Dec. 25, 1928. 1,696,870

H. J. SPENCER

SLIDING DOOR LATCH

Filed Nov. 8, 1927

Fig. 1.

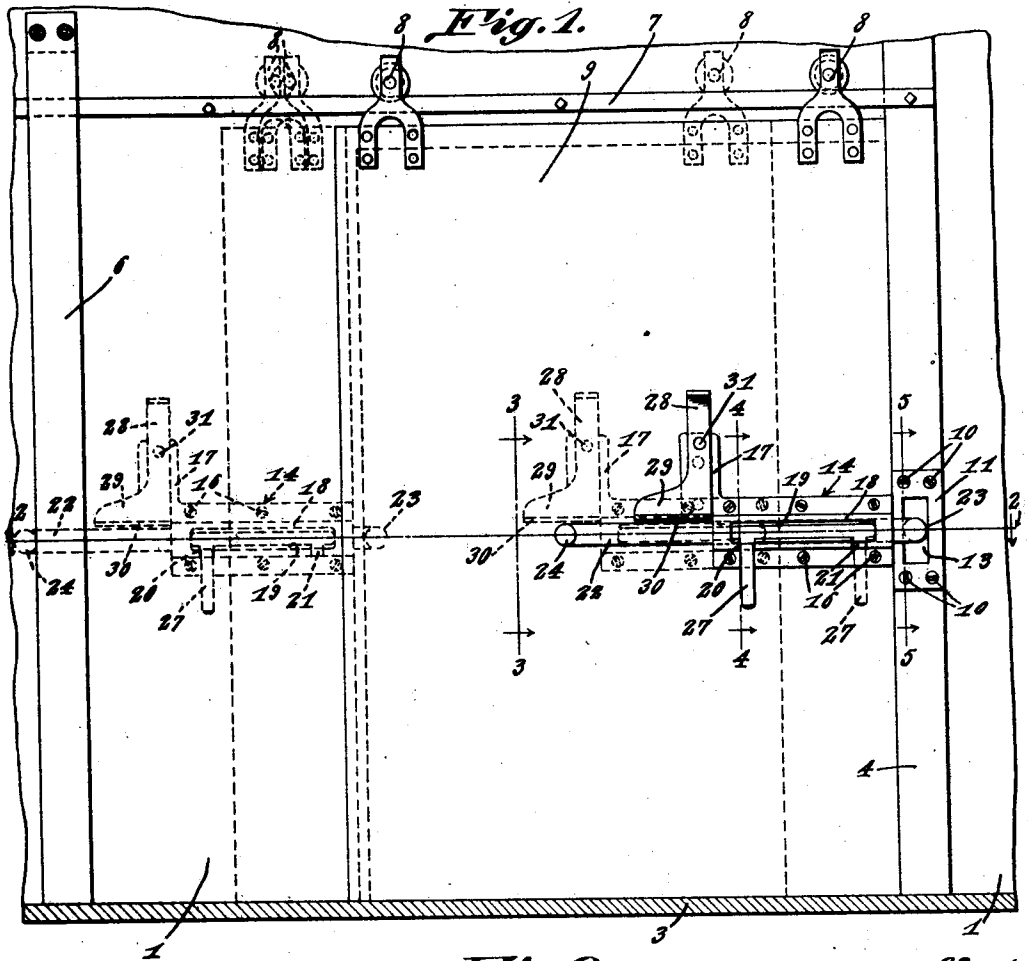


Fig. 2.

