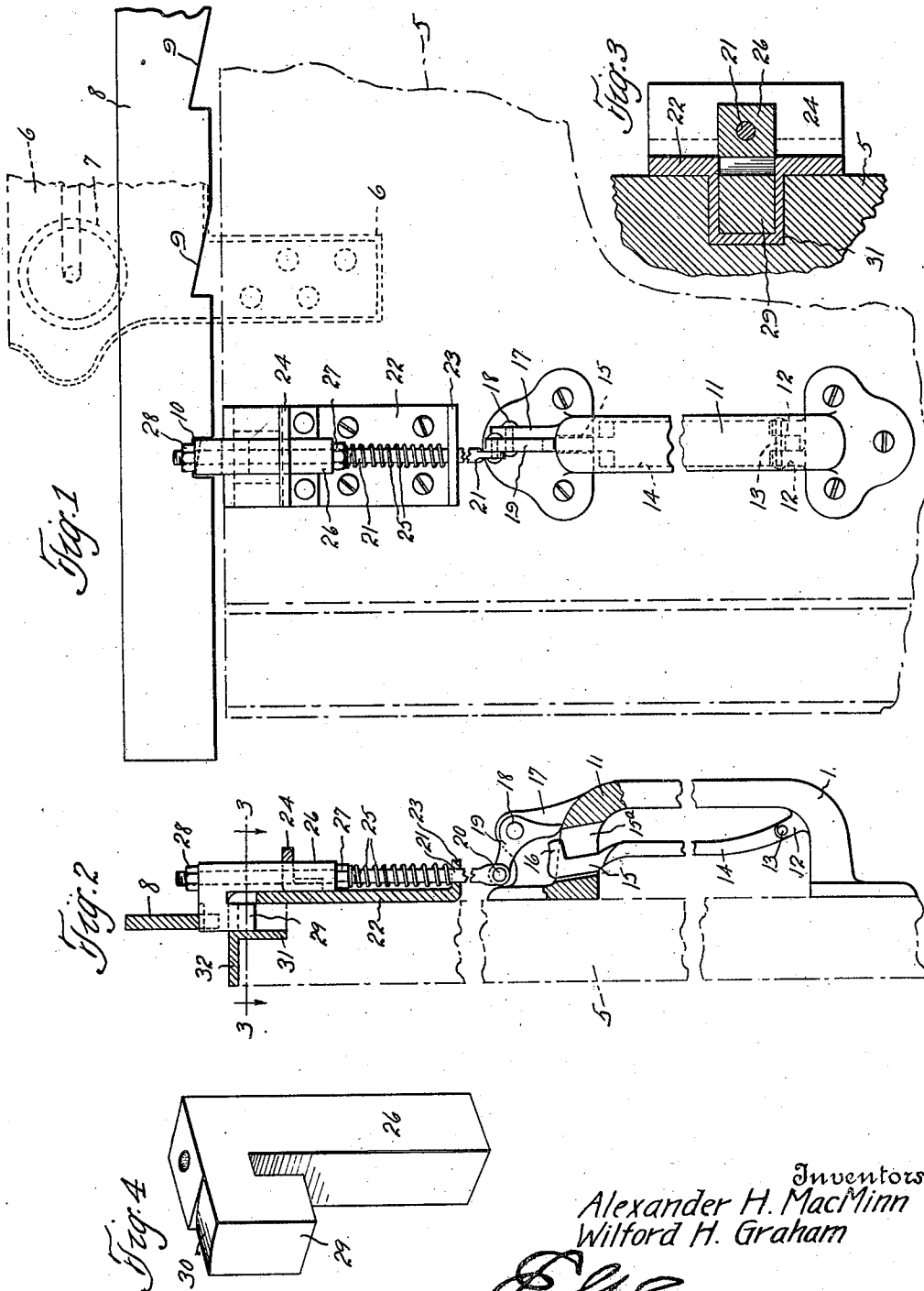


A. H. MACMINN AND W. H. GRAHAM.
SAFETY CATCH FOR CAR DOORS.
APPLICATION FILED JUNE 26, 1920.

1,379,997.

