

(No Model.)

E. Y. MOORE.
FREIGHT CAR DOOR.

No. 344,746.

Patented June 29, 1886.

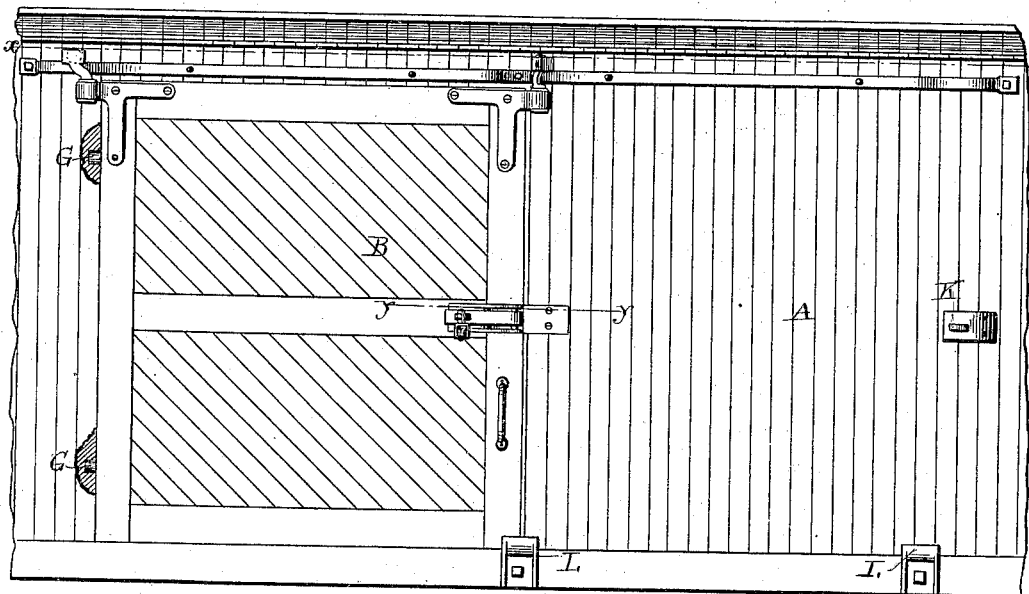


Fig. 1.

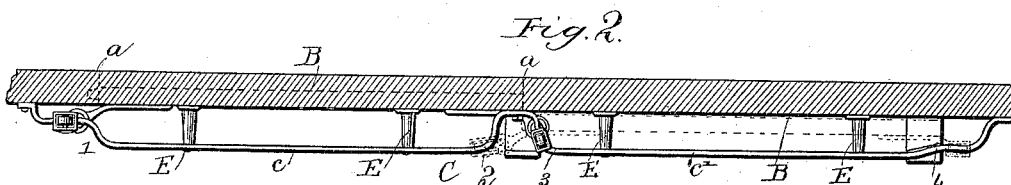


Fig. 2.

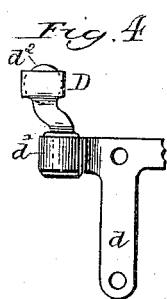


Fig. 4.

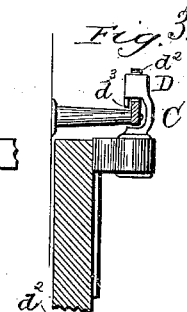


Fig. 5.

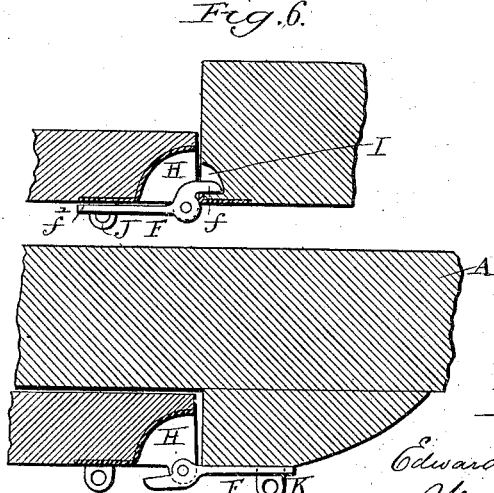


Fig. 6.

