G. E. MERRITT.

DOOR LOCKING MECHANISM.

APPLICATION FILED APR. 12, 1913.

1,077,091.

Patented Oct. 28, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

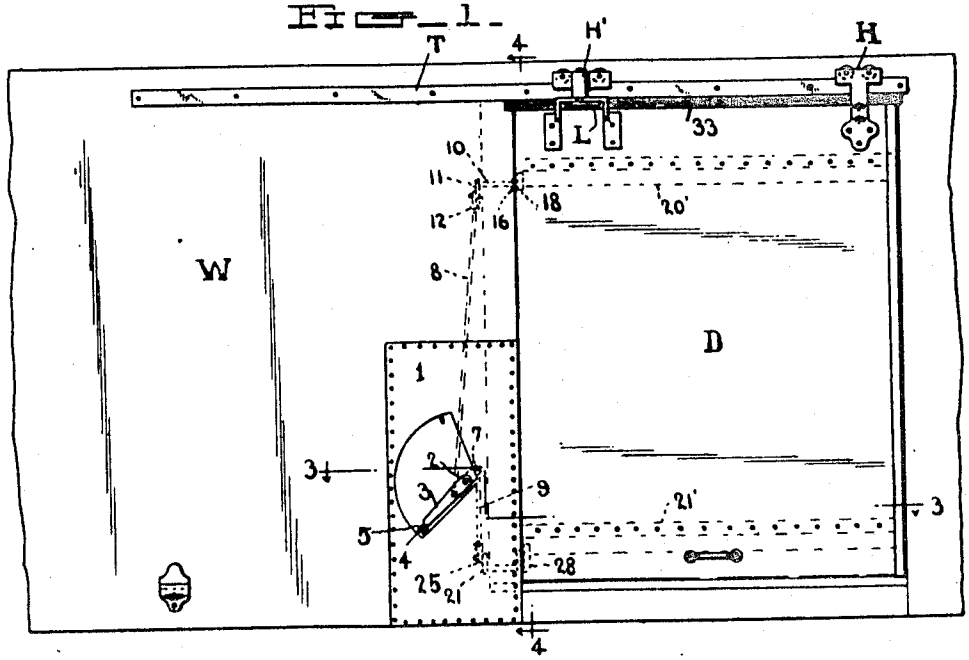


Fig. 2.

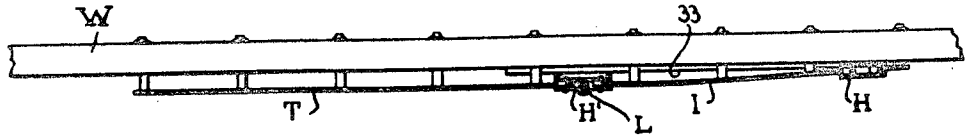


Fig. 3.

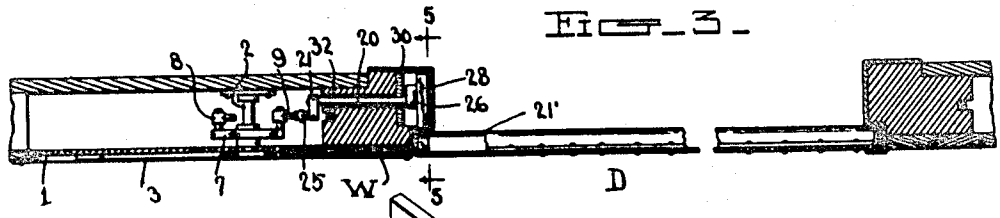


Fig. 8.

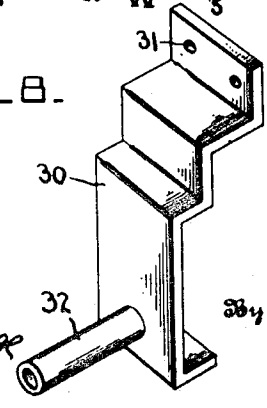
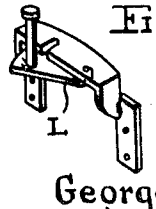


Fig. 9.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

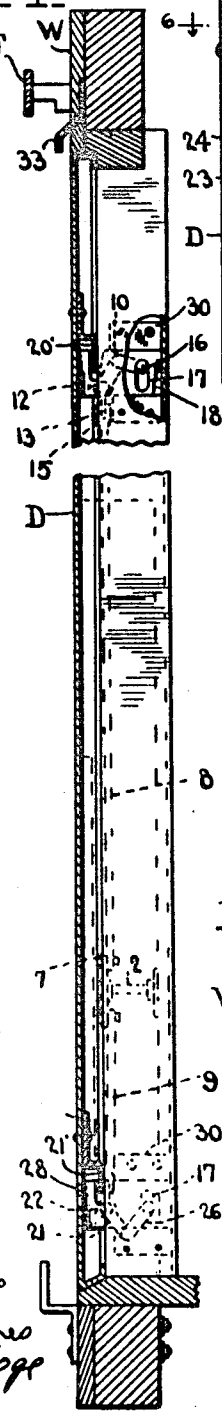


Fig. 5.

