally projecting flanges or lugs 20—20 at the top and bottom ends thereof, as clearly shown in Figures 2, 3, and 4, which are located at the right hand side of the block, as seen in these figures, and overhang the bearing bracket at the top and bottom sides thereof. The block G is vertically slotted, as indicated at 19, said slot 19 being open at the left hand side of the block, as seen in Figures 3 and 4. The slot is of such a size as to accommodate the bar A therein, as shown most clearly in Figure 3. Each of the flanges 20 has its outer edge rounded, as indicated at 21, and the sides of said flange are substantially straight edges, as indicated at 22, the upper and lower ends of the block being reduced in size and cut away, as shown, to provide continuations of the straight side edges of the flanges 20—20, as clearly shown in Figures 3 and 4.

The outer faces of the lugs 17—17 of the bearing bracket F are substantially flat, as indicated at 23—23, and these faces are slightly inclined outwardly away from the door to provide flat faced engagement with the cooperating edge faces 22—22 of the top and bottom flanges 20—20 of the block G to arrest rotation of the bar A substantially in the position shown in Figure 3. The lugs 17—17 of the bearing bracket F and the flanges 20—20 of the bearing block G are so located as to stop rotation of the bar when the lever C is swung from the position shown in Figure 1 to a position adjacent and parallel to the door 13 but spaced from the face of the door, thereby providing clearance between the lever and the door.

In Figure 1, the doors are shown in locked and closed position, the keeper engaging crank portions of the operating bar A being in engagement with the keepers and the operating handle lever C locked against rotation by the latch means 24, as is well-known in this art. To open the doors, the operating handle lever C is unlatched and swung from the position shown in Figure 1 to the right and inwardly toward the door 13, thereby rotating the bar A and through the camming action of the crank members forcing the door open. The lever C is positively arrested before the same reaches the position where it would engage the door 13 by the stop lugs 17—17 of the bracket F, being engaged by the flanges 20—20 of the bearing block G. The operating handle lever being thus held clear of the door, marring of the finished surface of the latter is positively prevented when the handle is swung on its pivotal connection with the bar to drop to vertical position alongside the latter. This stop means also performs in the manner of a safety device, preventing the attendant from injuring his hand which might otherwise occur by the same being caught between the handle of the lever and the door.

I claim:

1. In a device of the character described, the combination with a rotary operating bar of rectangular, transverse cross section; of a supporting guide bracket, said bracket having a circular bearing opening through which said bar extends, said bracket having an opening at the inner side communicating with said bearing opening; of a one piece bearing block rotatably supported in said guide bracket, said block being insertable within said bracket through the opening at the inner side thereof, said block comprising sections at opposite sides of said bar closely embracing the same and in bearing engagement with the wall of the bearing opening of said bracket, and top and bottom flanges tying said sections together and engaged over the top and bottom sides of said bracket to hold said block against endwise movement with respect to said bracket, said flanges of the block projecting to one side of the same; and upstanding and depending stop lugs on said bracket in the path of rotation of said projecting flanges of said block for arresting rotary movement of said bar.

2. In a device of the character described, the combination with a rotary operating bar of rectangular cross section; of a supporting guide bracket, said bracket having a circular bearing opening through which said bar extends; a one-piece bearing block within said bracket, said block comprising sections at opposite sides of said bar closely embracing the same and in bearing engagement with the wall of the bearing opening of said bracket, and top and bottom flanges tying said sections together and engaged over the top and bottom sides of said bracket to hold said block against endwise movement with respect to said bracket.

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