Witnesses,
Anton Scheninger,
Harris W. Hinchell.

Inventor,
Edward Y. Moore
By, *Wm. B. Lotz*
Atty.

UNITED STATES PATENT OFFICE.

EDWARD Y. MOORE, OF EVANSTON, ASSIGNOR TO THE MOORE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

FREIGHT-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 344,746, dated June 29, 1886.

Application filed May 4, 1886. Serial No. 201,042. (No model.)

To all whom it may concern:

Be it known that I, EDWARD Y. MOORE, a citizen of the United States of America, residing at Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Freight-Car Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in doors, more particularly adapted for freight-cars, and of that class wherein the door is supported and guided so that it may be closed into the doorway or opened out from the same and run back alongside the car-body.

15 The objects of said improvements are to permit the door to be opened or closed without detaching said door from the means that are employed for guiding it; to provide means whereby during the act of opening or closing the door the latter shall be guided in a plane parallel to the side of the car-body, and likewise in directions oblique to said plane, the movement of the door in a plane parallel with the side of the car-body serving to bring the door into or out of register with the doorway, and its movement oblique to said plane serving to bring the door either into or out from the doorway, and, when so desired, also serving to bring the door close up against the side of the car after the door has been run back to a suitable extent from the doorway; to provide means for holding the door securely within the doorway when it is desired to close the latter; to provide a novel construction of latch available for locking the door in a closed position, and for holding the door after the latter has been opened and run back alongside the car, and to provide certain novel and improved details tending to facilitate the opening and closing of the door of the freight-car, and to add to the serviceability and efficiency of the door.

20 To these and other useful ends my invention consists in matters hereinafter described, and particularly pointed out in the claims.

25 In the annexed drawings, which illustrate the principles of my invention, Figure 1 represents a side elevation of a portion of a car-body with my improvements applied. Fig. 2

represents a horizontal section taken through one side of the car-body on the line *x x*, Fig. 1. Fig. 3 is a detail representing in section a portion of the door, and in elevation one of the hangers secured to the door and supported upon the guide-rail. Said guide-rail is represented in cross-section, and is shown attached to one of the brackets that are employed for holding the rail out from the body of the car. Fig. 4 is a detail representing one of the hangers and a portion of the bearing to which said hanger is swiveled. Fig. 5 represents one of the hangers. Fig. 6 is a detail section on line *y y*, Fig. 1, with the door closed and locked by the latch. Fig. 7 is a similar view, the door, however, being open and alongside the car, with its latch swung into a position reverse from that of the preceding figure, and in engagement with a stop or catch whereby the door is held open.

30 In said drawings, A indicates one of the sides of a car, and B denotes the door, which when closed is received within and closely fits the doorway, with its outer side flush, or substantially so, with the outer surface of the side of the car-body, as illustrated in Figs. 2 and 6, in the former of which the doorway is indicated by the dotted lines A' and the door by the dotted line B. The door is hung from a rail, C, which is arranged horizontally along and supported from the side of the car-body. This rail occupies a position somewhat higher than the doorway, and extends along the side of the car not only the width of the doorway, but also beyond the latter to an extent fully equal to the width of the door when the latter is out from the doorway and in an open position alongside of the car-body, as indicated by dotted lines B, Fig. 2. This general reference to the length of the rail may, however, be supplemented by the remark that in practice the rail should be, and as herein shown is, made somewhat longer than double the width of the door, said length being desirable to provide a length of support affording ample accommodations for the means by which the door is hung from said support or rail. The door is hung or suspended from the aforesaid rail by means of hangers D, which have swiveled connections with the door, for pur-

50 body with my improvements applied. Fig. 2 represents a horizontal section taken through one side of the car-body on the line *x x*, Fig. 1. Fig. 3 is a detail representing in section a portion of the door, and in elevation one of the hangers secured to the door and supported upon the guide-rail. Said guide-rail is represented in cross-section, and is shown attached to one of the brackets that are employed for holding the rail out from the body of the car. Fig. 4 is a detail representing one of the hangers and a portion of the bearing to which said hanger is swiveled. Fig. 5 represents one of the hangers. Fig. 6 is a detail section on line *y y*, Fig. 1, with the door closed and locked by the latch. Fig. 7 is a similar view, the door, however, being open and alongside the car, with its latch swung into a position reverse from that of the preceding figure, and in engagement with a stop or catch whereby the door is held open.

poses hereinafter described. Preferably two of these hangers are employed, one being at each upper corner of the door.

