Dec. 10, 1940. W. M. DWYER 2,224,292

HATCH COVER FASTENER AND LOCK

Filed Dec. 7, 1936

FIG. 1

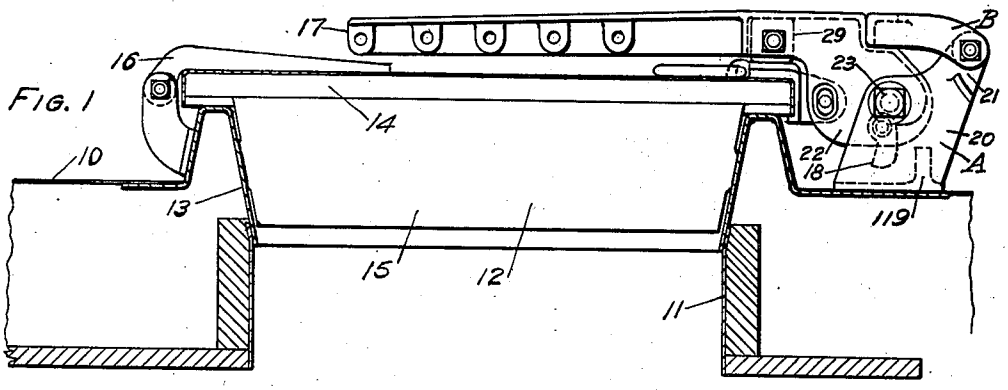


FIG. 2

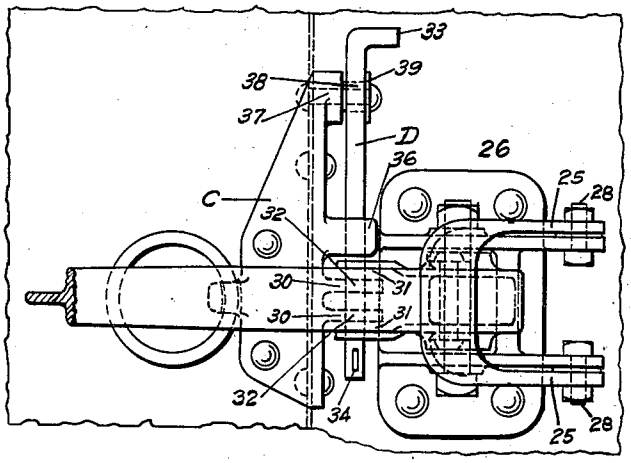


FIG. 3

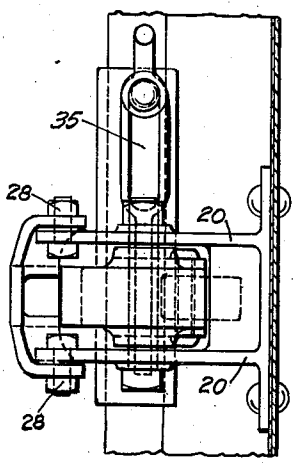
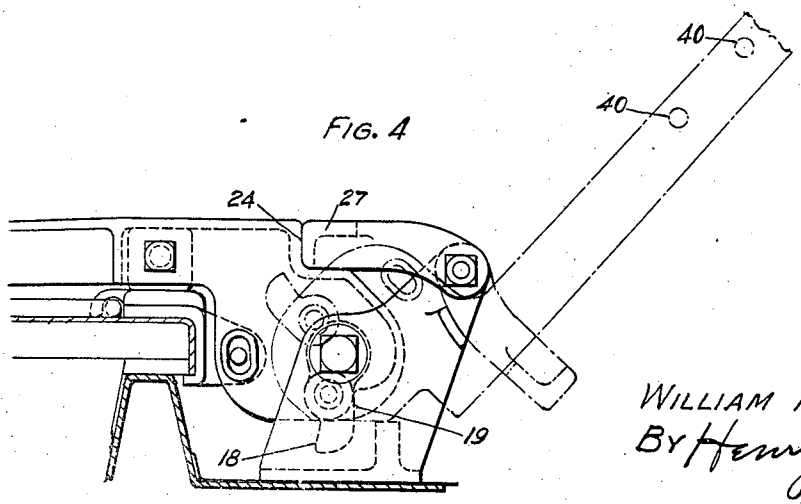


FIG. 4



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HATCH COVER FASTENER AND LOCK

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Application December 7, 1936, Serial No. 114,584

6 Claims. (Cl. 292—256.5)

This invention relates to improvements in combined fastener and locking means for hatch covers of refrigerator cars.

