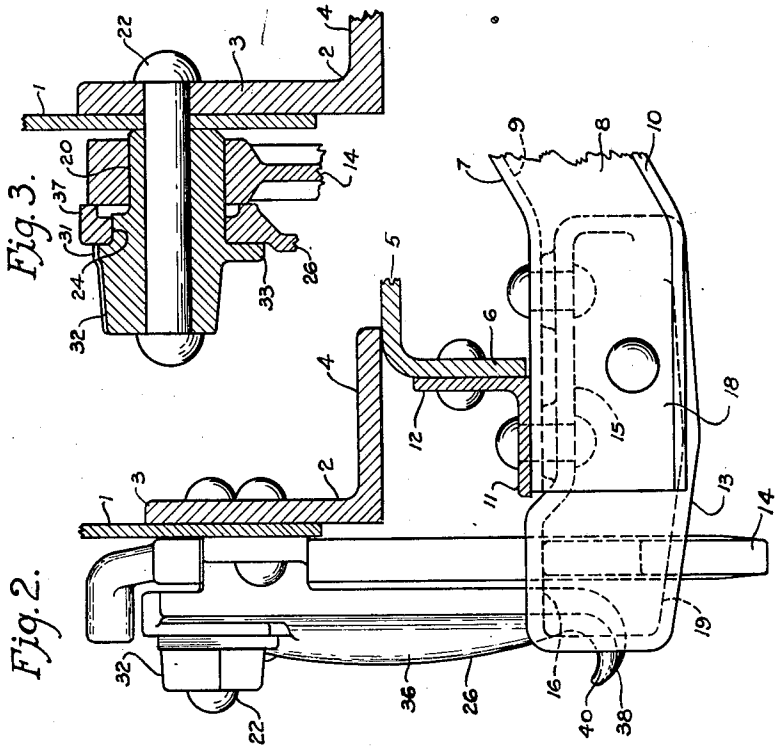
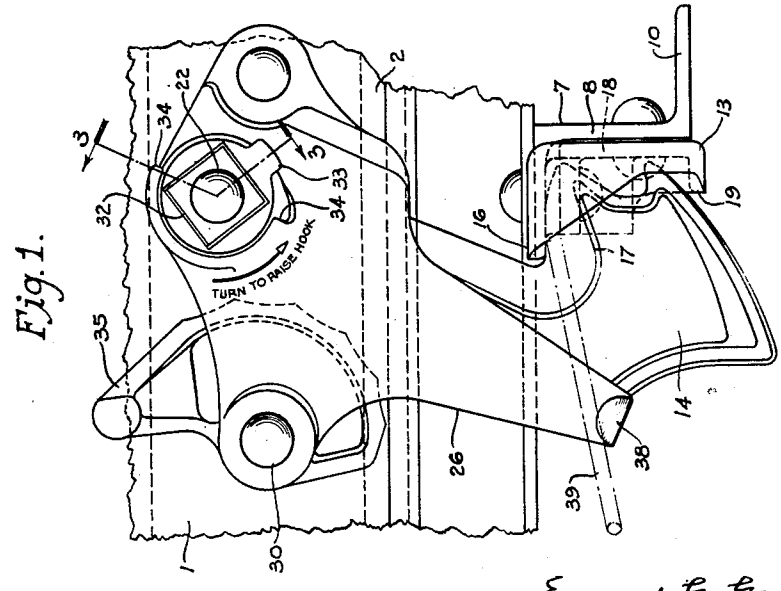
June 26, 1951 E. G. GOODWIN 2,558,130

RAILWAY CAR DOOR SUPPORTING MECHANISM

Filed April 19, 1946 3 Sheets-Sheet 1




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RAILWAY CAR DOOR SUPPORTING MECHANISM

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Fig. 5.

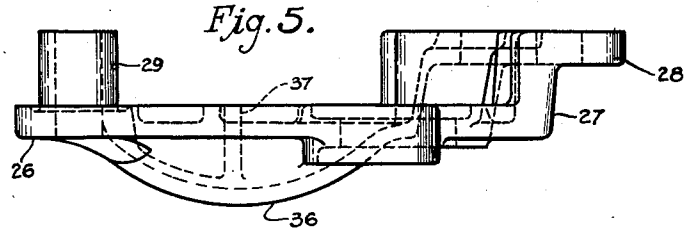



Fig. 4.

