

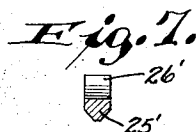
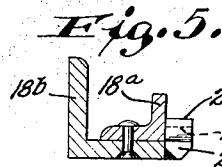
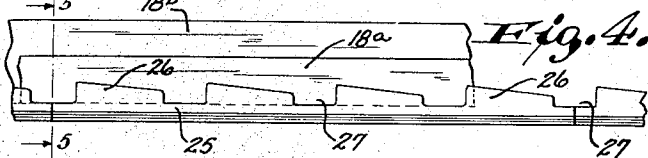
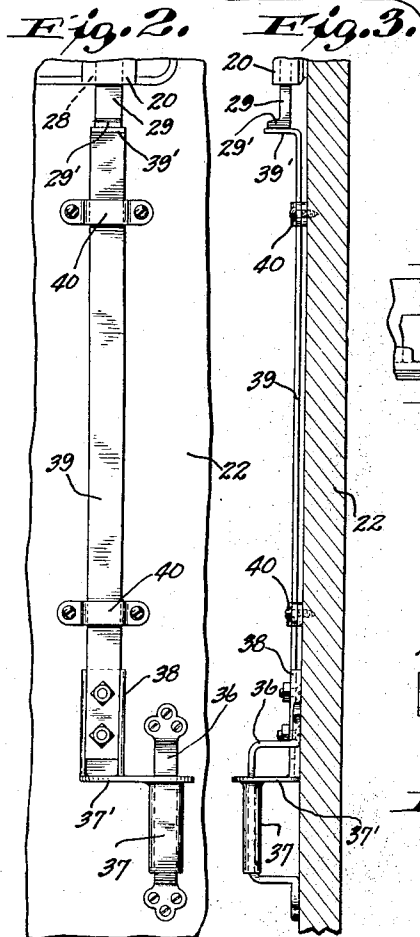
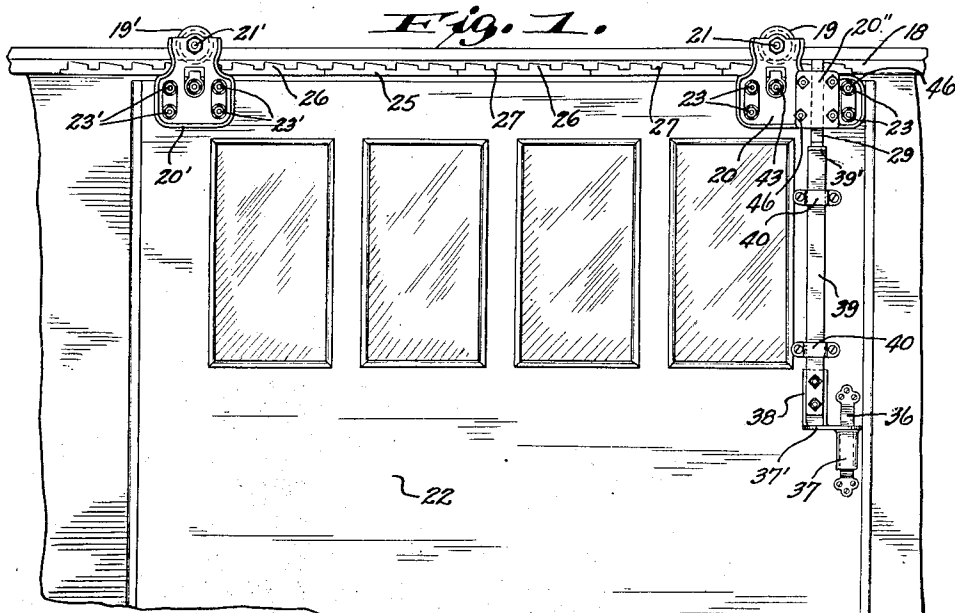
Dec. 26, 1933.

F. G. SCHWARTZ ET AL
DOOR HANGER LOCK AND RELEASE

1,940,971

Filed June 8, 1931

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 9.

