(No Model.)

W. H. KALDRIDER.

SLIDING DOOR LOCK.

No. 526,232. Patented Sept. 18, 1894.

Fig. 1.

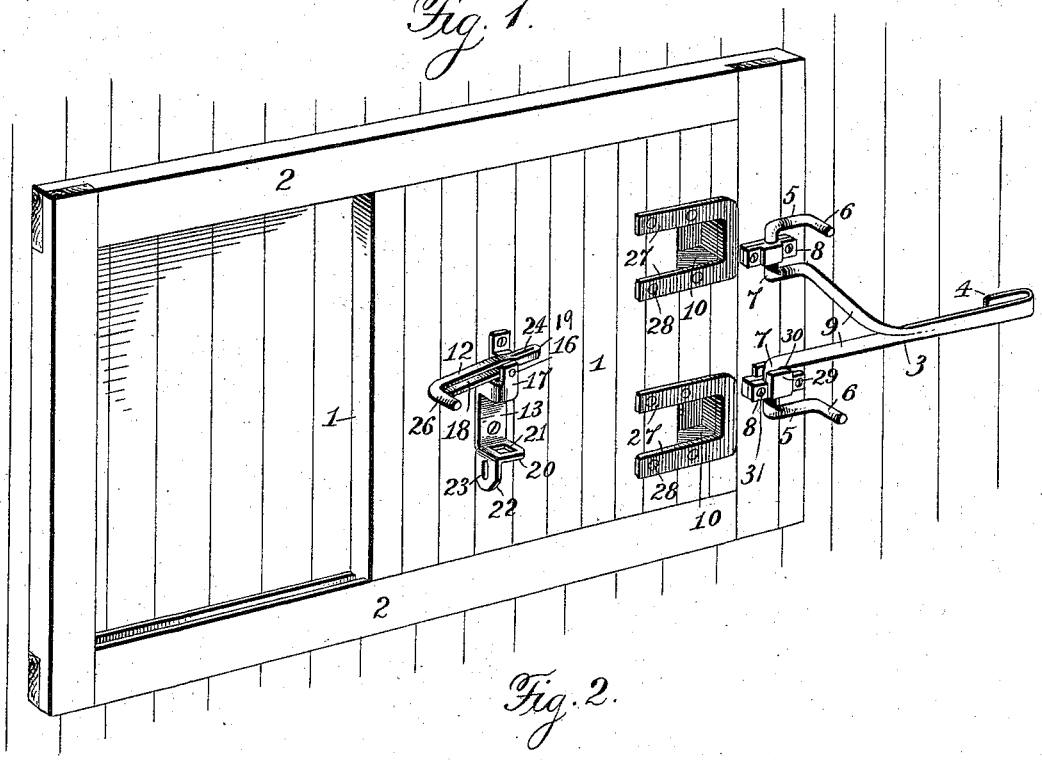


Fig. 2.

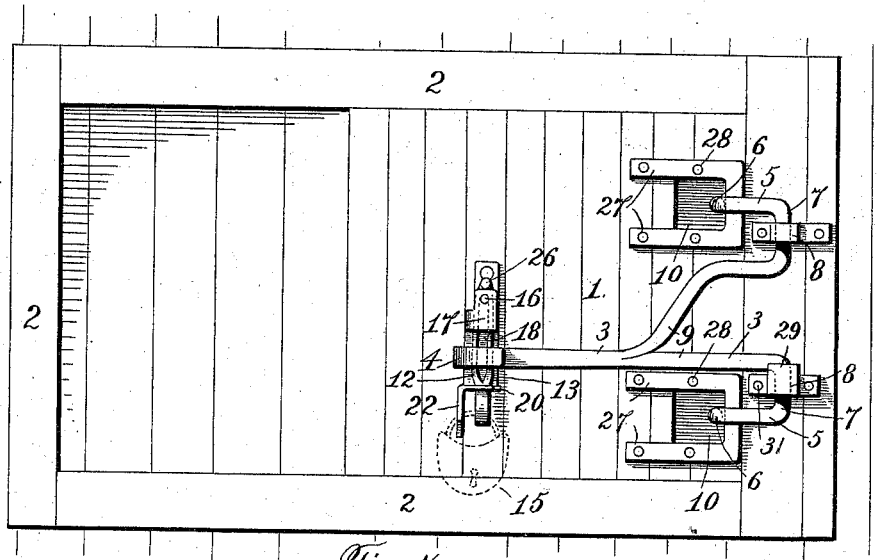
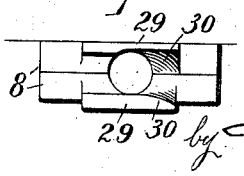


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. KALDRIDER, OF HEATERS, ASSIGNOR OF TWO-THIRDS TO ARCHIBALD M. LANE, ROLL S. WATERMAN, THEODRIC G. EDMISTON, AND FRANK E. WATERMAN, OF WESTON, WEST VIRGINIA.

