

March 24, 1953

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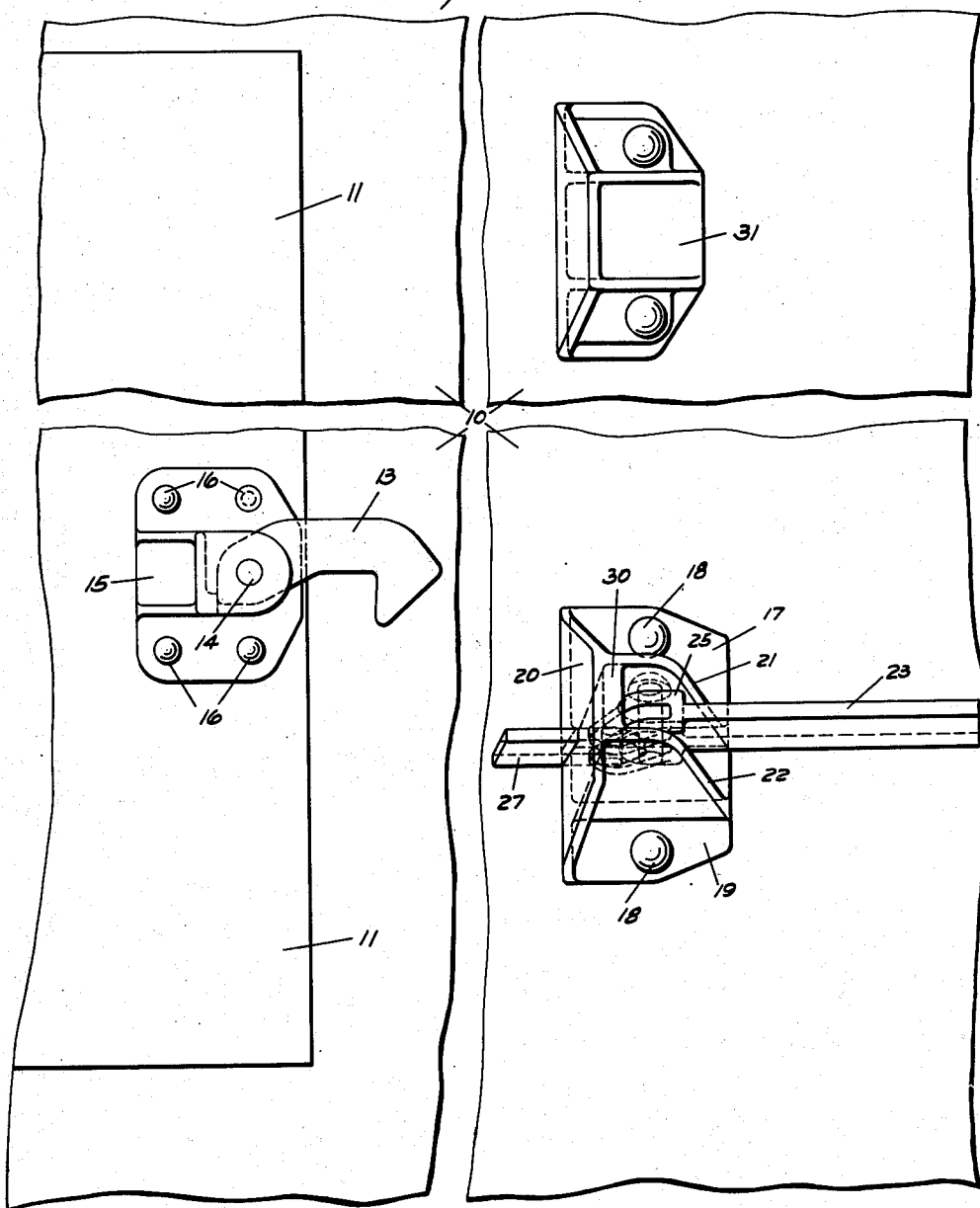
2,632,665

