Oct. 20, 1936. E. H. HOLMES 2,058,018

CAR DOOR LATCH

Filed March 5, 1935

Fig. 1

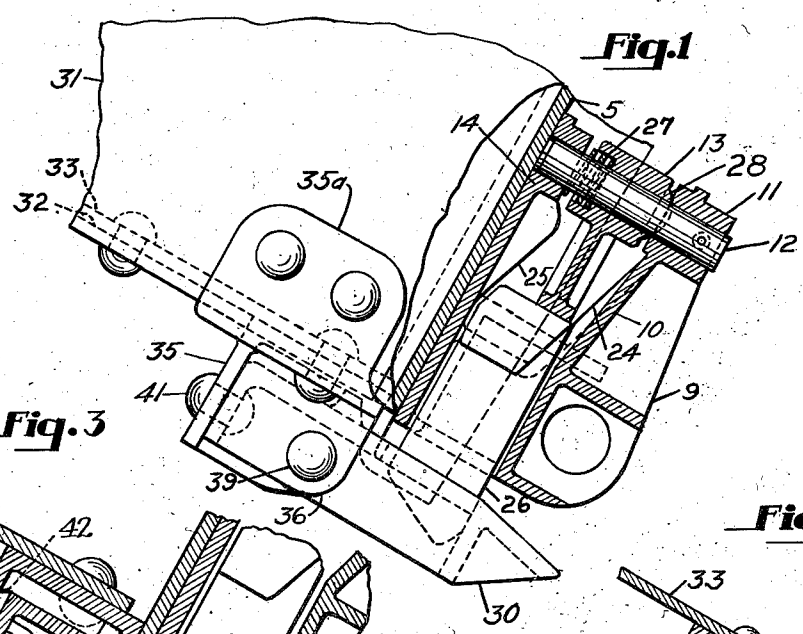


Fig. 3

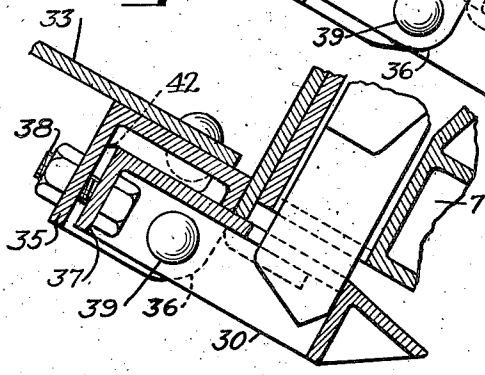


Fig. 4

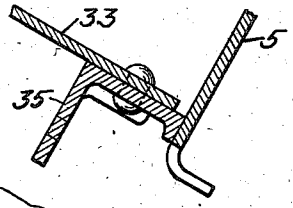
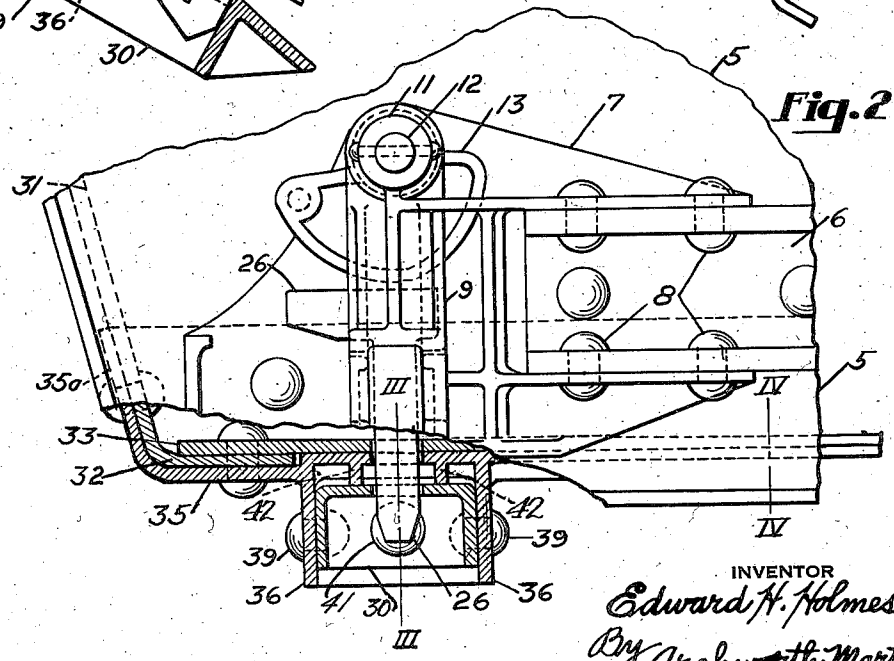


Fig. 2



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UNITED STATES PATENT OFFICE

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CAR DOOR LATCH

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Application March 5, 1935, Serial No. 9,407

3 Claims. (Cl. 105—308)

My invention relates to car door latches and more particularly to those of the type especially suitable for use in connection with the drop doors of railroad hopper cars.

One object of my invention is to provide a latch device and keeper of such form that the keeper can be more readily applied to cars than various types heretofore employed.

Another object of my invention is to provide keepers and attaching brackets therefor of such form that the keepers can be replaced without disturbing or removing any lading which may be present in the cars.