One object of the invention is to provide a fastener for hatch covers comprising an operating lever pivoted to the car adjacent to the free edge of a hinged hatch cover and adapted to engage the hatch cover to force the same to closed position when the lever is swung downwardly against the cover into overlying relation therewith, together with simple and efficient latch means for locking the lever in position with the hatch cover forced tightly into the hatch opening.

A further object of the invention is to provide in combination with mechanism of the character described in the preceding paragraph means for positively locking and sealing the hatch cover in closed position.

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 vertical sectional view through the upper portion of a hatchway and cooperating cover, illustrating my improvements in connection therewith, said vertical sectional view being taken lengthwise of the car. Figure 2 is a top plan view, partly broken away, of the mechanism shown in Figure 1. Figure 3 is an elevational view looking from right to left in Figures 1 and 2. Figure 4 is a view similar to Figure 1, on an enlarged scale, of the structure at the right hand side of Figure 1, illustrating in full lines the operating lever and cooperating latch in closed position and showing in dotted lines the position assumed by said lever and latch when the latch is disengaged and the lever is moved to its extreme position in forcing the cover open.

In said drawing, 10 indicates a portion of the roof of a refrigerator car, 11 the usual hatchway, and 12 the hatch cover. As shown, the hatchway is provided with a lining 13 which extends slightly above the roof of the car and is folded outwardly in overlapping relation with the portion of the roof immediately adjacent the hatchway. The cover 12 comprises a substantially flat main body portion 14 and a projecting plug portion 15 on the inner side thereof. The plug portion is adapted to be seated in the hatchway 11 with the body portion 14 of the cover overlapping the walls of the hatchway when the cover is closed. The cover is swingingly supported along one edge by hinges 16—16 of well-known design. An operating lever 17 pivoted on the car roof adjacent to the free edge of the cover is adapted to be swung into overlying position with respect to the cover 12 to force the latter to the closed position and hold the same in that position, as shown in Figure 1. The operating lever 17 is further provided with a pivoted dog 18 adapted to engage a projection on the cover to pry the latter upwardly to open the same. The dog 18 has shouldered engagement with the pivoted head end of the lever 17, as indicated at 19, to hold said dog in fixed position when the lever is operated to pry the cover open, the dog being freely swingable in a reverse direction to clear the end edge of the hatch cover 12 and the projection thereof when the lever is swung downwardly over the hatch cover. The hatch cover and cooperating parts hereinbefore described are well-known and therefore need no further detailed description.

In carrying out my invention, I provide broadly a supporting bracket A mounted on the car roof; a latch member B pivoted on the bracket A and having shouldered engagement with the operating lever 17 which is also pivoted on the bracket A; an abutment bracket member C mounted on the free edge of the hatch cover 12; and a sliding locking bolt D mounted on the bracket C and adapted to lock said bracket to the bracket A through engagement with the head of the lever 17.

The supporting bracket A comprises a flat platelike base portion 119 having spaced upstanding ears 20—20, the base portion being secured to the car roof by any well-known securing elements, such as rivets. Each ear 20 has an upwardly extending, relatively narrow arm portion 21 thereon. The lever 17 has the head portion thereof, which is indicated by 22, pivoted between said ears 20—20 at some distance below the upper ends of said arms 21—21, by means of a bolt 23. As will be seen upon reference to Figures 1, 2, and 4, the pivot bolt 23 is inwardly offset with respect to the arms 21—21 of the bracket A. The lever 17 has the head thereof provided with a notch or seat 24 of right angular form, presenting an abutment face substantially at right angles to the length of the lever 17, and a second face substantially parallel to the length of said lever.