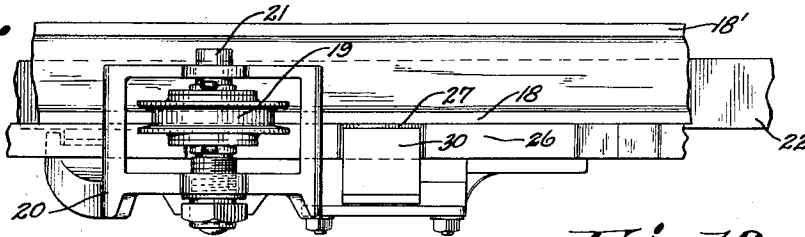


Fig. 8.

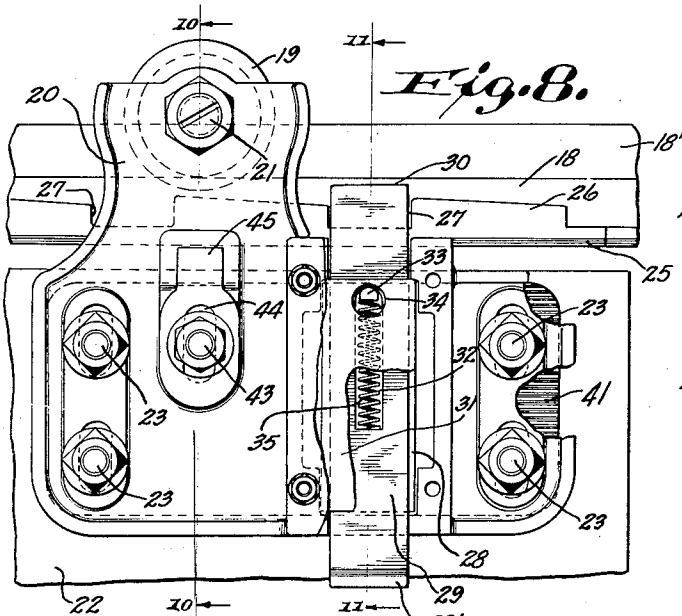


Fig. 10.

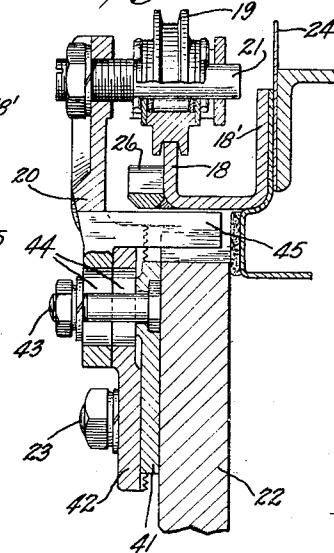


Fig. 11.

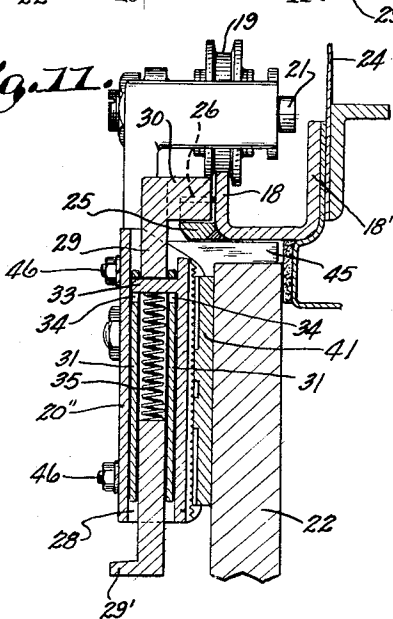
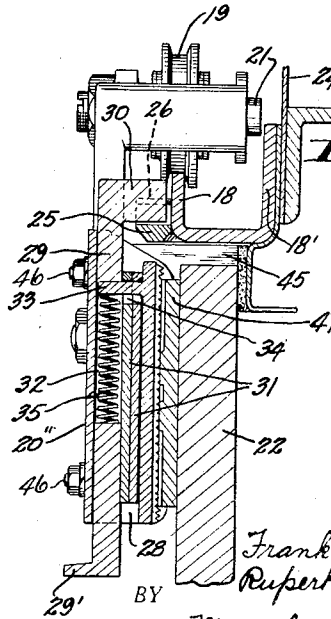


Fig. 12.



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Fig. 14.

