

Feb. 5, 1924.

1,482,841

J. L. CROOK

SLIDING DOOR FOR CARS

Filed Jan. 26, 1920

2 Sheets-Sheet 1

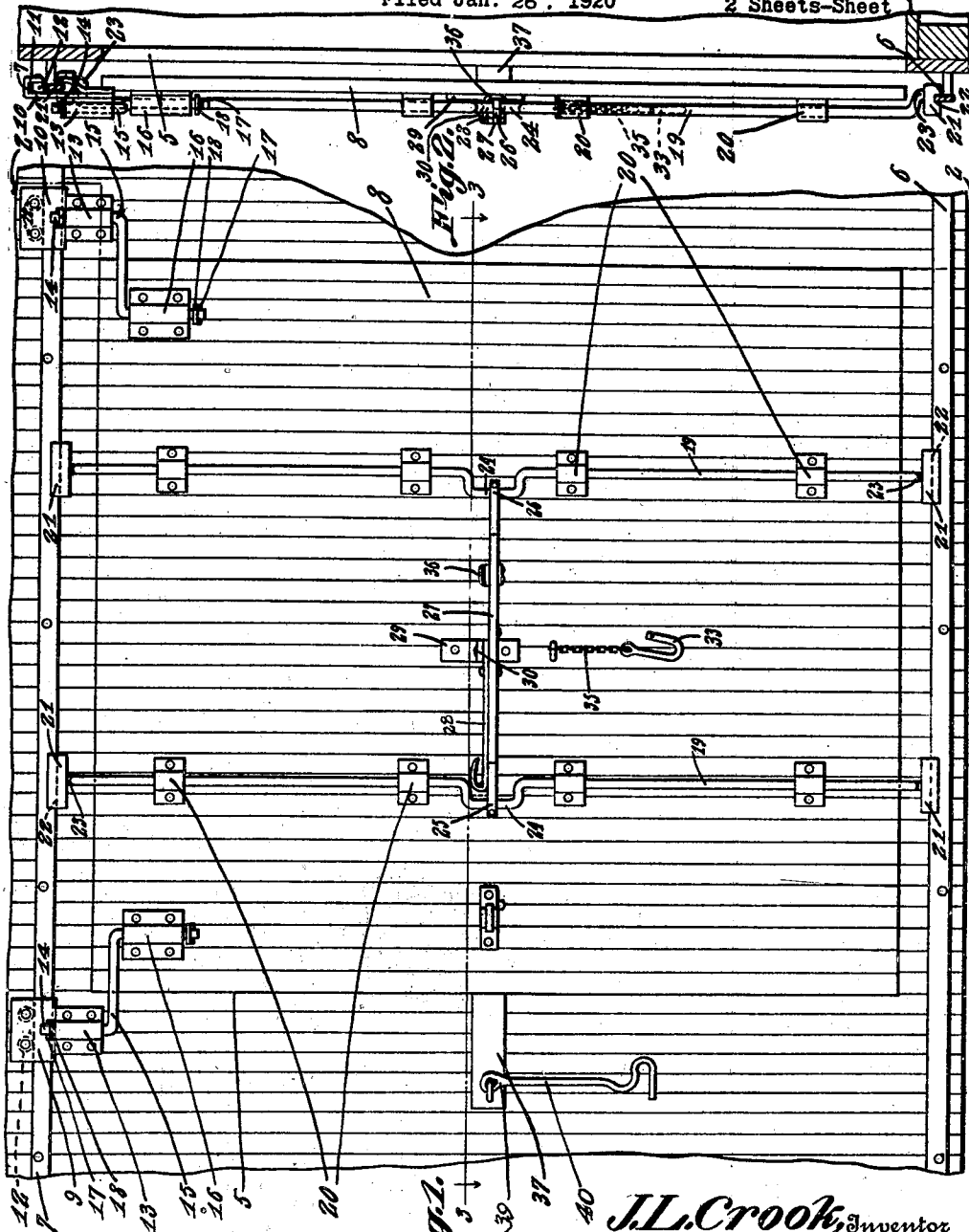


Fig. 1.