STOP AND AUTOMATIC LATCH FOR SLIDING CAR DOORS

Filed Nov. 25, 1946

2 SHEETS—SHEET 1

FIG-1



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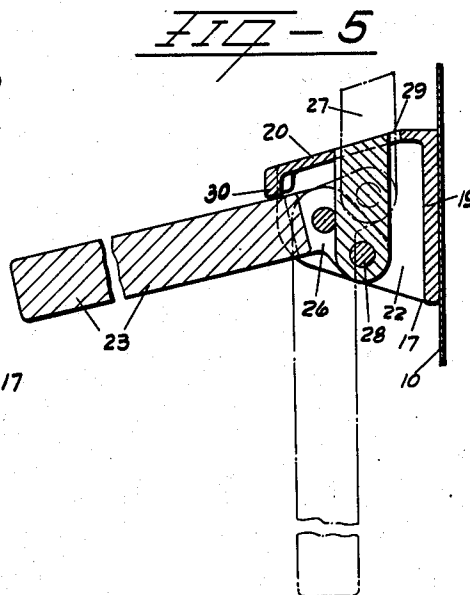
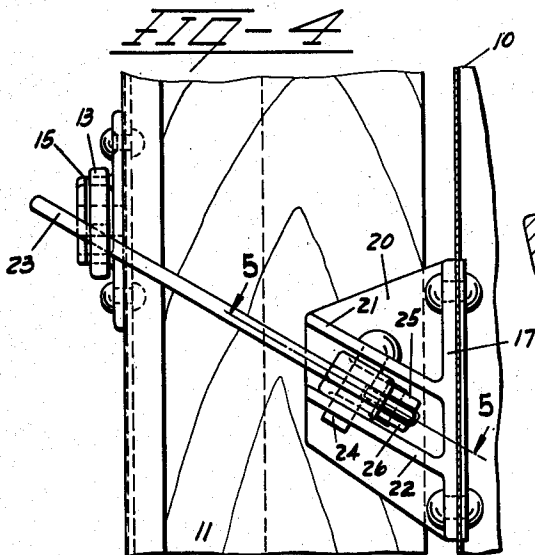
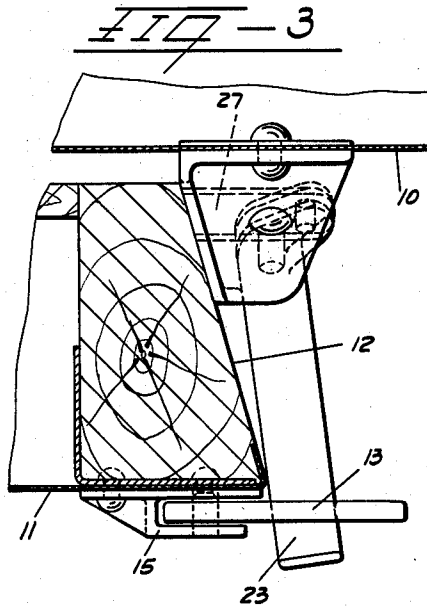
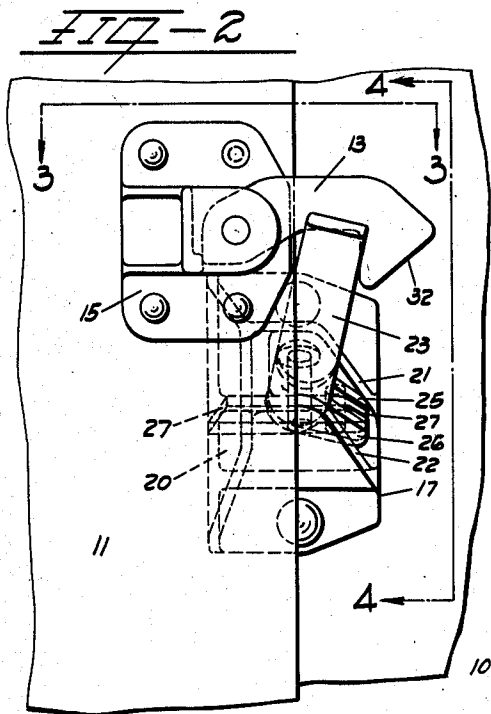
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STOP AND AUTOMATIC LATCH FOR SLIDING CAR DOORS

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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

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STOP AND AUTOMATIC LATCH FOR
SLIDING CAR DOORS

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9. Claims. (Cl. 292—198)

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This invention relates to a stop and automatic latch for sliding car doors and more especially for sliding doors of refrigerator cars.

It is an object of this invention to provide a stop for limiting opening movement of sliding doors embodying a latch automatically engageable with means on the doors for retaining them in open position.

A further object is to provide a device of the character stated above wherein the latch is actuated to latching position by the movement of the door.

A further object is to provide a stop for limiting opening movement of sliding doors embodying a latch automatically engageable with means on the doors for retaining them in open position and which shall be biased to inoperative position upon disengagement from said door means.

Other objects of the invention will become clear as the description thereof proceeds.

In the drawings forming part of this specification:

Fig. 1 is a fragmentary elevation of a refrigerator car to which a stop embodying the instant invention is applied.

Fig. 2 is a fragmentary elevation showing the door in open and latched position.

Fig. 3 is a horizontal section taken on line 3—3' of Fig. 2.

Fig. 4 is a vertical section taken on line 4—4' of Fig. 2.