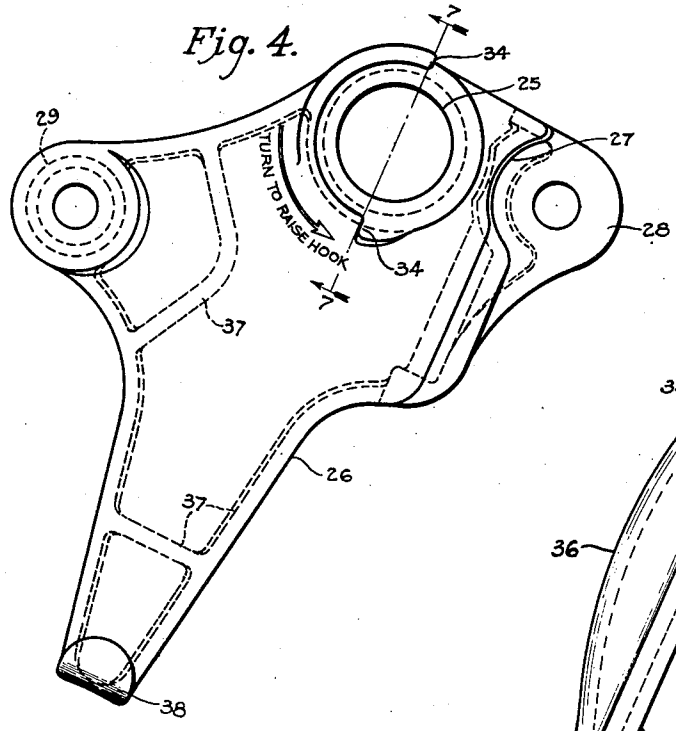
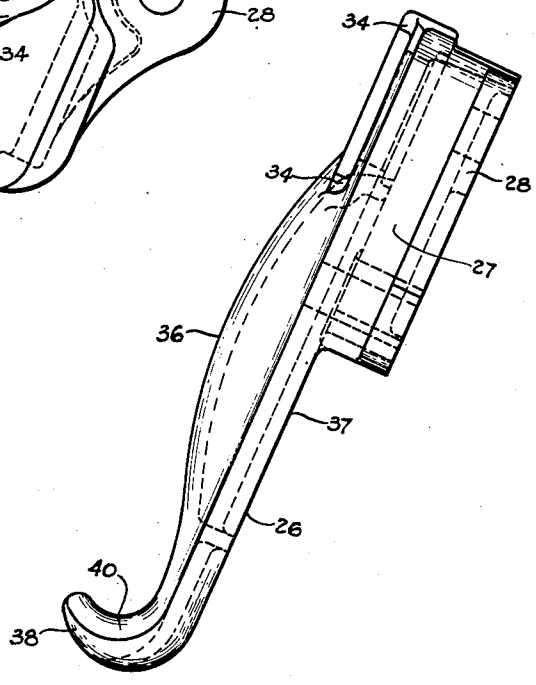



Fig. 6.




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RAILWAY CAR DOOR SUPPORTING MECHANISM

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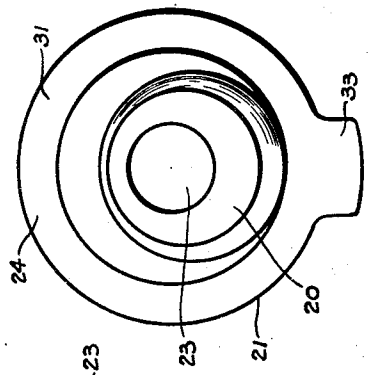



Fig. 11.

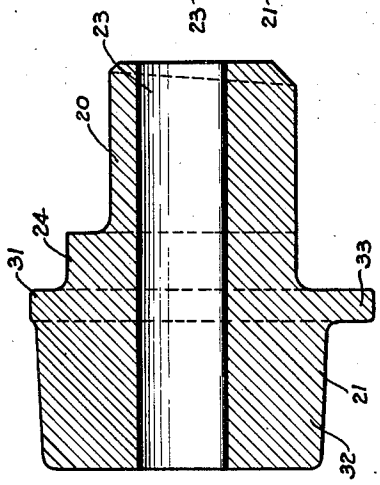



Fig. 9.

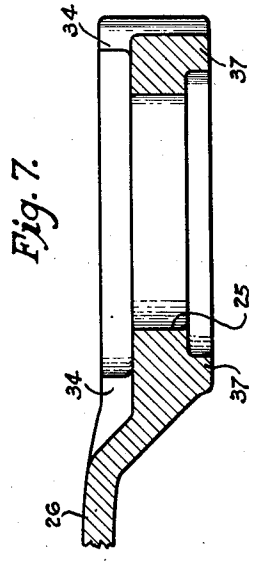



Fig. 7.