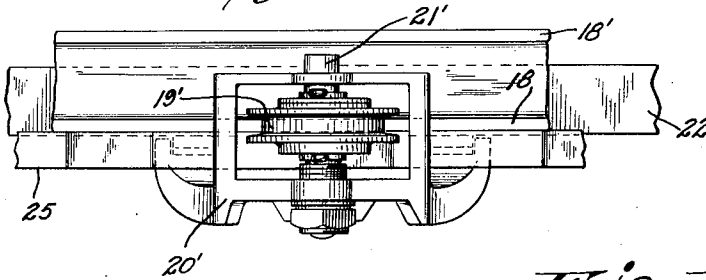


Fig. 13.

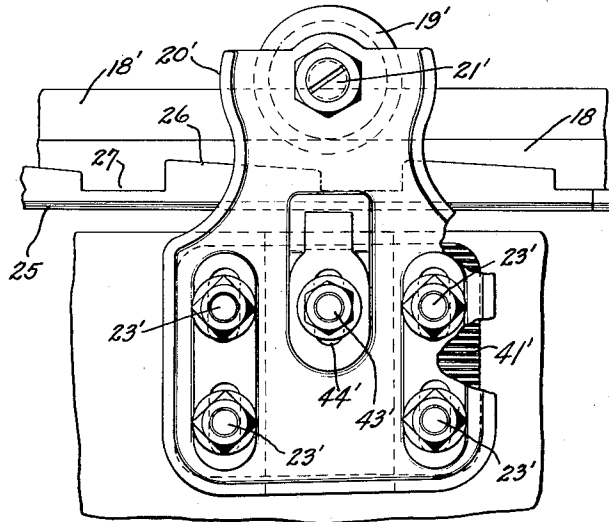
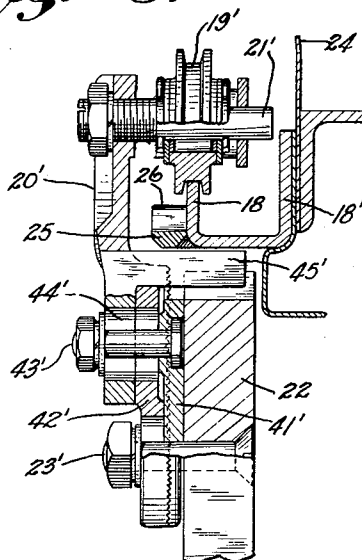


Fig. 15.



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1,940,971

DOOR HANGER LOCK AND RELEASE

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Application June 8, 1931. Serial No. 542,856

1 Claim. (Cl. 292—164)

This invention relates to improvements in door hanger locks and releases, particularly, although not solely, adapted for the sliding doors of baggage cars and the like.

Trainmen are subjected to the hazard of injury from the slamming of baggage and mail car doors and the present invention overcomes this hazard by the provision of a door hanger and locking device which will positively hold the door in any desired position and will prevent it from slamming, and if the door should be moved toward closed position it will automatically be stopped short of the car jamb and prevent injury to an attendant.

A further object of the invention is to provide a door hanger lock and release wherein the lock and release is actuated by movements of the door handle in the normal utilization of the handle for opening or closing the door.

A further object of the invention is to provide a door hanger lock and release which controls the movement of a door to open or closed or any desired partially opened position, and which automatically locks the door in any of said positions.

Sliding doors, in their normal use, are subjected to considerable wear, and the present invention further contemplates an adjustable shim and latch bolt arrangement by which, after wear has occurred on the door which would ordinarily cause an improper disposition of the latch bolt carried thereon, said latch bolt may be readily relocated and so held by the shim arrangement, to compensate for the wear on the door.

A further object of the invention is to provide a door hanger lock and release wherein the latch bolt operating rod is relatively flat and squared in form whereby it will have rigidity and strength, said arrangement also permitting the positioning of said rod closely against the face of the door so it will not form an objectionable projection or obstacle.

A further object of the invention is to provide a door hanger equipped with a stay which possesses unusual strength because of its squared form and which cooperates with the track to prevent the door hanger wheels from jumping off of the track.

A further object of the invention is to provide a door hanger lock and release which is of very simple construction, is strong and durable, is efficient in its operation, is easily and conveniently manipulated, and which is well adapted for the purposes described.

With the above and other objects in view, the invention consists of the improved door hanger

lock and release, and its parts and combinations as set forth in the claim, and all equivalents thereof.