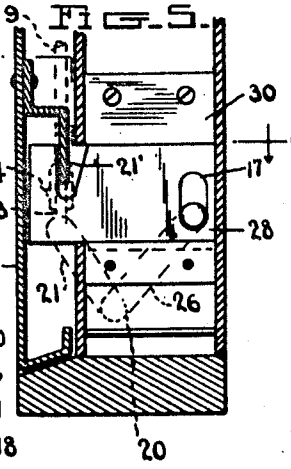


Fig. 7.

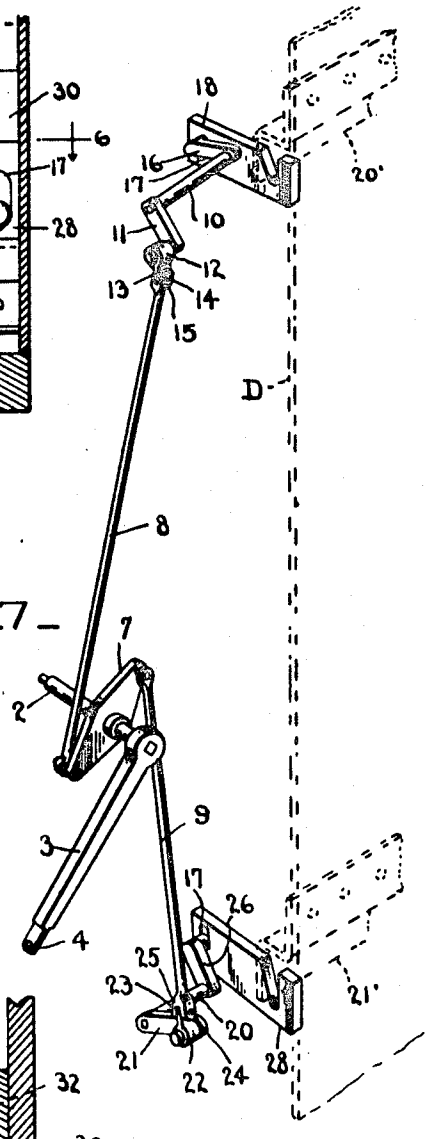
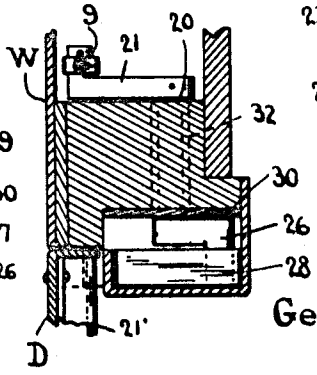


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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DOOR-LOCKING MECHANISM.

1,077,091. Specification of Letters Patent. Patented Oct. 28, 1913.

Application filed April 12, 1913. Serial No. 760,707.

To all whom it may concern:

Be it known that I, GEORGE E. MERRITT, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Door-Locking Mechanism; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to car doors, and more especially to those which have a lateral movement and are supported by a link connection with the hanger so that they may be moved out of the door opening and slid aside; and the object of the same is to produce an improved locking mechanism for car doors of this kind. This object is carried out by the construction hereinafter more fully described and claimed, and as shown in the drawings wherein—

Figure 1 is a side elevation of a portion of a car, with the door thereof closed and locked by my improved mechanism; Fig. 2 is a plan view of the parts shown in Fig. 2, and Fig. 3 is a horizontal section on about the line 3—3 of Fig. 1. Fig. 4 is a vertical section on about the line 4—4 of Fig. 1. Fig. 5 is an enlarged section on the line 5—5 of Fig. 3, and Fig. 6 is a section on the line 6—6 of Fig. 5. Fig. 7 is a perspective detail of the locking mechanism. Fig. 8 is an enlarged perspective detail of the bracket hereinafter referred to. Fig. 9 is an enlarged perspective detail of one of the hangers.

In the drawings the letter W designates the side wall of a box car, and D is a door supported by hangers H which travel on a track T carried by the car wall and extending over the door-opening, the track inclining inward above said opening as seen at I in Fig. 2 so that as the door is closed its front edge passes into the opening in a manner well understood. The rear hanger H′ is connected with the top of the door by a swinging link L as seen in Fig. 9, in order to permit the rear edge of the door to be pressed into said opening when it is closed, and the means for doing this and holding the door in that position constitute my improved lock.