Patented May 31, 1921.

2 SHEETS—SHEET 1.



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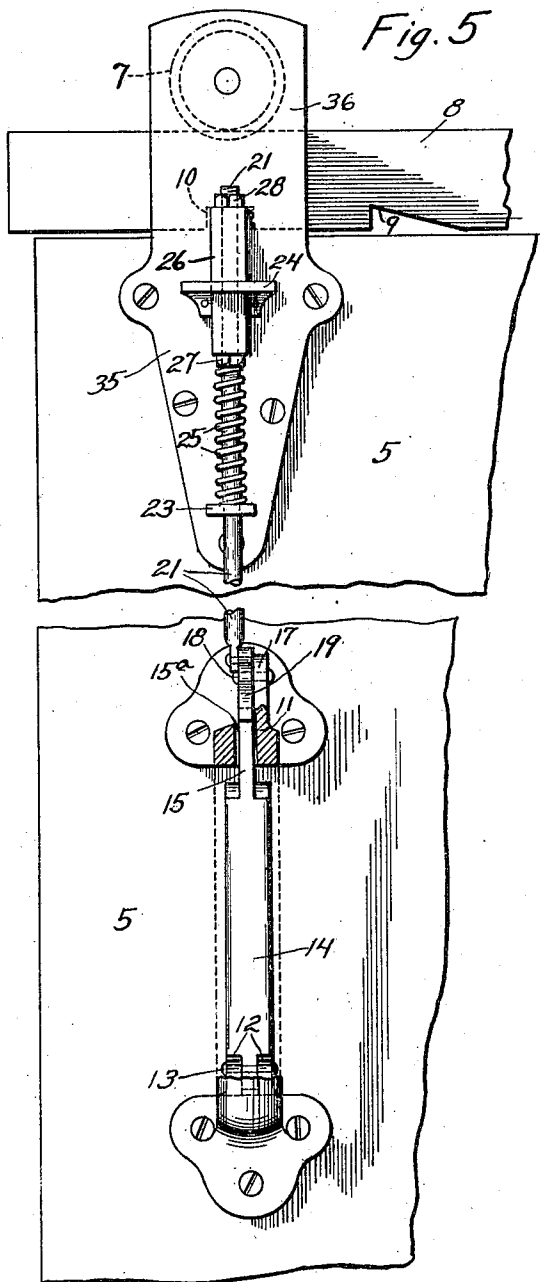
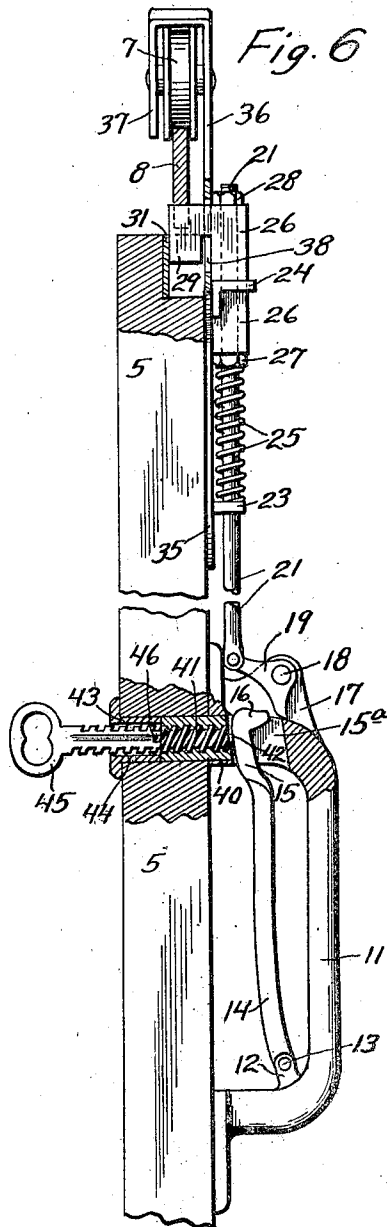
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SAFETY-CATCH FOR CAR-DOORS.