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2 Sheets-Sheet 2

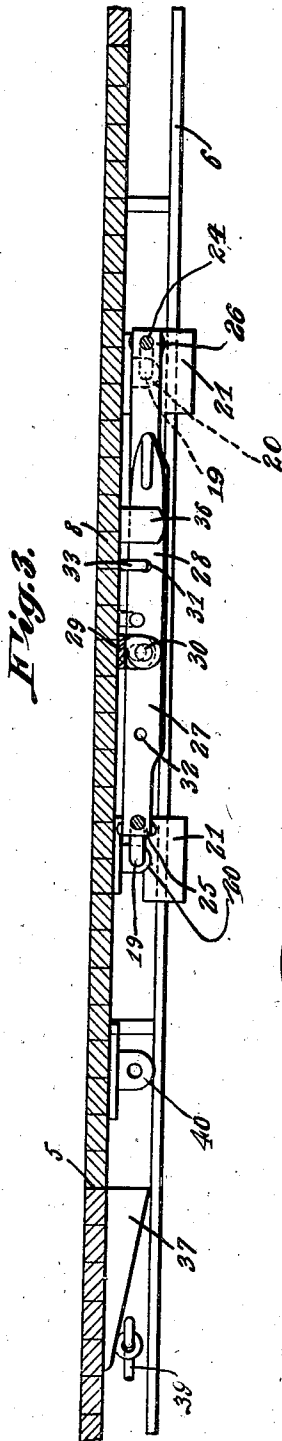


Fig. 5.

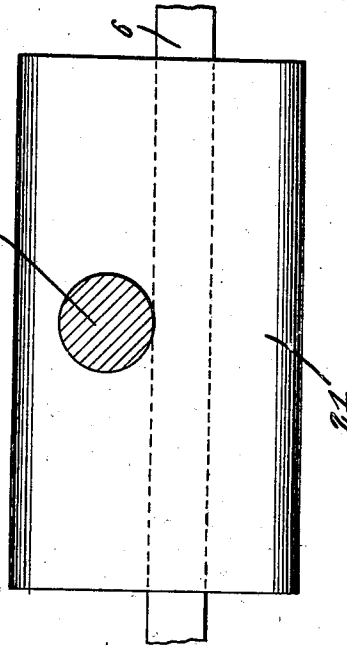
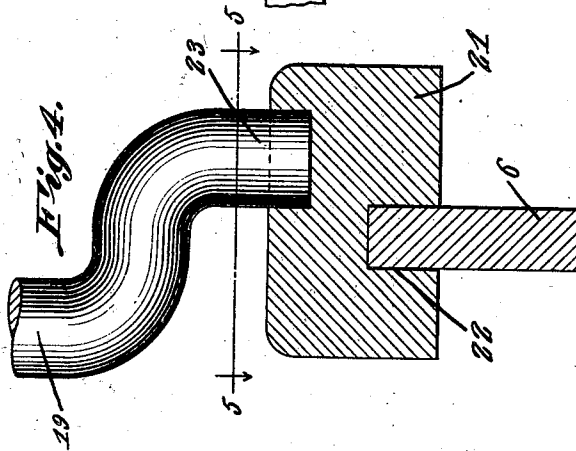


Fig. 4.



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UNITED STATES PATENT OFFICE.

JACOB L. CROOK, OF TOPEKA, KANSAS.

SLIDING DOOR FOR CARS.

Application filed January 26, 1920. Serial No. 354,160.

To all whom it may concern:

Be it known that I, JACOB L. CROOK, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented a new and useful Sliding Door for Cars, of which the following is a specification.

This invention relates to car door construction, and more particularly to freight car door supporting hangers.

The primary object of the invention is to provide a hanger which will permit the door to be locked in its open position to permit of free ventilation within the car and at the same time, prevent unauthorized persons from entering the car.

A further object of the invention is to provide a car door which may be moved within the door opening to be locked by the walls of the door opening in a manner so that the edges of the door will not extend beyond the outer surface of the side wall of the car.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:—

Figure 1 illustrates a fragmental side elevational view of a car supplied with a door constructed in accordance with the present invention showing the door in open position.

Figure 2 illustrates a sectional view taken on line 2—2 of Figure 1.

Figure 3 illustrates a transverse sectional view taken on line 3—3 of Figure 1 showing the door in closed position.

Figure 4 illustrates an enlarged detail view of one of the securing rods and shoes supported thereby.

Figure 5 illustrates a sectional view taken on line 5—5 of Figure 4.

Referring to the drawings in detail the device forming the subject matter of the present invention is shown as applied to the car door opening indicated at 5, the door proper being of a size to exactly fit within

the walls of the opening 5 so that the side walls of the door will lie in the same plane with the surfaces of the side walls of the car.

Extending longitudinally of the car, and disposed at points in close proximity to the upper and lower edges of the door opening 5, are the track-ways 6 and 7 which support the door 8 to permit the same to be moved longitudinally of the car to open or close the door opening 5.

The door 8 is supported by the hangers 9 and 10, each of which includes a hooked upper portion 11 providing opposed flanges for supporting the rollers 12, which rollers 12 operate on the upper track-way to facilitate the moving of the door to its open and closed positions.