The latch member B is of substantially U-shaped form, having side arms 25—25 connected by a transverse section 26 reenforced by a web 27 extending between the arms 25—25. The inner ends of the arms 25—25 straddle the upper ends of the arms 21—21 of the bracket A and are pivotally connected to the latter by short

bolts 26—28. As shown most clearly in Figures 1 and 4, the latch member B presents a square free end portion adapted to engage in the locking seat or notch 24 of the head 22 of the lever 17. When the latch B is engaged with the shouldered seat 24 of the lever 17, as shown in Figures 1 and 2 and in full lines in Figure 4, the lever is effectively locked in position. When the latch B is swung to the dotted line position shown in Figure 4, it is completely disengaged from the lever and the latter may be actuated to force the cover open by swinging the same toward the dotted line position shown in Figure 4.

The abutment member C comprises connected horizontal and vertical platelike portions engaged over the free edge of the cover 12, the horizontal portion overlying the top of the cover and the vertical portion the edge face of the cover. The bracket C is preferably secured by rivets, as shown, and the horizontal top plate section thereof serves as an abutment adapted to cooperate with an abutment 29 on the lever 17, the abutment 29 being in the form of a block suitably secured to said lever.

The vertical platelike section of the bracket C is provided with a pair of spaced fingers 30—30 adapted to engage in slots 31—31 provided in the head 22 of the lever 17, and the lever head and the fingers 30—30 are provided with openings 32—32 adapted to be brought into transverse alignment when the fingers 30—30 are engaged within the slots 31—31 of the lever head, as shown in Figures 1, 2, and 4.

The locking bolt D is slidingly carried on the bracket C and comprises an elongated rod or bar bent to right angular form at one end, as indicated at 33, and having a seal receiving slot or opening 34 at the other end. Between its ends, the bolt C is widened and said widened portion is provided with an elongated, relatively wide guide slot or opening 35. The bolt D is mounted on the bracket C by supporting means comprising an outstanding lug 36 having an opening therethrough in which the bar is slidingly guided, and a supporting rivet 37 secured within an opening in said bracket and projecting horizontally therefrom and into the slot 35 of the bolt D. A collar 38 is preferably mounted on the rivet 37 and a washer 39 is interposed between the collar 38 and the headed outer end of the rivet. The collar 38 fits the slot 35 of the bolt D and accurately guides the latter. The washer 39 overlaps the side walls of the slot 35 and holds the bolt in position, preventing accidental disengagement of the same from the supporting collar 38.

In closing the hatch cover 12, the same is swung to partly closed position by the attendant and dropped into the hatch opening. The lever 17 is then swung from the dotted line position shown in Figure 4 toward the position shown in Figure 1 to bring said lever in overlying relation to the cover and into engagement therewith. During this part of the operation, the latch B is in the released dotted line position shown in Figure 4. With the lever moved into overlying relation with the hatch cover, as hereinbefore described, the latch B is swung upwardly and to the left from the dotted line position shown in Figure 4 into contact with the lever 17 and permitted to rest thereon. The lever is then depressed to the position shown in Figure 1 and the full line position shown in Figure 4 to force the cover tightly closed. When the lever reaches the position last named, the latch B drops into the seat 24 and locks the lever 17 in fixed position, as shown in Figure 1 and in full lines in Figure 4. As will be obvious, during the closing operation of the hatch cover, the bolt D is in its withdrawn position so that it clears the head 22 of the lever 17. After the cover has been forced tightly closed, the attendant slides the bolt D to the position shown in Figure 2 to engage the same through the aligned openings 32—32 of the fingers 30—30 of the bracket C and the head 22 of the lever 17, thereby locking the hatch cover 12 to the lever head 22 and holding the lever in fixed position. The cover is then sealed by the usual car seal, which is engaged through the slot 34 in the end of the bolt D.