While any suitable means may be employed for providing swivel-connections between the hangers and the door, a simple and efficient construction is herein shown, consisting of a T-plate, *d*, provided with a socket, *d'*, at the end of one of its horizontal arms. These T-plates or bearings are secured to the outer side of the door, adjacent to the upper corners thereof, and in position to bring their sockets beyond the vertical edges of the door, which said arrangement places the sockets in convenient positions to receive the lower end portions of the hangers, which are free to turn in said sockets, and thereby provide simple and effective swivel-joints between the hangers and the door. The hangers are provided with sheaves or rollers *d''*, which rest upon and are adapted to travel along the rail, and as a means for maintaining said sheaves or rollers upon the rail the hangers are desirably provided with guards *d'''*, which latter, in conjunction with the stems or body portions of the hangers, afford means for embracing opposite sides of the rail. The rail *C* may be formed in one continuous length, or it may be made in sections—for example, it could be made in two sections, one extending across the width of the doorway, and the other extending along the side of the car beyond the doorway. For convenience of description, however, this horizontally-arranged combined guide and support for the hangers is herein designated simply as a "rail." The rail is throughout its length parallel with the plane of the side of the car-body, and held in a position out or away from the latter except at four points, at which said points the rail is bent so as to curve inwardly toward and to the side of the car. These points of curvature occur in proximity to the sides of the doorway and at that end of the rail which is extended beyond, and which is the farthest away from said doorway. The ends of the rail can be secured directly to the side of the car, while between its said ends the rail can be held rigid by brackets *E*, attached to the side of the car and connected at intervals with the rail.

The four principal bends or curves in the rail are herein respectively designated by the numerals 1, 2, 3, and 4. The bend 1 occurs at a point substantially opposite one of the sides of the doorway and adjacent to that end of the rail which terminates near this portion of the car. The bend 2, while adjacent to the opposite side of the doorway, is in point of location desirably opposite the doorway-space. The curve or bend 3 is in point of location preferably just beyond this last-mentioned side of the doorway, and the curve or bend 4 is at that end of the rail which is prolonged beyond and farthest away from the doorway. Where the rail is in one continuous length, its lateral curves or bends 2 and 3 are conveniently formed by double-bending

the rail at a point intermediate of its ends, the rail being in such case secured to the car-body at a point between its two said bends. This arrangement provides, in effect, two guideways—one for each hanger—which said guideways stand out from the side of the car, except at their end portions, at which points the guideways are bent or curved inwardly to the side of the car, so as to form the lateral curves or bends hereinbefore specified. Of this said guideway or rail, regarded as a whole, the portion *c* is above the doorway, and the portion *c'* is beyond the latter. One of the door-hangers is hung upon the portion *c* of the rail, while the other door-hanger is hung upon the portion *c'* of the rail, as herein clearly shown.

As a result of the foregoing arrangement, the operation of opening and closing the door will be as follows: When the door is closed, it fits within the doorway, as indicated in dotted line, Fig. 2, and when in such condition the respective position of the two hangers upon the rail will be as shown in Fig. 1, and perhaps more clearly illustrated in full lines, Fig. 2, wherein it will be seen that one of the hangers stands back of the outer portion of the curve or bend 1, that is formed at one end of part *c* of the rail, while the remaining hanger stands a little back of the extreme outer portion of the curve or bend 3, that is formed at one end of part *c'* of the rail. The door when thus closed is securely held by means of a latching or locking device, *F*, adjacent to one of its vertical edge portions, and by means of studs or dowel-pins *G*, which are located along the opposite vertical edge of the door and arranged to enter sockets which are provided at the side of the doorway. In order to open the door, the latch or lock is opened or disengaged from the car-body, and the door is from its edge or end portion that carries the latch swung out to an extent to bring its hanger, which is hung upon part *c'* of the rail, onto the straight portion of the latter. During this preliminary movement of the door the dowel-pins will leave their allotted sockets, and the door will be brought into a plane outside of the body of the car, after which the door can be readily drawn or pushed back so as to clear the door-space. When the door arrives at a full open position, as in dotted lines, Fig. 2, it will lie alongside the car-body, one of the hangers being at such juncture upon the curve 2, and the other hanger upon the curve 4, the curvatures of the rail and the fact that the hangers are swiveled to the door permitting the latter when thus open to lie close against the car-body. The operation of closing the door is of course the converse of that just described. The swiveled hangers permit the door to be moved laterally toward and away from the side of the car-body, and likewise permit the door during the operation of opening or closing it to move into and out of a position oblique to the side of the car.