In the accompanying drawings in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a face view of a sliding door with the improved door hanger lock and release mechanism applied thereto;

Fig. 2 is an enlarged fragmentary front view of the door showing on a larger scale the lock and release operating rod and operating handle;

Fig. 3 is a side view of the showing in Fig. 2 with the door shown in vertical section;

Fig. 4 is a fragmentary front view, on an enlarged scale, of one way of forming the wheel track and the latch bolt stop track;

Fig. 5 is a cross-sectional view thereof taken on line 5—5 of Fig. 4;

Fig. 6 is a front view of an alternative form of stop track for a latch bolt;

Fig. 7 is a cross-sectional view thereof taken on line 7—7 of Fig. 6;

Fig. 8 is an enlarged front view of the hanger lock and release mechanism as applied to a door with portions broken away to show details of construction;

Fig. 9 is a top view of the showing in Fig. 8;

Fig. 10 is a vertical sectional view taken on line 10—10 of Fig. 8;

Fig. 11 is a vertical sectional view taken on line 11—11 of Fig. 8;

Fig. 12 is a vertical sectional view similar to Fig. 11 only showing the relocation of the latch bolt and shims to compensate for wear on the door;

Fig. 13 is an enlarged front view, on a larger scale, of a wheeled door hanger applied to the door, and cooperating with the other door hanger which includes the lock and release mechanism;

Fig. 14 is a plan view thereof; and

Fig. 15 is a vertical sectional view thereof.

Referring now more particularly to the drawings, it will appear that the numeral 18 indicates a hanger track upon the upper edge of which a grooved hanger wheel 19 is mounted. A hanger 20 depends from the shaft 21 of said wheel and is adjustably connected to one side portion of a slidable door 22 by bolts 23. A flanged inner extension 18' on the track holds the same in spaced relation from the wall 24.

The lower outer side portion of the track 18 carries fast an elongated, horizontally extended latch bolt stop track 25. Said stop track 25 is formed with shouldered portions 26 and spaced

apart locking recesses 27 therebetween. Varied forms of wheel tracks and stop tracks may be used. Figs. 9 to 15 inclusive show a wheel track 13 of channeled formation with the integral rear supporting flange 18'. The stop track 25 is welded to the front lower portion of the track 18. Figs. 4 and 5 illustrate an alternative arrangement wherein the wheel track is of angle iron with a front angle iron member 18a bolted or riveted to the main member 18b. The stop track 25 may be welded either to said front angle iron member 18a, or to angle iron member 18b. Figs. 6 and 7 illustrate a modified form of stop track 25' for cooperation with a round latch bolt. Said track 25' has curved locking recesses 27' and shoulders 26'.

The hanger frame 20, to one side of the periphery of the wheel 19, is formed with a vertically extending groove or channel 28 through which extends, between a pair of liners 31 a reciprocal bolt 29. The bolt is formed with an inwardly projecting head 30, of square form in cross-section, which extends over and is adapted to ride on the upper edges of the shoulders 26 of the stop track 25, and said bolt head 30 may also drop into any of the locking recesses 27 to lock the hanger frame and the supported door 22 in closed position, as shown. It will be noted that the upper edges of the shoulders 26 of the stop track are inclined downwardly toward a side edge of the door. Thus, when the door is moved toward closed position the bolt, unless manually manipulated to prevent it from so doing, will automatically drop into any of the locking recesses 27. By particular reference to Figs. 8 and 11 it will be observed that the bolt is formed with a vertical recess 32 through the upper portion of which a lug 33 formed on the hanger frame extends, there also being opposed apertures 34 in the upper portions of the liners 31 to accommodate said lug. A coiled spring 35 is confined within the recess 32 of the bolt between the lower end thereof and said lug 33. The lug 33 limits the downward movement of the bolt and the spring yieldingly holds the bolt in its lower locking position. An outwardly projecting lug 29' formed on the lower end of the bolt 29, by abutment with a lower portion of the hanger casing, serves to limit the upward movement of the bolt.

A strap handle 36, of ordinary construction, is mounted on the slidable door 22 below the plane of the hanger frame, and a tubular handle 37, extended loosely around the strap handle, is of less length than the latter to permit its being vertically movable on the strap handle. Said tubular handle is formed with an upper laterally extending flange 37' carrying an upstanding guide 38 in which the lower end portion of a connecting rod 39 is rigidly connected. Said connecting rod is formed of relatively flat wide stock so as to minimize the tendency of the same to bow, and it extends vertically immediately adjacent the face of the door 22 through guide brackets 40. The connecting rod is, therefore, flatly disposed with respect to the door and does not form an objectionable projection. The upper end portion of the connecting rod is flanged as at 39' and abuts against the lower flange 29' of the bolt.