In opening the hatch cover, the seal is first removed from the bolt D and the latter is then disengaged from the head 22 of the lever and the fingers 30—30 of the bracket C. The latch B is then swung to the disengaged dotted line position shown in Figure 4, thereby unlatching the lever 17 and permitting swinging movement of the latter toward the dotted line position shown in Figure 4 to force the cover partly open by engagement of the dog 18 with the projecting fingers 30—30 of the bracket C. After the cover has been freed from the hatch opening, the same may be swung entirely open or to any degree of partly open position desired.

When the cover is to be held partly open for ventilating purposes, the same is supported by the lever 17, the handle of which is engaged between the fingers 30—30 of the bracket C of the cover and locked to these fingers in a well-known manner by the sliding pin or bolt D being inserted through the openings 32—32 of the fingers and any one of a number of openings 40—40 in the handle of the lever 17.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a combined fastener and locking means for hinged hatch covers for refrigerator cars, the combination with a lever pivotally mounted on a fixed support adjacent the free edge of said cover, said lever foldable against the cover in overlying engaging relation with the latter to force the same tightly closed; of a latch member engageable with the lever for holding the latter in cover closing position; a bolt receiving opening in the pivoted end of the lever; a projecting bracket on the free edge of the cover having a bolt receiving opening aligned with said lever opening when the lever is held in said cover closing position by said latch member; and a locking bolt engageable through said aligned openings to lock the cover in closed position.

2. In a combined fastener and locking means for hinged hatch covers for refrigerator cars, the combination with a lever having a head portion pivotally mounted on a fixed support adjacent the free edge of the cover when closed, said lever being foldable against the cover in overlying relation to the latter to force the same tightly closed; of a swinging latch member pivoted on a fixed pivot member and having shouldered engagement with the head of the lever for holding said lever in cover closing position; a projecting lug on the free edge of the cover; and a locking bolt engageable through the head of the lever and said lug to lock the cover to said lever at the time said lever is held in cover closing position by said latch member.

3. In a combined fastener and locking means for hinged hatch covers for refrigerator cars, the combination with a fixed support adjacent the free edge of the cover when in closed position; of a projecting lug on said free edge of the cover, said lug having a locking bolt receiving opening therethrough; a lever pivotally mounted on said support and foldable against the cover in overlying relation to the latter to force the same tightly closed, said lever having a locking bolt receiving opening therethrough, said opening of the lever being aligned with the opening of the lug when the lever is in said overlying relation with respect to the cover; a swinging latch pivotally mounted on said support and having shouldered engagement with the pivoted end of the lever to latch the latter in cover closing position; and a sliding bolt engageable through the openings of said lever and lug when the lever is in cover closing position thereby locking the cover to the lever.

4. In a combined fastener and locking means for hinged match covers for refrigerator cars, the combination with a fixed support on the car; of a lever pivotally mounted on said support and foldable against the cover in overlying relation thereto to force the same tightly closed and hold the same tightly closed; a swinging latch member pivotally mounted on said support above the pivot of said lever, said latch member having shouldered engagement with the pivoted end of the lever to latch the latter in said position of holding the cover tightly closed; and means for locking the cover to said lever when the lever is in said position for holding the cover tightly closed.

5. In a combined fastener and locking means for hinged hatch covers for refrigerator cars, the combination with a fixed support on the car; of a lever having a fixed head, the head end of said lever being pivotally mounted on said support, said head being provided with a locking notch, said lever being folded over the cover to force the latter tightly closed; a swinging latch element pivoted on said fixed support and being movable into engagement with said notch to latch said lever in position when the cover is held tightly closed by said lever; and means for rigidly locking said lever to the cover when the lever is in said cover holding position, said latch holding the cover and lever in proper position to be locked.

6. In a combined fastener and locking means for hinged hatch covers for refrigerator cars, the combination with a lever pivotally supported on the car, said lever having a locking shoulder at the pivoted end thereof, said lever being swingable into overlying engaging relation with the cover to force the same tightly closed; of a latch member comprising spaced arms pivotally supported on the car, and a transverse locking member connecting the outer ends of said arms and rigid therewith, said latch member being swingable on its pivotal connection to bring said locking member into operative engagement with the locking shoulder of said lever to hold the latter in cover closing position.

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