The fastening device consists of a latch, *F*, pivoted in a shell or case, *H*, which is fitted

within a mortise in the door, and which is preferably formed in a single casting. The catch I is located in one of the doorway posts or sides, and consists of a suitably-formed notch or recess, preferably lined with metal or formed by a metal socket fitted in the wood-work. The space within case H is of sufficient area to permit the catch end *f* of the latch to swing back from its engagement with the catch or socket I when it is desired to release the latch and open the door. The latch is fulcrumed at or near the edge of the door, and has two engaging ends—the one *f* being for the purpose hereinbefore described, and the other, *f'*, being adapted to serve as a hasp, which, when the door is closed and the latch in the position shown in Fig. 6, may fit upon an eye or staple, J, on the door, to which said eye or staple a lock or seal may be applied. This latch also serves to hold the door open, its hasp end *f'* being in such cases swung round, so as to fit upon an eye, K, arranged upon the side of the car. This eye is desirably formed upon a stop which serves to limit the extent to which the door may be pushed back or away from the doorway.

L L refer to guards arranged at the lower portion of the side of the car at the points mainly beyond the doorway, so as to prevent the lower portion of the door from swinging out from the side of the car to an extent beyond the appropriate limit. One of these guards is, however, so arranged as to stand at least in part opposite the doorway, so as to perform the prescribed service at this point.

With regard to the hangers, it may be observed that while the rollers are desirable, yet as an equivalent therefor the hangers can be provided with shoes or other like devices.

It will be obvious that the guide-rail could be attached to the car-body on a line below the doorway, in which case the hangers will be secured to the lower portion of the door and the guards placed upon the car-body, so as to prevent the upper portion of the door from tilting away from the car, such arrangement being evident equivalent of the hereinbefore described; and, if so desired, two guide-rails could be employed, the one over and the

other below the door, in which case the latter may be provided with upper and lower sets of swiveled hangers.

What I claim as my invention is—

1. The combination, with the guide-rail extending over and beyond the doorway, of the door provided with swiveled hangers projecting beyond the side edges of the door, which are hung upon the guide-rail, said guide-rail being curved at points 1, 2, 3, and 4, to permit the door to be closed into the doorway, and to be opened therefrom and run back alongside the car-body, substantially as described.

2. The door provided with swiveled hangers projecting beyond its side edges, in combination with the guide-rail provided with bends, whereby the door is transferred at both its edges from a position within the doorway to a position alongside of and substantially against the side of the car.

3. The door provided with swiveled hangers, in combination with the rail C, supported from the car-body, and provided with the bends 1, 2, 3, and 4, arranged from one side to the other in the order named, disposed with reference to the doorway substantially as described.

4. The door equipped with swiveled hangers, and at one edge provided with dowel-pins, in combination with the guide-rail upon which said hangers are supported, substantially as described.

5. The combination, with the car-body provided with the catch or eye K, of the door provided with a latch adapted to lock the door when closed, and to engage the said eye K when the door is in an open position alongside the car, substantially as described.

6. The car-door provided with the case H, fitted in one edge portion of the door, and the latch F, fulcrumed within said case, which latter permits the latch to be swung to either side, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD Y. MOORE.

Witnesses:

SAMUEL H. MOORE,
GEORGE REVETT.