The entire lower portion of the hanger frame 20 which depends from the wheel shaft 21, is spaced from the door 22 by a back plate 41 which is adjustably connected to said hanger frame 20 by a bolt 43 passing through elongated apertures 44 in a stay member 45 and also through the hanger

frame. Said projecting stay 45 is an independent member, removable upon detachment of bolt 43, and a portion of said stay projects inwardly below the lower portion of the track 18. The stay, cooperating with the track, holds the hanger frame in such a position that the wheel carried thereby, can not jump nor be removed from the track, during normal operation of the device. The stay is an independent removable member to facilitate mounting or detachment of the entire door.

After a sliding door has been in use for a considerable period, wear thereon may have caused it to become warped or misshapen. If no means are provided for compensating for said condition of the door, the door hanger and latch bolt carried thereby will become impaired with respect to their complementary members and will operate less effectively. For this reason, the arrangement illustrated particularly in Figs. 11 and 12 is provided.

As previously mentioned, the latch bolt 29 is disposed within its vertical slot in the hanger plate 20 between a pair of liners 31. When the device is originally installed the arrangement is, therefore, as is illustrated by Fig. 11, locating the head 30 of the latch bolt correctly with respect to the stop track 25. After the door has become warped or out of alignment horizontally, it is necessary only to re-locate the liners 31 in the manner shown in Fig. 12, both liners being against the inner side of the bolt to space the same outwardly from the face of the door a correct distance to properly position the latch bolt and head thereof. It is to be noted that the vertical slot in the hanger plate is closed from the front by a detachable cover plate 20''. Said cover plate is removably held in position by bolts 46 and the removability of said cover plate affords ready access to the latch bolt and liners for re-location purposes, as above described.

The hanger and mechanism previously described is applied to one upper corner portion of the door and additional hanging means must be provided for the opposite upper corner portion of the door. Said additional hanging means is similar to the hanger described except that it does not require the latch and release mechanism. By reference to Figs. 1, 13, 14 and 15, it will be observed that a hanger plate 20' is adjustably secured to the door 22 by bolts 23' and said hanger plate depends from the shaft 21' carrying a grooved wheel 19' which rides on the forward flange of the track 18. The intermediate portion of said hanger plate 20' also carries an inwardly projecting squared stay 45 lodging below the track 18 to insure retention of the wheel 19' on the track.

The arrangement of the improved door hanger lock and release is such that the user in grasping the handle to open the door will move the handle member upwardly to unlatch the bolt, and the door may then be slid to open position. In moving to open position as soon as the user releases the handle or fails to retain it in its upper position, the head of the bolt will drop into a locking recess of the stop track to retain the door in the position it has reached. In moving the door to closed position, the same operation as before described is repeated and if the operator attempts to push or slide the door to closed position without retaining his hold on the handle, the door will be stopped and held short of closed position so that a person cannot be injured by an unexpected slamming of the

door. Furthermore, said arrangement permits the door to be securely held in any desired partially closed position for ventilation or the like.

In addition to the latch bolt arrangement and the ability to retain the door in any position, the invention is advantageous in that the latch bolt may be accurately adjusted or re-located for proper functioning after there has been considerable wear on the door. The squared stay member 45 and its cooperation with the under-surface of the track prohibits undesired displacement of the hangers and wheels, and the flat connecting rod 39 permits its compact disposition against the door and makes it strong.

From the foregoing description it will be seen that the improved door hanger lock and release is of simple and novel construction, and is well adapted for the purposes described.

What is claimed as the invention is:

In a latching mechanism for a sliding door supported from a track by a laterally adjustable hanger, said track also including a keeper having bolt engaging recesses, and said hanger having a laterally enclosed slot extending toward said recessed track, said latching mechanism comprising a bolt movable in said slot and having a latch portion engageable with the track recesses, the bolt being of less thickness than the width of the slot measured perpendicular to the door, and spacing shims within said slot and selectively cooperable with either side of said bolt whereby varied adjustments may be made to compensate for lateral shift of the door with respect to its track mounting.

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