1,379,997.

Specification of Letters Patent.

Patented May 31, 1921.

Application filed June 26, 1920. Serial No. 391,909.

To all whom it may concern:

Be it known that we, ALEXANDER H. MACMINN and WILFORD H. GRAHAM, citizens of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented a new and useful Safety-Catch for Car-Doors, of which the following is a specification.

This invention relates to closure fasteners. The general object of the invention is to provide a latch especially adapted for sliding or rolling doors.

A more specific object is to provide a safety lock for baggage and mail car doors whereby the door may be locked in any desired position, thereby preventing the door from rolling shut when the train makes sudden stops, with constant liability of injury to men standing in the doorway.

Another object is to provide a door catch which will prevent the door from rebounding off the track when closed with a sudden jerk, as is frequently done.

A still further object is to provide means for unlatching a roller door lock from the outside of the car.

The device of the present invention is designed to be attached to any type of roller door and is operated by a lever pivoted on the door pull and moved by simply closing the hand upon the pull. When the lever is thus moved, a latch piece is pulled downwardly out of engagement with the track upon which the door hangs. While the present fastener is designed particularly for baggage and mail car doors, its construction is such that it may be used for closures of all types, and the invention is not to be construed as limited to a door fastener.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing in the drawings, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Figure 1 is a front elevation of the improved closure fastener shown mounted upon a roller door.

Fig. 2 is a side elevation of the same with parts in section.

Fig. 3 is a cross section on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the latch piece.

Fig. 5 is a front elevation of the preferred embodiment of the invention.

Fig. 6 is a side elevation of the preferred form with parts in cross section, showing the key operable means for releasing the latch.

The reference numeral 5 indicates a roller door shown in dotted lines and being indicative of any sliding or rolling closure. The door 5 is supported upon a plurality of hangers 6 each mounting a roller 7 designed to ride upon the upper edge of a rail or track 8. For convenience in illustration, but one of the door hangers is shown, but it will be understood that for any closure two or more of these hangers are ordinarily employed.

The under edge of the rail 8 has a plurality of notches 9 and 10, all these notches being provided to engage with a spring-actuated latch piece, as will be described. The notches 9 permit movement of the latch piece in one direction but will prevent movement in the opposite direction. The notch 10 is rectangular so that the latch piece, when in engagement therewith, is held against movement in either direction.

The fastening means proper, which construction forms the subject of the present invention, includes a handle or pull 11 of any desirable shape, secured to the door at a convenient point, and preferably extending vertically. The inside of the pull is provided with a pair of ears 12 which may be formed integrally with the pull and provide a support for a pivotal element 13 provided for one end of a lever 14. The lever 14 is adapted to be engaged by the fingers when one's hand grasps the handle or pull and is to be appropriately shaped for this purpose. The upper end of the lever is reduced as indicated at 15 and passes through a slot 15^a provided in the upper end of the pull. The slot 15^a is long enough to permit swinging movement of the reduced end 15 therein. The extreme end of lever 14 is provided with a tongue 16 extending substantially at right angles to the main body of the lever and adapted to engage with one

end of a bell crank lever 19 pivoted on the web 17 by a pin or the like 18. The web 17 may be integral with the pull 11 and is provided on the upper end thereof to one side of slot 15^a, rising above the pull a sufficient distance to permit limited movement of the bell crank lever 19 on its pivot. The end of the bell crank lever engaged by tongue 16 is normally in engagement with the pull, as shown in Fig. 2. The opposite end of the bell crank lever is pivotally connected, as at 20, to the lower end of a rod 21.