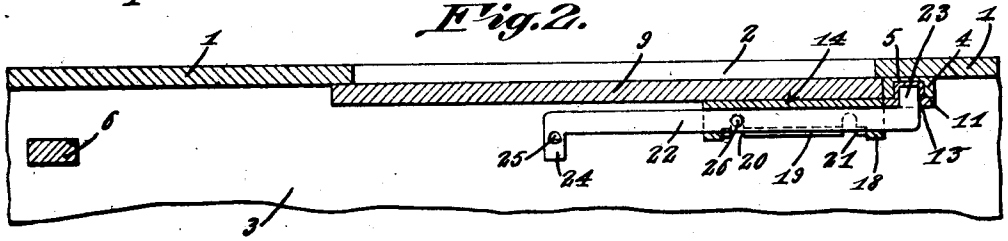
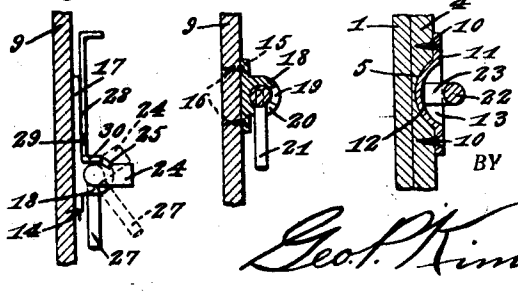


Fig. 3. Fig. 4. Fig. 5.



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Patented Dec. 25, 1928. 1,696,870

UNITED STATES PATENT OFFICE.

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SLIDING-DOOR LATCH.

Application filed November 8, 1927. Serial No. 231,943.

This invention relates to a sliding door latch, designed primarily for use in connection with mail and baggage cars, but it is to be understood that a latch, in accordance with this invention can be employed for any purposes for which it is found applicable, and the invention has for its object to provide, in a manner as hereinafter set forth, a latch of such class to securely fasten a sliding door closed, to securely fasten the door in a partly open position with respect to the door opening, at a given distance from its closing point, to provide for ventilation when desired, and to securely fasten the door in completely open position with respect to the door opening.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a sliding door latch, which is simple in its construction and arrangement, strong, durable, compact, readily installed, thoroughly efficient in its use, conveniently operated and comparatively inexpensive to manufacture.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

Figure 1 is a fragmentary view, in elevation, of the side of a car provided with a door opening and a sliding door and further showing the adaptation therewith of a door latch in accordance with this invention, and also illustrating in full and dotted lines the door latched in its several positions with respect to the door opening.

Figure 2 is a section on line 2—2 Figure 1.

Figure 3 is a section on line 3—3 Figure 1.

Figure 4 is a section on line 4—4 Figure 1.

Figure 5 is a section on line 5—5 Figure 1.

Referring to the drawings in detail 1 denotes the side of a mail, baggage or freight car, and which is provided with a door opening 2. The bottom of the car is indicated at 3. Secured to the inner face of the sides 2, and positioned in proximity to one of the side walls of the opening 2, is a vertically disposed jamb 4 provided with a concavity, intermediate its ends, as at 5. Secured to the bottom 3 and also to the side 1, and spaced a substantial distance from the other side wall of the opening 2, is a standard 6, spaced from the side 1 of the car and which provides a holding or locking element for a purpose to be presently referred to. Connected to the inner face of the side 1 of the car is a track 7, having mounted thereon and depending therefrom a pair of hangers, trolleys or carriages 8 for the sliding door 9 and which is of greater width and greater height than the door opening 2.

Secured to the jamb 4 by holdfast devices 10, is a keeper 11, provided with a semi-oval shaped offset portion 12 which seats in the concavity 5 and forms a pocket 13 having the mouth thereof of rectangular contour. The keeper 11 is of the same width as the width of the jamb 5 and flush with the side edges thereof.

Secured to the door 9, on its inner face, is a carrier referred to generally by the reference character 14 and which not only slidably supports the latching bolt, to be presently referred to, but also pivotally supports a locking member, to be presently referred to, for the latching bolt. The carrier 14 comprises a rectangular base plate 15, secured to the door 9 by hold fast devices 16. The base 15 at one end is flush with what may be termed the leading side edge of the door 9, and said base 15 at its other end, is formed with a vertically disposed right angular extension 17, which is flat and of substantial width, and which is secured to the door 9 by any suitable means. Formed integral with the base 15, at the longitudinal center thereof and extending lengthwise of said base is a tubular offset 18, which provides a barrel in which is slidably mounted the latching bolt to be presently referred to. The barrel 18 is formed with a lengthwise disposed slot 19 and a pair of spaced notches 20, 21 which are of substantial width, disposed at right angles with respect to the slot 19, and with the notch 20 positioned in close proximity to the inner end and the notch 21 positioned in close proximity to the outer end of the slot 19. The barrel 18 is of the same length as the length of the base 15.