A relatively long tubular bearing member 13 also forms a part of each of the hangers and accommodate the upwardly extending portions 14 of the hinge members 15, the opposite end of each of the hinge members 15 extending downwardly at right angles to the body portion thereof, and extend through a tubular bearing member 16 which in operation is secured to the door proper 8.

From an observation of the drawings, it will be seen that a bearing member of this character is supported adjacent each of the side edges of the door at the upper end thereof, to support the weight of the door and eliminate binding at the lower edge of the door, as is common by the constructions as now in use.

A securing pin 17 extends through each of the hinge members adjacent the ends thereof, which securing pins prevent displacement of the washers 18, to the end that the hinges are secured to the door against displacement longitudinally thereof.

Due to the construction of the hangers, it is obvious that the door 8 may move laterally from the door opening 5 and longitudinally along the tracks 6 and 7 to permit of access to the interior of the car so that the car may be loaded or unloaded.

In order to restrict the lateral movement of the car door 8, relatively long securing rods are provided, the same being indicated by the reference characters 19, and are secured to the door 8 by means of the cleats 20, which embrace portions of the rods 19 to allow of rotary movement of the rods 19 with-

in the cleats 20, and at the same time restrict longitudinal movement of the rods 19 with relation to the door 8.

Disposed on each end of the rods 19, is a shoe 21, which shoes are provided with cut out portions 22 adapted to straddle the track-ways 6 and 7 to permit the door 8 to slide longitudinal of the track-ways 6 and 7, and as shown, these shoes are supported on the offset portions 23 of the rods 19, so that rotary movement of the rods 19 produces a relative lateral movement of the door 8 to cause the same to move into its locked position, or from its locked position at the will of the operator.

Offset portions 24 are provided on each of the rods 19 intermediate the lengths thereof, and to these offset portions are secured the ends 25 and 26 of the connecting arm 27, which connecting arm 27 connects the rods 19 in a manner to cause the rods 19 to rotate within the cleats 20, upon manipulation of the connecting arm.

Associated with the connecting arm 27 is a controlling lever 28 which has one of its ends pivotally connected to the bracket member 29, which is bolted or otherwise secured to the door proper 8 at a point substantially intermediate the length of the connecting arm 27 and as shown, this controlling lever 28 has pivotal connection with the connecting arm 27, as at 30, with the result that movement of the controlling lever 28 results in a relative movement of the connecting arm 27 to cause the operation of the rods 19.

An opening 31 is formed in the controlling lever, and this opening 31, when the controlling lever 28 is moved to a position in parallel relation with the connecting arm 27, registers with the opening 32, which registering openings are provided for the purpose of receiving one end of the locking member 33, as shown by Figure 3, which is provided with openings to receive a seal of the usual construction, the locking member 33 being however secured to the door 8 by means of the chain 35, thus insuring the locking member 33 against displacement from the door proper.

A securing clip 36, has connection with the connecting arm 27, and is adapted to receive the operating lever 28, when the same is moved to secure the rods 19 in their locked positions. A door stop 37 is provided adjacent one of the end walls of the door opening, to which stop is secured the hook 39 adapted to pass through a suitable

opening provided in the plate 40, carried by the door, the hook member 39 being apertured to receive the usual seal now in use, for sealing the door.

In operation, assuming that the door is in its closed position as shown in Fig. 3, upon movement of the operating lever 28 to a position as indicated by Figure 1 of the drawings, the rods 19 are rotated within the cleats 20, with the result that the door 8 is moved from its position within the door opening, to a position in a plane with the outer surfaces of the car door of the car proper, with the result that the door may now be slid, or moved longitudinally of the track-ways 6 and 7, to open the car.

In the event that it becomes necessary to ventilate the car, and at the same time lock the car against unauthorized persons entering the same, it is only necessary to move the locking lever to a position as indicated by Figure 1 of the drawings, whereupon the locking means is positioned in the registering openings of the operating lever and connecting arm to cause the locking of the door.

It is therefore obvious that the door is now locked, and a substantial space is provided around the door to permit air to enter the car, however this space is not sufficiently large to permit a person to enter the car.

Having thus described the invention, what I claim as new is:—

In a sliding door operating mechanism, an upper track section and a lower track section, a laterally movable closure disposed between the track sections, and having cleats, securing rods operating in the cleats and having offset end portions, shoes movable on the track sections and having openings to receive the offset end portions of the rods, an arm connecting the supporting rods, a controlling lever having pivotal connection with the arm, a bracket member secured to the door, said lever having pivotal connection with the bracket member, said arm and controlling lever having registering openings to receive a locking member, and said controlling lever adapted to operate to move the door laterally.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JACOB L. CROOK.

Witnesses:

CHAS. M. ALLEN,
C. A. STERLING.