On the accompanying drawing, Figure 1 is a sectional view of the latch structure looking from an end of the door; Fig. 2 is a face view of the door and latch structure, portions being broken away; Fig. 3 is a sectional view taken on the line III—III of Fig. 2, and Fig. 4 is a sectional view taken on the line IV—IV of Fig. 2.

Only so much of a hopper car structure is shown as is necessary to a complete description of my invention.

The drop door is represented by the numeral 5 and is provided with a channel member 6 to which a latch bolt bracket 7 is secured by rivets 8. The bracket 7 has a pair of wing-like extensions 9 and a web portion 10 with which is integrally formed a bearing 11, for a shaft 12 on which a latch dog 13 is pivotally mounted. The other end of the shaft is mounted in the main body portion 14 of the bracket. The bracket has two pairs of ribs 24 and 25 that form slideways for a latch bolt 26 and also function as camming surfaces to effect tilting of the latch bolt during raising and lowering movements thereof.

The latch dog 13 is movable into and out of engagement with the upper end of the latch bolt 26, in the usual manner. The dog is yieldably held against accidental displacement from its locking position, and also yieldably held in its release position, by means of a compression spring 27 that constantly urges the dog along the shaft 12 so that a rounded nose portion 28 thereon will yieldably engage with oppositely-disposed curved recesses in the bearing 11.

The latch bolt 26 is movable into engagement with a keeper 30 that is secured to the car as hereinafter explained. As the latch bolt moves down, the camming ribs 24 will tilt the upper end of it in a counter-clockwise direction, thus forcing the lower portion of the bolt against the lower wall of the keeper cavity and thereby effecting leverage to force the door 5 tightly closed.

The side sheet of the hopper is indicated by the numeral 31, the sheet being flanged inwardly at its lower edge 32 to overlie the outer edge 33 of the bottom sheet.

A closing angle or bracket 35 is riveted to the members 32, and 33, and extends longitudinally of the lower edge of the bottom sheet 32. The closing angle is upturned at both of its ends as at 35a and riveted to the side sheets 31, and is provided with wing portions 36, between which the keeper 30 is placed. The rear wall 37 of the keeper and the leg of the angle 35 are perforated for the reception of a bolt 38, which is employed to draw the keeper 30 into place, and hold it while rivets 39 are being inserted through the wings 36 of the closing angle 35 and the sides of the keeper 30. The bolt 38 may then be replaced by a rivet 41. Ribs 42 on the angle are engaged by the keeper 30, and prevent tilting of the keeper on the rivet 39.

The manner of attaching the keeper 30 constitutes an important feature of my invention. It will be noted that all of the rivets 39 and 41 are fully accessible from the exterior of the car, so that it is unnecessary to enter the car or remove lading therefrom in order to place the rivets, or remove the same. It frequently happens that keepers have to be replaced, while the car is in use and contains lading. In such instances, the door 5 will be blocked shut in a suitable manner so that the latch bolt 26 can be safely raised. Thereupon, the rivets 39 and 41 can be removed, and a new keeper 30 put into place. The bolt 38 is of particular utility in cases where there is lading in the car and the latch bolt is in the keeper, because even when the door is blocked it will frequently sag toward open position, and turning of the nut will cause the bolt to draw the keeper up into place, to close the door snugly against the weight of the lading, and thus permit placing of the rivets 39. Also, pulling force exerted through the bolt 38 can be sufficient to draw into place parts that are sprung or warped.

The closing angle 35 may be a steel casting or of other suitable construction, and serves as a bracket to rigidly and strongly support the keeper 30 and the bottom of the hopper, so that the parts are not so likely to be deformed or damaged during drawing up of the keeper, by the bolt 38, as would be the case if the keeper were simply connected to a bracket mounted on one of the hopper sheets.

I claim as my invention:—

1. The combination with a car body having a doorway and a drop bottom door therefor provided with a latch bolt, of a closing angle secured exteriorly of the car body along a line adjacent to the lower edge of the doorway, wing elements carried by the said angle and projecting outwardly from the car body, a keeper located between and secured to said wing elements in position to be engaged by the latch bolt when the door is adjacent to its closed position, and means on the angle for preventing tilting of the keeper relative to said wing elements.

2. The combination with a car body having a doorway and a drop bottom door therefor provided with a latch bolt, of a closing angle having one of its legs secured exteriorly of the car body along a line adjacent to the lower edge of the doorway and its other leg projecting from the body, a depending wing element carried by said angle and projecting outwardly from the car body, and a keeper connected to said projecting leg of the angle and to said wing element, for engagement by said latch bolt when the door is adjacent to its closed position.

3. The combination with a car body having a hopper sheet together with a door-opening at the lower edge of the sheet, and a drop door provided with a latch bolt, and cooperating with said opening, of a bracket connected to the sheet, exteriorly of the car body and having flange-like attaching elements extending perpendicularly to the slope of the sheet and disposed exteriorly of the car body and at right angles to one another, a keeper positioned to be engaged by the latch bolt, when the door is adjacent to its closed position, means extending parallel of the keeper for securing it to one of the said elements, and means extending transversely thereof, for securing the keeper to another of said elements, the first-named means being adjustable longitudinally of the keeper.

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