Fig. 5 is a section taken on line 5—5' of Fig. 4 showing the latch in inoperative position in dot and dash lines.

Referring to the drawings in which a preferred embodiment of the invention is illustrated, the numeral 10 designates a portion of a side wall of a refrigerator car which is provided with a sliding flush door 11. The particular construction of the door forms no part of the instant invention except in the combination hereinafter claimed. As is customary with sliding doors for refrigerator cars, the door is adapted to be supported for lateral movement into and from the door opening and for longitudinal movement along the side of the car by any desired mechanism (not shown) an example of which may be found in the patent to Newman, 1,938,926, granted December 12, 1933. As indicated above, the door when in closed position is flush with the carside and, as is customary in such doors, the edges thereof are inclined. The construction of the rear vertical portion of the door including the inclined rear edge 12 is shown in section in Fig. 3 of the drawings.

It is desirable to limit the extent of the open-

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ing movement of the door and to secure the door in its open position. To this end a swinging catch 13 is pivotally supported by means of a pin 14 upon a bracket 15 secured as by means of rivets 16 adjacent to the rear edge of the door. As is more clearly shown in Fig. 1 of the drawings the catch 13 is arranged so that it projects beyond the rear edge of the door.

A stop member 17, preferably in the form of a casting, is secured as by means of rivets 18 to the carside 10. Stop 17 embodies an attaching base 19 and an inclined wall 20 which has the same inclination as the rear edge 12 of the door. Spaced flanges 21 and 22 extend outwardly and upwardly from the attaching base 19 into abutment with the inclined wall 20. A latch arm 23 is pivotally supported between the flanges 21 and 22 upon a pin 24 secured to the flanges for swinging movement in an upwardly and outwardly inclined plane transverse to the carside. The pin 24 extends through the angular branches 25 and 26 of a bifurcated end of the arm 23. An actuating arm 27 is disposed between the branches 25 and 26 of arm 23 and is pivotally connected thereto by means of a pin 28. Actuating arm 27, as more clearly shown in Figs. 1 and 5 of the drawings, is adapted to extend through an opening 29 formed in the door engaging wall 20 of the stop so as to lie in the path of movement of and be engageable by the rear edge of the door. A wall 30 extends from the door engaging wall 20 between the spaced flanges 21 and 22 in order to limit swinging movement of the latch arm 23.

An additional stop 31 of any desired construction fastened to the carside is adapted to engage the upper portion of the door and limit its opening movement.

To open the door 11 it is first swung laterally of the car out of the door opening until it clears the side of the car. The door is then moved longitudinally. As it approaches its full open position, the rear edge 12 of the door will engage the end of the actuating arm 27 which projects through the wall 20 of the door stop. The door thereby exerts a thrust upon the actuating arm which through its pivotal engagement with the latch arm 23 causes the latter to swing about its pivot pin 24. Arm 23 in its swinging movement engages the inclined nose 32 of the pivoted catch 13 thereby causing the catch to swing upwardly about its pivot 14 and permitting the arm 23 to be engaged by the catch. The opening movement of the door is arrested by the engagement of the rear edge thereof with wall 20 of the stop and its accidental movement in closing direction

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is prevented by the engagement between arm 23 and catch 13.

It will be observed from Figs. 2, 3 and 4 of the drawings that the swinging movement of arm 23 occurs in a plane which is inclined upwardly and outwardly relative to the carside. It will also be observed that in the latched position of the door, arm 23 lies at an acute angle relative to the carside. Because of this positioning of the arm when in latching engagement with catch 13, it will be apparent that it is constantly biased to normal position wherein the arms 23 and 27 lie adjacent to the carside. Accordingly, when the catch 13 is disengaged from arm 23 in order to move the door in closing direction, the arm 23 will automatically swing toward the car wall so that the arms 23 and 27 will assume the position shown in dot and dash lines in Fig. 5 of the drawings. At that time the actuating arm 27 is extended beyond the door engaging wall 20 of the stop and is again in position to be engaged by the rear edge of the door so as to effect latching engagement between catch 13 and arm 23 as the door moves to its full open position.

It will be apparent that numerous changes and modifications in the details of the invention will be clear to those skilled in the art. It is intended, therefore, that all such modifications and changes be comprehended within this invention, which is to be limited only by the scope of the claims appended hereto.

I claim:

1. As an article of manufacture, a stop and automatic latch for sliding doors of railway cars comprising a stop member having a base adapted to be secured to a wall of a car, a door engaging wall extending outwardly of said base and having an opening, spaced flanges extending upwardly and outwardly from said base and abutting said door engaging wall, a latch arm pivotally supported between said flanges for upward and outward swinging movement, and an actuating arm pivotally connected to said latch arm, said actuating arm normally extending through said opening in said door engaging wall.