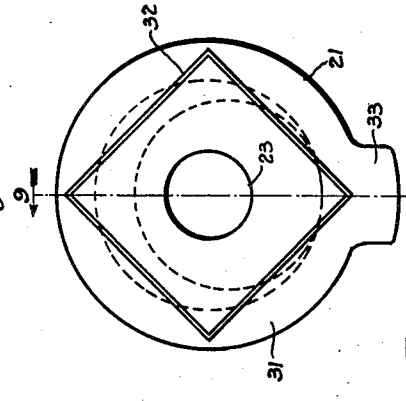



Fig. 8.

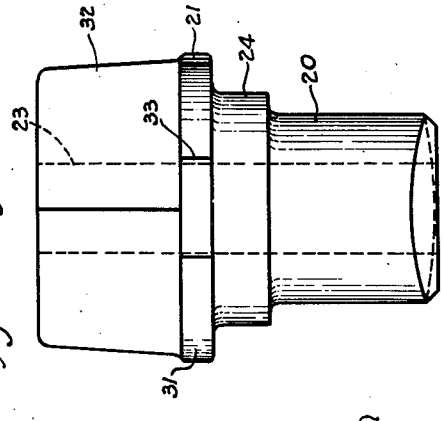



Fig. 10.

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# UNITED STATES PATENT OFFICE

2,558,130

## RAILWAY CAR DOOR SUPPORTING MECHANISM

Ernest G. Goodwin, Toledo, Ohio

Application April 19, 1946, Serial No. 663,332

7 Claims. (Cl. 105—308)

1

My invention relates to door mechanisms of railway cars and more particularly to door supporting mechanisms for railway gondola cars.

The principal object of the invention is to provide means for taking up wear in the door supporting mechanism so that the door may be maintained tightly closed irrespective of the time the mechanism has been in use.

A primary feature of the invention consists in pivotally mounting a door supporting hook upon an eccentric which is secured to the car body so as to be normally stationary but which can be rotated against the frictional forces securing it to the car body to raise the ledge of the door supporting hook and thereby take up wear, either in the hook itself or in the arm of the door which it engages.

Another feature of the invention consists in pivotally mounting a door supporting hook upon an eccentric which is secured to the car so as to be normally stationary and which has portions overlapping a cover plate of the door supporting hook, the eccentric being rotatable against the frictional forces securing it to the car by the application of external force to raise the ledge of the pivoted hook and thereby take up wear which may occur in the mechanism.

A still further feature of the invention consists in pivotally mounting a door supporting hook upon an eccentric which is secured to the car body and has at its outer end a lug overlapping the outer face of the cover plate of the door supporting hook, the eccentric being normally held in an immovable position but being rotatable against frictional forces securing it to the car body by the application of external forces and the lug of the eccentric being adapted to cooperate with spaced stops on the cover plate for limiting rotation of the eccentric member.

A still further feature of the invention consists in providing the door supporting mechanism with a cover plate which overlies the door supporting hook and is bulged outwardly and extends downwardly to form a support for a door prying lever, the support being formed so as to permit maximum angling in a horizontal direction of a door prying lever.

Other and more specific features of the invention, residing in advantageous forms, combinations and relations of parts, will hereinafter appear and be pointed out in the claims.

Referring to the drawings,

Figure 1 is a fragmentary side elevational view of a gondola car showing the invention applied thereto.

Figure 2 is a vertical sectional view of the car showing the mechanism as viewed from the right hand side of Figure 1.

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Figure 3 is an enlarged detail sectional view taken on line 3—3 of Figure 1.

Figure 4 is a side elevational view of the cover plate of the door supporting mechanism.

Figure 5 is a plan view of the cover plate.

Figure 6 is an end view of the cover plate as seen from the right hand side of Figure 4.

Figure 7 is an enlarged detail sectional view of a portion of the cover plate taken on line 7—7 of Figure 4.

Figure 8 is an end view of the eccentric member of the door supporting mechanism.

Figure 9 is a sectional view taken on line 9—9 of Figure 8.

Figure 10 is an under side view of the eccentric.

Figure 11 is a rear view of the eccentric.

Referring more particularly to the drawings, 1 indicates the side sheets of a railway gondola car which are secured at their lower ends to a side sill 2 having an upstanding flange 3 and a substantially horizontal inwardly extending flange 4. The inner edge of the horizontal flange 4 defines one of the edges of a lading discharge opening which is normally closed by a door 5.