A plate 22 is mounted adjacent the upper edge of the door and has flanges 22 and 23 outstanding therefrom and suitably perforated to act as guides. The lower flange 23 receives the rod 21 to guide the same in its vertical movement. The flange 24 receives one portion of a latch piece 26 mounted upon the upper end of the rod 21 and secured thereto as by nuts 27 and 28. A coil spring 25 is mounted on the rod 21 between the flange 23 and the lower nut 27. The effect of the spring 25 is to normally hold the rod with its latch piece in raised position whereby the latch piece is always in engagement with the track 8 unless withdrawn by pulling upon the lever 14.

The latch piece 26, shown separately in Fig. 4, has an offset portion 29 spaced therefrom in parallel relation, the upper end of which is beveled as indicated at 30. The beveled face 30 is the part of the latch designed to engage with the notches 9 and 10 of the track 8 and the beveling is provided to cooperate with the notches 9 to permit free movement of the door in one direction while preventing rolling thereof in the opposite direction. The upper end of plate 22 has an extension 32 seated in the top of the door, and a socket 31 rectangular in form is provided to receive the offset portion 29 of the latch piece when the same is withdrawn from engagement with the track.

In the construction illustrated in Figs. 5 and 6, which is the preferred form of the invention, we have combined the guiding plate for the rod 21 and latch 26 with the hanger for the door into one part, this part being indicated by the numeral 35. The plate 35 has an extension 36 which is bent over and returned upon itself, as indicated at 37, to provide means for mounting the roller 7. A slot 38 is provided in the plate 35, through which slot the latch 26 protrudes. The slot 38 is thus seen to permit free movement of the latch into or out of engagement with the notches in the track.

It is desirable that some means be provided for opening the door from the outside. Such means is shown in Fig. 6, where the handle receives one end of a boss 40 secured within the door and having internal screw threads. The boss opens into the slot 15^a in the upper end of the handle and its inner

end is set flush with the walls of the slot. A steep pitched screw 41 is received within the boss and preferably is provided with a rounded point 42 at that end which enters the slot 15^a. The opposite end of the screw 41 has a reduced head 46. A barrel 43 is secured to the door in axial alinement with the boss 40 and has a passageway 44 to receive the key 45 and permit free turning thereof within the barrel. The key has its inner end so shaped that it will engage with the head 46 of the screw, so that the screw will be turned within the boss to advance the same into the slot 15^a to cause movement of the lever 14. As the screw 41 advances into the slot 15^a, the key 45 follows it and engages with the screw threads of the boss in the same manner as though it were itself a screw. The steep pitch of the screw has the effect of a rapid advancement of the same, so that very few turns of the key suffice to completely withdraw the latch from the track.

By varying the size and shape of the head 46 of the screw and by varying the pitch and size of the screw threads of the boss, it is possible to manufacture many different locks of the character described, each of which may be opened by only one key.

What is claimed is:—

1. In combination, a closure supported upon a track, a handle or pull fixed to the closure, a lever pivoted to the handle and engageable by the fingers when the handle is grasped, a second lever pivoted upon the handle and swung by movement of the first lever, a rod connected to the second lever, a latch piece secured to the rod, and a spring for maintaining the latch in raised position to bear against said track.

2. In combination, a closure supported upon a track, a handle or pull fixed to the closure, a lever pivoted to the handle and engageable by the fingers when the handle is grasped, another lever pivoted upon the handle and moved by the first lever, a rod connected to the second lever, a latch piece secured to the rod, a plate mounted upon the closure and having outstanding flanges providing guides for the rod and the latch piece, and a spring bearing against one of the flanges and operating on said rod for maintaining the latch piece in raised position to bear against the track.

3. In combination, a closure, a handle or pull fixed to the closure, a lever pivoted to the handle and engageable by the fingers when the handle is grasped, another lever pivoted upon the handle and moved by the first lever, a rod connected to the second lever, a latch piece secured to the rod, said latch piece having an offset portion, a plate mounted upon the closure and having outstanding flanges providing guides for the rod and the latch piece, said plate having a socket in its upper end for receiving the off-

set portion of the latch piece, and a spring bearing against one of the flanges and operating on said rod for maintaining the latch piece in raised position.