2. As an article of manufacture, a stop and automatic latch for sliding doors of railway cars comprising a stop member having a base adapted to be secured to a wall of a car, a door engaging wall extending outwardly of said base and having an opening, spaced flanges extending upwardly and outwardly from said base and abutting said door engaging wall, a latch arm pivotally supported between said flanges for upward and outward swinging movement, an actuating arm pivotally connected to said latch arm, said actuating arm normally extending through said opening in said door engaging wall, and means adapted to engage and limit swinging movement of said latch arm, for the purpose set forth.

3. As an article of manufacture, a stop and automatic latch for sliding doors of railway cars comprising a stop member having a base adapted to be secured to a wall of a car, a door engaging wall extending outwardly of said base and having an opening, spaced flanges extending upwardly and outwardly from said base and abutting said door engaging wall, a latch arm pivotally supported between said flanges for upward and outward swinging movement, an actuating arm pivotally connected to said latch arm, said actuating arm normally extending through said opening in said door engaging wall, and means adapted to engage and limit swinging

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movement of said latch arm, for the purpose set forth, said means comprising a flange extending from said door engaging wall between said spaced flanges.

4. In a railway car having a sliding door, a pivoted catch fastened to said door adjacent to the rear edge thereof, a stop and automatic latch for said door secured to said car, said stop and automatic latch comprising a stop member having a wall adapted to engage the rear edge of said door for limiting opening movement thereof, a latch arm pivotally mounted on said stop member for swinging movement toward and away from the rear edge of said door, and an actuating arm pivotally connected to said latch arm, said actuating arm normally extending beyond said wall of said stop member, said rear edge of said door engaging said actuating arm during the final opening movement of said door and imparting a thrust thereto and swinging movement to said latch arm, said latter arm engaging said catch to latch said door in open position.

5. In a refrigerator car having a door opening in a wall thereof and a sliding flush door for closing said opening, a pivoted catch fastened to the outer face of said door and extending beyond the rear edge thereof, a stop and automatic latch for said door secured to said wall, said stop and automatic latch comprising a stop member having a wall provided with an opening and adapted to engage the rear edge of said door for limiting opening movement thereof, a latch arm pivotally mounted on said stop member for transverse swinging movement across the rear edge of said door, and an actuating arm pivotally connected to said latch arm, said actuating arm normally extending through said opening in said wall of said stop member, said rear edge of said door engaging said actuating arm during the final opening movement of said door and imparting a thrust thereto and swinging movement to said latch arm, said latter arm engaging said catch to latch said door in open position.

6. As an article of manufacture, a stop and automatic latch for sliding doors of railway cars comprising a stop member having a door engaging wall provided with an opening, a latch arm, means pivotally mounting said latch arm on said stop member for swinging movement in an upwardly inclined plane transversely to said car and stop member, an actuating arm pivotally connected to said latch arm for imparting swinging movement thereto, said actuating arm normally extending through said opening in said wall into the path of said door, and means on said stop member engageable with one of said arms for limiting swinging movement of said latch arm.

7. As an article of manufacture, a stop and automatic latch for sliding doors of railway cars comprising a stop member having a door engaging wall provided with an opening, a latch arm, means pivotally mounting said latch arm on said stop member for swinging in an upwardly inclined plane transversely to said car and stop member, an actuating arm pivotally connected to said latch arm for imparting swinging movement thereto, said actuating arm normally extending through said opening in said wall into the path of said door, and means engageable with said first mentioned arm for limiting swinging movement thereof for the purpose set forth.

8. As an article of manufacture, a stop and automatic latch for limiting opening movement

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of a sliding door carrying a pivoted keeper projecting beyond the rear edge of the door and latching said door in open position comprising a wall engageable with the rear edge of said door to limit opening movement thereof, a pivotally mounted latch arm, and an actuating arm operatively connected with said latch arm for imparting swinging movement thereto, said actuating arm extending beyond said wall for engagement by said rear edge of said door, said latch arm being swung across said rear edge of said door into engagement with the keeper when said actuating arm is put into motion by said door.

9. As an article of manufacture, a stop and automatic latch for limiting opening movement of a sliding door carrying a pivoted keeper projecting beyond the rear edge of the door and latching said door in open position comprising a wall engageable with the rear edge of said door to limit opening movement thereof, a pivotally mounted latch arm, and an actuating arm pivotally connected to said latch arm for imparting

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swinging movement thereto, said actuating arm extending through an opening in said wall for engagement by said rear edge of said door, said latch arm being swung across said rear edge of said door into engagement with the keeper when said actuating arm is put into motion by said door.

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