The door may advantageously be formed with marginal flanges 6 beneath which a reinforcing member 7 extends, the inner end of the member being usually provided with means, not shown, for hingedly connecting the door to the car body adjacent the center sill of the car, also not shown, whereby the hinge axis of the door is substantially parallel with the longitudinal axis of the car. In the present embodiment of the invention, this member is shown as being of substantially Z-shape having a web 8 and oppositely projecting upper and lower flanges 9 and 10, respectively. The upper flange 9 of the member may be conveniently secured to the marginal flange at the free edge of the door by an angle shaped member having a substantially horizontal flange 11 riveted to the upper flange and an upstanding flange 12 riveted to the marginal flange 6. Rigidly secured to the outer end of the reinforcing member 7 and forming an extension thereof is an arm 13 adapted to be engaged by a hook 14 pivotally mounted on the car. The arm may be conveniently of modified channel shape having an upper flange 15 rigidly secured to the reinforcing member 7 which, as it passes beyond the end of the reinforcing member, inclines upwardly and forms a flange 16 adapted to be engaged on its under side by a ledge 17 of the hook 14. The arm is also provided with a web portion 18 which is likewise riveted to the web 8 of the reinforcing member and its lower edge is formed with a relatively narrow rigidifying flange 19.

Hook 14 is pivotally mounted on an eccentric portion 20 of a member 21 which is rigidly se-

cured to the side of the car by a rivet 22 which passes through an opening 23 in the member. Intermediate its ends, the member 21 is provided with a portion 24 concentric with the opening 23 which is disposed within an opening 25 of substantially the same diameter in the upper portion of a cover plate 26 which overlies the hook.

The cover plate, which is preferably a unitary casting, has its main body portion offset from the side of the car to receive the hook but at one end it is flanged inwardly, as indicated at 27, to provide an ear or plate portion 28 to engage the side wall of the car and be riveted thereto. At its other end, the bracket is integrally formed with an inwardly projecting boss 29 whose inner face engages the side of the car and which is apertured to receive a suitable attaching rivet 30.

Overlapping the outer face of the cover plate bounding the opening through which the member 21 extends is a circular flange 31 which may be conveniently formed integrally with member 21. It will thus be perceived that, when the rivet 22 is driven, the eccentric member 21 by reason of the flange 31 thereof overlapping the outer face of the cover plate serves to secure the cover plate intermediate its ends to the car body.

Although being riveted to the car body, the eccentric member may nevertheless be rotated upon the application of sufficient force to overcome the frictional forces set up by the rivet. For this purpose, the outer end of the member may be squared, as indicated at 32, to receive a wrench which will enable the application of a sufficient force to the member to rotate it against the frictional forces.

The flange 31 on the eccentric member is provided with a lug 33 adapted to respectively cooperate with abutments or stops 34 for limiting rotation of the member 21 and thereby prevent the eccentric portion 29 from assuming a position in which the conventional hook locking cam 35 may not cooperatively engage the hook to maintain it in closed position, it being apparent that the cam is rotatably mounted upon the boss 29.

When the door supporting assembly is first applied to the car, the member 21 is adjusted so that the eccentric portion 29 will be about in the position, as indicated in Figure 11, with the lug 33 in engagement with the lower one of the two stops 34. Thus after the mechanism has been in use for some time and parts thereof have worn to such an extent that the door is not supported in tightly closed position, as shown in Figure 2, member 21 may be rotated in an anti-clockwise direction by a wrench or other suitable mechanical advantage producing means, not shown, engaging the squared end 32 and thus rotate it against the frictional forces incident to the rivet 22 to cause the eccentric portion to assume a position wherein the pivotal axis of the hook 14 has been elevated sufficiently to take up all wear. It is to be particularly noted that member 21 is normally held against rotation by the rivet 22 but that it can nevertheless be rotated by the application of sufficient force to shift the pivotal axis of the hook to compensate for wear of the parts.

Cover plate 26 is bulged outwardly, as indicated at 36, and, as it extends downwardly, it preferably becomes increasingly narrow in width. The inner face of the main body portion of the cover plate may, if desired, be rigidified by a plurality of flanges 37.

At its lower end, the cover plate is formed with an outwardly extending projection 38 to afford a



support for a lever 39 for prying the door to fully closed position. The upper surface of the projection 38 is convexly curved, as indicated at 40 and, as the adjacent portion of the cover plate is bulged or curved outwardly, the pry bar or lever supported on the projection may angle a sufficient distance in a more or less horizontal plane to enable it to engage the door closely adjacent the hook of the door supporting assembly.