SLIDING-DOOR LOCK.

SPECIFICATION forming part of Letters Patent No. 526,232, dated September 18, 1894.

Application filed April 25, 1894. Serial No. 509,007. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. KALDRIDER, a citizen of the United States, residing at Heaters, in the county of Braxton and State of West Virginia, have invented new and useful Improvements in Car-Door Fastenings, of which the following is a specification.

This invention has for its object to provide new and improved means for tightly closing and locking slidable doors, particularly designed for freight cars, but useful for the doors of other cars, vehicles or buildings.

To accomplish this object my invention consists in the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a car and a car-door with my invention applied thereto, the lever being swung back against the wall of the car. Fig. 2 is a similar view, showing the lever in its locked position. Fig. 3 is a detail plan view of the lower one of the lever-supporting brackets or pivot-bearings.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a sliding-door, which, as here shown, is adapted to slide horizontally in a rectangular frame 2, secured to the side wall of the car, in such manner that when the door is slid in one direction it will open the door-way, and when it is slid in the other direction it will close the door-way. The rectangular frame may in fact be a part of the car wall, and as regards the spirit of my invention, the door may be supported in any manner suitable for the conditions required to enable it to be slid open or closed.

The door-closing and locking-lever 3 is pivotally mounted at one end portion, and its opposite end portion is formed into a loop or hook 4. The pivoted part of the lever is provided with a hooked tail-piece, which, as shown in the drawings, is composed of two approximately horizontal members or arms 5 having hooked extremities 6 to constitute a claw which is adapted to engage or disengage the door when the lever is swung in one or the other direction. The horizontal members or arms 5 are formed with the vertically arranged pivots 7 which pass through and are adapted to turn in the upper and lower brackets or pivot-bearings 8, and the pivots form parts of bifurcations 9 of the lever 3, all in such manner that when the lever is swung into a position opposite the sliding door, as shown in Fig. 2, the hooked tail-piece, formed by the claw or members 5, will engage recesses 10 formed in the door near one end thereof, and thereby tightly close the door against one end of the frame 2. The lever is adapted to be locked in position for securing or holding the door closed through the medium of a locking-bolt 12, loosely connected with a bolt-carrying bracket or plate 13, and designed to engage or pass through the loop or hook 4 and be secured by a suitable hasp-lock 15.

The bolt-carrying bracket or plate 13 is provided with a horizontal pin 16 near its upper end, which is supported at its outer extremity by a bent portion 17 of the bracket or plate 13. The pin 16 extends through a longitudinal slot 18 formed in the locking-bolt 12, so that the latter is susceptible of moving lengthwise on the pin 16, and also of rotating thereupon in a vertical plane. The extremity of the locking-bolt is adapted to pass through a keeper, which, as here shown, is formed by a lateral, bent portion 20 of the bracket or plate 13, which bent portion 20 is formed with a bolt-hole 21 and a pendent flanged portion 22, having a slot 23 with which a slot 24, in the extremity 19 of the locking-bolt, is adapted to register, in such manner that when the locking-bolt 12 is engaged with the loop or hook 4 of the lever 3, and its extremity 19 is inserted through the bolt-hole 21 in the keeper 20, the hasp-lock 15, or any other locking device, can be passed through the slots 23 and 24, whereby the locking-bolt is securely fastened and the lever is locked in position to securely hold the sliding-door closed. The lock for engaging the keeper

and the locking-bolt may be any type of seal lock, or any other contrivance suitable for the purpose.

By the peculiar construction of the bolt-carrying plate and the locking-bolt, the latter is susceptible of being raised vertically to disengage its extremity 19 from the bolt-hole 21, whereupon the locking-bolt can be turned or swung in a vertical plane, for the purpose of permitting the hook or looped end of the lever 3 to be placed between the bent portion 17 and the keeper 20 of the bracket or plate 13, after which the locking-bolt is turned to a perpendicular position and slid downward in front of the lever, or through the hook or loop 4 thereof. The extremity 19 of the locking-bolt is passed through the bolt-hole 21, and is then secured by a suitable lock, as hereinbefore explained. The bent portion 17 of the bracket or plate 13 is so constructed as to constitute a support to sustain the locking-bolt in the position represented in Fig. 1, for which purpose the said bent portion 17 is cut away at a point below the pin 16 to form a stop-shoulder or rest, against which the body of the bolt lies when turned to an approximately horizontal position as will be clearly understood by reference to Fig. 1. The locking-bolt is provided with a suitable arm 26, by which to raise and lower and swing it on the pin 16.