Coming now to the details of the lock itself, the numeral 1 designates a casing or housing carried by the car wall behind the door, all as shown in Fig. 1 at the left side of the door opening, and in this casing is mounted a rock shaft 2 having a handle 3 by means of which it may be oscillated, the free end of the handle being shown in Fig. 7 as having an eye 4 adapted to engage a staple 5 (see Fig. 1) through which latter may be passed a padlock for holding the door in locked position. The shaft 2 carries a double crank 7 from one arm of which a rod 8 extends upward and from the other arm of which a rod 9 extends downward, and the remote or outer ends of the rods are connected with the mechanism for moving both the upper and lower portions of the rear edge of the door in a manner to be explained.

The numeral 10 designates a double crank shaft mounted in suitable bearings and having at one end a crank 11 which engages an eye 12 from which depends a tongue 13 pivoted as at 14 within a fork 15 at the upper end of the rod 8. In similar manner the numeral 20 designates a crank shaft whose crank 21 engages an eye 22 in a member having an upstanding tongue 23 which is pivoted at 24 in a fork 25 at the lower end of the rod 9. The inner end of the shaft 10 carries another crank 16 moving in a slot 17 in a sliding hook 18, and in similar manner the inner end of the crank shaft 20 carries another crank 26 moving in a slot 17 in a sliding hook 28. Thus it will be seen that by operating the rock shaft 2 by means of its handle 3, both double crank shafts 10 and 20 will be rocked and their cranks 16 and 26 will slide the hooks 18 and 28 in suitable guides which are provided for that purpose.

Near the upper edge of the door it carries on its inner face a depending flange 20 whose lip engages the hook 18, and near its lower edge it carries another flange 21 whose lip engages the hook 28; and as the two hooks are moved inward with respect to the car wall W the door is of course caused to move inward into the door opening. If now the handle 3 be locked, it will be impossible to move the door out of the door opening and then to the left or to open position. On the other hand, when the handle is swung to the other extreme of its movement the hooks are projected and the two flanges and with them the door moved

outward, so that the rear edge of the door clears the frame at the rear (or left) side of the door opening, as the link L of the hanger H′ permits, and then the door can be moved to the left in a manner which will be clear. The bracket 30 shown in Fig. 8 is attached to the post of the door frame by screws or bolts passing through holes 31, and this bracket carries a sleeve 32 which affords a bearing for the double crank shaft 10. A similar bracket is provided for the lower double-crank shaft 20, and its sleeve 32′ is seen in Fig. 3. By preference the car wall carries a sheet-metal guard 33 on its outer face above the door opening, as indicated in Fig. 4, to prevent rain and snow from beating into the car above the door when the latter is closed. In the drawings I have shown the door as of sheet-metal construction, but its details are not essential to the successful operation of this invention. So also with respect to the hangers, save that the left-hand hanger in Fig. 1 must be of that type which has a link L on which the rear edge of the door may swing outward from the door opening or into it, as well understood with doors of this type. The proportions and details of parts are not essential. The function of the double pivot connection between the cranks 11 and 21 and the rods 8 and 9, is to permit the eyes to turn in a plane with the cranks on the double crank shafts at the same time that the rods move in a plane at right angles thereto and parallel with that of the double-cranks 7 on the rock shaft 3, which follows from the construction of parts, because the rock shaft 2 projects through the car wall and at right angles to it whereas each of the double crank shafts stands parallel with the car wall because the hook which it actuates must move transversely of the wall as will be clear.

What is claimed as new is:

1. In a car door locking mechanism, the combination with the car wall having a door opening, a track extending along the former and over the latter and inclined inward at its front end, the door, and hangers supporting the door from said track and permitting its lateral movement relative thereto; of flanges extending across the inner face of the door near its top and bottom, hooks sliding in suitable guides and with their bills respectively engaging said flanges and their bodies having upright slots, double crank shafts whereof the inner cranks engage said slots, a rock shaft having an operating handle, a double crank on this shaft, and rods connecting its extremities with the other cranks of said crank shafts, for the purpose set forth.

2. In a car door locking mechanism, the combination with the car wall having a door opening, a track extending along the former and over the latter, the door, and hangers supporting the door from said track and permitting its lateral movement relative thereto; of flanges extending across the inner face of the door near its top and bottom, hooks sliding in guides and respectively engaging said flanges, their bodies having upright slots, double crank shafts whereof the inner cranks engage said slots, eyes mounted on the outer cranks and each eye having a tongue, a rock shaft having a handle and a double crank, rods pivoted to the extremities of said crank and each having a fork in its outer end, and a pivotal connection between said fork and one of said tongues, for the purpose set forth.

3. A door-operating mechanism consisting of a rock shaft having a crank handle and a double crank, a pair of slidable members engaging the door, a pair of fixed brackets having sleeves, a crank shaft rotatably mounted in each sleeve and having a crank at one end engaging one of said slidable members and a crank at its other end, and an eye engaging said last-named crank and pivotally connected with one of the cranks of said operating mechanism.

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

GEORGE E. MERRITT.

Witnesses:
CHARLES EDW. KEYSER,
HERMAN C. MERRITT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."