5 4. In combination, a closure, a handle or pull fixed to the closure, a lever pivoted at its lower end upon the inside of the handle between the handle and the closure, said handle having a slot at its upper end receiving the upper end of the lever, said lever having a tongue projecting from its upper end, a bell crank lever pivoted upon the upper end of the handle in position to be engaged by said tongue when the first-mentioned lever is moved, a rod connected to the bell crank lever, a latch piece secured to the rod, and a spring for maintaining the latch in raised position.

5 5. In combination, a closure, a track or rail, a hanger for the closure, a socket in the upper end of the closure, a slot in the hanger, a latch piece slidably mounted on the hanger and extending through the slot and movable into the socket, said track having means for engagement with the latch piece to hold the closure in determinable positions, and means for moving the latch piece.

6. In combination, a closure, a track or rail having stop means, a latch slidably mounted upon the closure to engage with the stop means of the track or rail, independent manually operated means on each side of the closure for disengaging the latch, one of said means working the latch without moving the opposite means, the other of said means being key-actuated, and moving the first latch disengaging means to work the latch.

7. In combination, a closure supported on a track, a handle secured to the closure, a lever pivoted on the handle to swing between the handle and the closure and engageable by the fingers when the handle is grasped, a latch normally in engagement with the track and withdrawn therefrom by swinging of said lever, and means for moving said lever to withdraw the latch from the side of the closure opposite to that bearing the handle.

8. In combination, a closure supported on a track, a handle secured to the closure, a lever pivoted on the handle to swing between the handle and the closure and engageable by the fingers when the handle is grasped, a latch normally in engagement with the track and withdrawn therefrom by swinging of said lever, a key-operated screw for moving said lever to withdraw the latch from the side of the closure opposite to that bearing the handle.

9. In combination, a closure supported on a track, a handle secured to the closure,

said handle having a slot at one end, a lever pivoted on the handle to swing between the handle and the closure and engageable by the fingers when the handle is grasped, one end of the lever being movable in the handle slot, a latch normally in engagement with the track and withdrawn therefrom by swinging of said lever, and a key-operated screw movable into said handle slot for moving said lever to withdraw the latch from the side of the closure opposite to that bearing the handle.

10. A lock for roller doors including a handle, a lever pivoted inside the handle near one end, a vertical slot provided in the other end of the handle and receiving the corresponding end of the lever, an internally screw-threaded boss set in the door and opening into the slot, a screw received within the boss and having one end extending into the slot to abut against the lever end, and a key adapted to engage the opposite end of the screw to turn the same to move the lever.

11. A lock for roller doors including a handle, a lever pivoted inside the handle near one end, a vertical slot provided in the other end of the handle and receiving the corresponding end of the lever, an internally screw-threaded boss set in the door and opening into the slot, a screw received within the boss and having one end extending into the slot to abut against the lever end, and a key adapted to engage the opposite end of the screw to turn the same to move the lever, said key having a bit of a size and shape to enter the boss and engage with the screw threads thereof as the screw is advanced into the slot.

12. A lock for roller doors including a handle, a lever pivoted inside the handle near one end, a vertical slot provided in the other end of the handle and receiving the corresponding end of the lever, an internally screw-threaded boss set in the door and opening into the slot, a screw received within the boss and having one end extending into the slot to abut against the lever end, a key adapted to engage the opposite end of the screw to turn the same to move the lever, a slidably mounted latch on the upper end of the closure to engage with the track upon which the door is hung, and means whereby movement of the lever away from the door pulls the latch away from the track while movement thereof toward the door permits the latch to engage the track.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures.

ALEX H. MACMINN,
WILFORD H. GRAHAM