Eccentrically operated means have heretofore been devised for shifting the pivotal axis of the door supporting hook a sufficient amount to move the door from partially closed to fully closed position. However, it will be apparent that the eccentric in the present construction is not employed for any such purpose, the door supporting hook being of the conventional form having two ledges, one for supporting the door in partially closed position and the other for supporting it in fully closed position. It is by means of the pry bar 39 that the door is raised from partially closed position in engagement with the initial ledge on the hook to a position of complete closure where it may be supported by the main ledge of the hook engaging the door arm.

Various modifications can, of course, be made in the specific embodiment of the invention here illustrated and described without departing from the spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. A railway car door mechanism of the type including a pivoted hook having a door supporting ledge and a cover plate overlying the outer face of the hook extending downwardly from the pivotal axis thereof, said mechanism having a normally stationary member secured to the car respectively provided with a portion overlapping adjacent portions of said cover plate and a supporting boss on which said hook is pivotally mounted, rivet means passing through said member frictionally holding it in a normally stationary position on the car, said supporting boss being eccentric with respect to the said rivet means and said member being adapted to be forcibly rotated against the said friction normally holding it stationary to vary the position of said door supporting ledge and thereby compensate for wear of said ledge and the cooperating portions of the car.

2. A railway car door mechanism of the type including a pivoted hook having a door supporting ledge and a cover plate overlying the outer face of the hook extending downwardly from the pivotal axis thereof, said mechanism having a normally stationary member secured to the car extending through and partially supported by said cover plate, said member having a cylindrical portion affording a pivotal support for said hook, and a rivet passing through said member frictionally securing it in a normally stationary position on the car, said cylindrical member being eccentric with respect to said rivet and being adapted to be forcibly rotated against said friction normally holding it stationary without removing said rivet to vary the position of said door supporting ledge to thereby compensate for wear of said ledge and the cooperating portions of the door.

3. A railway car door mechanism of the type including a pivoted hook having a door supporting ledge and a cover plate overlying the outer face of the hook extending downwardly from the pivotal axis thereof, said mechanism having a normally stationary member secured to the car

and extending through an opening in said cover plate and partially supported thereby, said member having an eccentric portion affording a pivotal support for said hook, means for frictionally securing said member in a normally stationary position on the car, said member being forcibly rotatable against said friction to vary the position of said door supporting ledge and thereby compensate for wear of said ledge and the cooperating portions of the door, a projection on said member overlapping the outer face of said cover plate, and abutments spaced on said cover plate respectively cooperable with said projection for limiting the extent of rotation of said member, said abutments being spaced approximately 180° apart.

4. A railway car door mechanism of the type including a pivoted hook having a door supporting ledge and a cover plate overlying the outer face of the hook extending downwardly from the pivotal axis thereof, said mechanism having a normally stationary member secured to the car respectively provided with a portion overlapping adjacent portions of said cover plate and a supporting boss on which said hook is pivotally mounted, rivet means passing through said member frictionally holding it in a normally stationary position on the car, said supporting boss being eccentric with respect to said rivet means and being adapted to be forcibly rotated against said friction to vary the position of said door supporting ledge and thereby compensate for wear of said ledge and cooperating portions of the door, a projection on said member arranged in overlapping relation with the outer face of said cover plate, and abutments arranged approximately 180° apart on said cover plate for respectively cooperating with said projection to limit the extent of rotation thereof.

5. A railway car door mechanism of the type including a pivoted door supporting hook provided with a door engaging ledge and a cover plate overlying the outer face of the hook, said mechanism having a member rotatably supported in said cover plate provided with a substantially cylindrical boss affording a pivotal support for said hook, rivet means passing through said member for frictionally holding it in position on the car to maintain it normally stationary, said hook supporting boss being eccentric with respect to said rivet means and said member being forcibly rotatable against said friction to vary the position of said ledge of the hook and thereby compensate for wear of the ledge and the cooperating portions of the door.



6. A railway car door mechanism of the type including a pivoted hook having a door supporting ledge, said mechanism having a cover plate overlying the outer face of the hook, said cover plate extending downwardly and being provided at its lower end with a relatively narrow outstanding projection affording a support for a door prying lever, the portion of the cover plate adjacent said projection being curved outwardly to permit angling of said pry bar in a substantially horizontal direction to engage the door adjacent said hook.

7. A railway car door mechanism of the type involving a pivoted hook having a door supporting ledge, said mechanism having a cover plate overlapping the outer face of the hook, said plate extending downwardly from adjacent the upper end of the hook and having a relatively narrow lower portion free of the car, said lower portion of the plate terminating in a lateral projection affording a support for a door prying lever and said plate being curved outwardly adjacent said projection to permit such horizontal angling of the prying lever as to enable one end thereof to engage the door adjacent the hook.

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