Slidably mounted in the barrel 18 is a latching bolt 22, which preferably is of cylindrical cross section, and is formed at its forward end with a right angularly disposed locking nose 23, adapted to engage in the

pocket 13 for securing the door 9 in closed position with respect to the opening 2. The rear end of the bolt 22 is provided with a right angular extension 24, which extends in an opposite direction with respect to the nose 23 and said extension 24, which may be termed a protuberance, has one side thereof provided with a notch 25 for a purpose to be hereinafter referred to. Secured to the bolt 22 is a right angularly disposed handle member 27, adapted to be seated in the notch 20 or the notch 21, for a purpose to be hereinafter set forth. The end walls of the slot 19 arrest the shifting movement of the bolt 22 in either direction.

Pivotally connected to the extension 17 is a counterbalanced latching member 28, having its lower portion 29 of greater width than its upper portion. The lower portion 29 is provided with a lengthwise extending right angularly disposed flange 30 which coacts with the notch 25 to arrest the turning movement of the bolt 22. The pivot for the locking member 28 is indicated at 31.

To close the door when open, the handle 27, which is mounted in the notch 20, is raised to clear the same and the door 9 is slid to abut against the jamb 4. When the handle 27 is shifted to clear the notch 20, the nose 23 will depend and the protuberance 24 will be erect. After the door 9 has been brought into abutting engagement with the jamb 4, the handle 27 is lowered to seat in the notch 20 and which will turn the bolt, so that the nose 23 will engage in the pocket 13, and as the handle 27 is mounted in the notch 20, the door will be securely fastened in closed position.

If it be desired to partly open the door, to provide for ventilation, and to maintain the door in a partly opened position, the handle 27 is shifted clear of the notch 20, which swings the nose 23 clear of the keeper 11. The door is then opened to the desired extent and the bolt slid through the barrel 18 and the handle 27 is then positioned in the notch 21, which turns the bolt 22 so that the nose 23 will engage in the keeper 11. This will position the door to provide for an open space between it and the jamb 4. As the handle 27 is in the notch 21, the door will be securely fastened in partly opened position. When the door is latched in partly opened position, before the bolt can be moved, so that the handle 27 can be transferred from notch 21 to 20, the latching member 28 must be shifted clear of the protuberance 24, so that the protuberance 24 can clear the flange 30. When the door is latched in a partly open position, the protuberance 24 is arranged below the latching member 28, and if an attempt is made to release the bolt 22, by shifting the handle 27 to clear the notch 21, the notch 25 on the protuberance 24, will receive the flange 30 at the lower end of the locking member 28, under such conditions arresting a complete turn of the bolt 22, and prevent the nose 23 from clearing the keeper 11. To release the door from partly open position, it necessitates the swinging of the latching member 28 clear of the protuberance 24 so that the handle 27 can be moved the desired extent in an upward direction to enable the nose 23 to clear the keeper 11.

When it is desired to fasten the door in a complete open position, with respect to the door opening 2, the bolt is released from the keeper 11 and the door slid rearwardly and the end of the bolt 22 provided with the protuberance 24 will pass between the locking element 6 and the wall of the car. The bolt 22 is shifted rearwardly, so that the protuberance 24 will be arranged rearwardly of the latching element 6, and when the handle 27 has been mounted in the dotted line position shown in Figure 1, that is to say the dotted line position to the left of Figure 1, the protuberance 24 will be arranged to abut against the rear edge of the standard 6 and arrest an effort to swing the door or rather to shift the door 9 forwardly. To permit of moving the door forwardly, when it is held in a complete open position with respect to the door opening 2, the handle 27 is shifted upwardly so that the protuberance 24 will clear the latching element 6 and then the door can be swung or shifted to closed position.

It is thought that the many advantages of a sliding door lock, in accordance with this invention can be readily understood, and although the preferred embodiment of the invention is as illustrated and described, yet it is to be understood that changes in the details of construction can be had which will fall within the scope of the invention as claimed.