The recesses 10 in the sliding car-door are of a depth sufficient to accommodate the bent extremities 6 of the members or arms 5, and preferably the edges of the recesses are reinforced by metallic binding plates 27 secured in position by suitable fastenings 28. It is obvious that the hooked tail-piece of the lever formed by the claw members 5 with their hooked extremities 6 can be caused to engage the door by means other than the recesses 10, so that when the lever is swung to its locking position, the hooked tail-piece or claw members 5 will operate to tightly close the sliding-door and hold it closed when the lever is properly secured.

When the lever is in its unlocked position and lies opposite the side wall of the car, as in Fig. 1, it is desirable that it be retained in this position by simple devices, so that it will not loosely play back and forth, or swing on its pivotal attachment. To accomplish this object, I provide the lower bracket or pivot-bearing 8 with an upwardly projecting flange 29 having the upper edge of one end portion beveled or inclined, as at 30, the construction being such that when the lever is swung to its unlocked position it will descend, and the lower member or arm 9 will lie in rear of the inclined extremity of the flange 29, whereby the locking-lever is held against violent swinging motions, although it can be readily swung to its locking position by a force applied to one end sufficient to cause the lever to rise and the lower member or arm to ride over the vertical flange 29.

The brackets or pivot bearings 8 are constructed of two parts secured together by screws 31, whereby it is possible to readily apply the locking-lever to the brackets or pivot-bearings, and at the same time one section of the lower bracket or pivot-bearing can be readily constructed with the lever-retaining flange or stop 29, for the purposes above mentioned. It will be obvious that the flange 29 also serves the purpose of preventing the lever accidentally swinging to its unlocked position, because the lever will descend by gravity when in its locked position, and its lower member or arm 9 will lie behind the flange 29, or in a recess in the upper side of the lower bracket or pivot-bearing 8, thus preventing the door accidentally opening in transit, even though the seal-lock is broken.

The bar constituting the locking-lever is preferably squared at the portions where it engages the retaining flange or stop 29, so that the lever is more securely held when it drops down into engagement with said flange or stop.

The improved locking-lever serves the purpose of a brace to prevent bulging of the car-door, which is liable to occur from excessive pressure of the contents of the car against the car-door. The locking devices are all located outside the car and therefore are not in any manner interfered with by the contents of the car. By the novel construction of the lower bracket or pivot-bearing 8, by which a locking notch is provided for holding the locking-lever, the latter is held against the side of the door or against the side of the car, so that it will not in any manner interfere with passing trains.

The improved construction renders it possible to apply the seal without liability of its being broken by friction incident to the jarring movements or vibrations of the car when traveling, because there is practically no tension on the seal, and further the seal is brought to such a low position that it is convenient of access from the ground, whereby it is possible to seal the car without the use of a ladder, and also possible to conveniently examine the seals without the use of ladders or similar appliances.

The improved lever, in connection with the locking devices, is a very substantial addition to the strength of the door, and the lever acts as a brace, in such manner as to wedge and secure the door in its proper position without liability of bulging, which is likely to occur where a car is overloaded.

Having thus described my invention, what I claim is—

1. The combination with a stationary frame, and a door slidable in said frame, of a lever pivoted to the stationary frame and having its pivotal part extended into a hooked tail-piece which in the swinging movements of the lever engages and disengages the slidable door and when engaged therewith serves

to slide said door to its closed position, and means for securing the lever in its locked position, substantially as described.

2. The combination with a stationary frame, and a door slidable in said frame, of a bifurcated lever pivoted to the stationary frame and having the members of the bifurcations provided with hooks which in the swinging movements of the lever engage and entirely disengage the door and when engaged therewith serve to bodily slide the door to its closed position, and means for securing the lever in its locking position, substantially as described.

3. The combination with a slidable door, of a pivoted swinging lever having its pivotal part extended into a hooked tail-piece which engages and serves to tightly close the door, a bolt-carrying bracket having a pin and a keeper located below the pin and provided with a bolt-hole, said swinging lever adapted to enter the bracket and lie between the said pin and the said keeper, and a longitudinally slotted bolt mounted on the pin and adapted to slide lengthwise and swing thereupon and to enter the bolt-hole of the keeper for retaining the swinging lever in the bracket, substantially as described.

4. The combination with a slidable door having a locking-bolt adapted to receive a seal or lock, of upper and lower brackets or pivot-bearings, one of which is provided with a retaining flange or stop, and a swinging-lever having pivots engaged with the brackets or pivot-bearings and extended into hooked members or arms which are adapted to engage and tightly close the door, said lever having a portion which engages the said retaining flange or stop to hold the lever from free swinging movements, substantially as described.

5. The combination with a slidable door having recesses, of upper and lower brackets or pivot-bearings, one of which is provided with an upwardly projecting flange or stop, and a gravitating, bifurcated lever having pivots engaging the brackets or pivot-bearings and extended into hooked members or arms which engage the recesses of the door for closing the latter, and means for securing the lever in its locked position, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

WILLIAM H. KALDRIDER. [L. S.]

Witnesses:
FRANK J. ROSS,
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