What I claim is:

1. A sliding door latch comprising a keeper adapted to be secured to a stationary support, a carrier provided intermediate its ends with lengthwise extending slot, said carrier adapted to be secured to the sliding door, a latching bolt of greater length than and slidably mounted in the carrier, said bolt provided at one end with an angularly disposed nose for engagement in the keeper to arrest sliding movement of the door in one direction and provided at its other end with an angularly disposed protuberance adapted to engage with a stationary support spaced from the support to which the keeper is secured to arrest sliding movement of the door in the other direction, a handle extending through said slot, connected to the bolt and providing means for shifting and turning the latter, and said carrier provided with spaced means for receiving said handle for

latching the bolt in selected shifted position.

2. A sliding door latch comprising a keeper adapted to be secured to a stationary support, a carrier provided intermediate its ends with lengthwise extending slot, said carrier adapted to be secured to the sliding door, a latching bolt of greater length than and slidably mounted in the carrier, said bolt provided at one end with an angularly disposed nose for engagement in the keeper to arrest sliding movement of the door in one direction and provided at its other end with an angularly disposed protuberance adapted to engage with a stationary support spaced from the support to which the keeper is secured to arrest sliding movement of the door in the opposite direction, a handle extending through said slot, connected to the bolt and providing means for shifting and turning the latter, said carrier provided with spaced means for receiving said handle for latching the bolt in selected shifted position, and a pivoted latching member supported on the carrier at one end thereof and co-acting with said protuberance to prevent release of the bolt from latching position until the latching member is shifted clear of the protuberance.

3. A sliding door latch comprising a keeper adapted to be secured to a stationary support, a carrier provided intermediate its ends with lengthwise extending slot, said carrier adapted to be secured to the sliding door, a latching bolt of greater length than and slidably mounted in the carrier, said bolt provided at one end with an angularly disposed nose for engagement in the keeper to arrest sliding movement of the door in one direction and provided at its other end with an angularly disposed protuberance adapted to engage with a stationary support spaced from the support to which the keeper is secured to arrest sliding movement of the door in the other direction, a handle extending through said slot, connected to the bolt and providing means for shifting and turning the latter, said carrier provided with spaced means for receiving said handle for latching the bolt in selected shifted position, said nose extending in an opposite direction with respect to the direction in which the protuberance extends, said protuberance provided with a notch, and a latching member pivotally supported from one end of the carrier and provided with a flange coacting with said notch to prevent the turning of the bolt from latching position until the latching member is shifted clear of the protuberance.

4. A sliding door latch comprising a keeper adapted to be secured to a stationary support, a carrier provided intermediate its ends with lengthwise extending slot, said carrier adapted to be secured to the sliding door, a latching bolt of greater length than and slidably mounted in the carrier, said bolt provided at one end with an angularly disposed nose for engagement in the keeper to arrest sliding movement of the door in one direction and provided at its other end with an angularly disposed protuberance adapted to engage with a stationary support spaced from the support to which the keeper is secured to arrest sliding movement of the door in the other direction, a handle extending through said slot, connected to the bolt and providing means for shifting and turning the latter, said carrier provided with spaced means for receiving said handle for latching the bolt in selected shifted position, a counterbalanced, flanged locking member pivotally supported from one end of the carrier and coacting with said protuberance to arrest shifting movement of the bolt until the latching member is shifted clear of the protuberance.

5. A sliding door latch comprising a keeper adapted to be secured to a support, a slotted carrier adapted to be secured to the sliding door and provided at its inner end with an upstanding extension, a latching bolt of greater length than and slidably mounted in said carrier and having its outer end formed with an angularly disposed nose for engagement in the keeper to arrest sliding movement of the door in one direction, said bolt provided at its other end with a notch and a right angularly disposed protuberance, said protuberance adapted to engage with a stationary support to arrest sliding movement of the door in the other direction, a handle carried by the bolt and extending through the slot of the carrier, a pivoted latching member supported from said extension and coacting with said notch to prevent release of the bolt from latching position until the latching member moves clear of the notch, and said carrier provided with spaced means for receiving said handle for latching the bolt in selected shifted positions.

In testimony whereof, I affix my signature hereto.

HENRY J. SPENCER.