(No Model.)

L. JACOBS.

CAR DOOR.

No. 577,960. Patented Mar. 2, 1897.

Fig 1

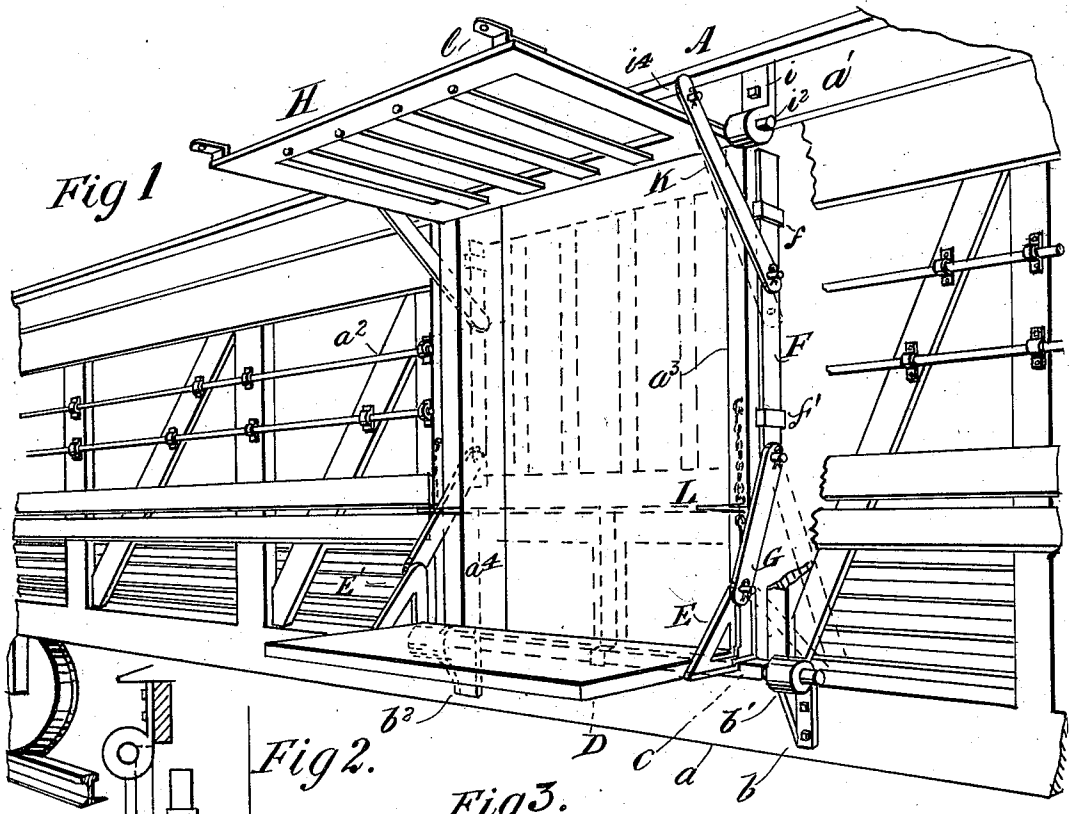


Fig 2.

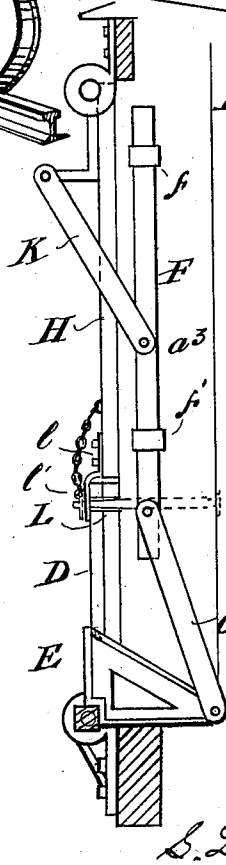


Fig3.

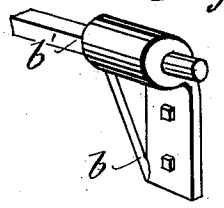


Fig4.

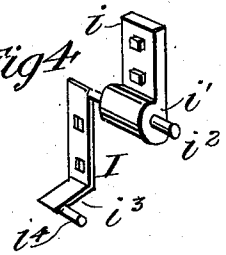
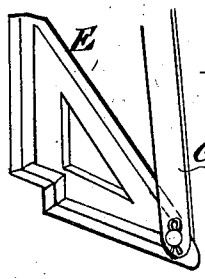


Fig5.



WITNESSES

D. L. C. Hasson

Wm Watson

INVENTOR

Leo Jacobs.

BY

Richards & Manning

ATTORNEY

UNITED STATES PATENT OFFICE.

LEO JACOBS, OF KANSAS CITY, MISSOURI.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 577,960, dated March 2, 1897.

Application filed October 15, 1896. Serial No. 608,941. (No model.)

To all whom it may concern:

Be it known that I, LEO JACOBS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Car-Doors; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention has for its object, primarily, a door for freight-cars composed of a conjointly movable folding platform and shutter or gate to freight-cars; and it consists in the novel construction and combination of parts hereinafter fully described, and specifically pointed out in the claim.

In the drawings, Figure 1 is a view in perspective of one side of a freight-car and of the laterally-extended platform and gate in position for use and the mechanism coacting to operate the platform and gate conjointly, the folded position of the parts being shown in dotted lines. Fig. 2 is a side view in detail of the vertical standard at the entrance to the car and end view of the gate and platform in a folded or a closed position, the pivoted operating-bars on the standard, and the connections with said bars and the gate and platform. Fig. 3 is a detail view in perspective of the socket-plate and socket for the bar supporting the platform. Fig. 4 is a detail view of one of the hinge connections for the shutter or gate. Fig. 5 is a detail view of the bell-crank lever connected with the end of the platform.

Similar letters of reference indicate corresponding parts in all the figures.

Referring to the drawings, A represents an ordinary stock-car for the transportation of goods, merchandise, stock, &c.

a is one of the longitudinal floor sills or beams on one side of the car. a' is the longitudinal face-plate on the side of the car extending downwardly a short distance from the roof of the car.

a^2 is the entrance or doorway in the side of the car.

a^3 is the vertical standard on one side of the entrance to the car, and a^4 is the vertical standard on the other opposing side of the entrance.

In carrying out the details of my invention, to the outer side portion of the sill a a short distance from the standard a^3 in the direction of the forward end of the car is bolted a hinge-plate b, to the upper edge and face of which is connected horizontally the socket b', which extends a short distance above the upper surface of sill a. To the sill a corresponding distance from the standard a^4, as described from standard a^3, in the direction of the rear end of car A, is bolted a hinge socket-plate b^2.

C is a horizontal bar, upon one end of which is a pivot c, which extends within the socket b'. Upon the other end of bar C is a pivot which extends within the socket on the plate b^2.

D is the folding platform, which extends in length from the outer edge portion of standard a^3 to the outer edge portion of standard a^4 and is bolted at one longitudinal side portion to the upper surface of the bar C. The platform D extends laterally from the sill a so far as is ordinarily required for bridging over the distance from the car and the depot-platforms or for the convenient transmission of freight to refrigerating-car or vehicles in proximity, and when folded in position extends upwardly, as shown in Fig. 2, to a point about one-third the described distance from the sill a to the upper part of the doorway or plate a'. To the bar C, close in position to the end of platform D and near the socket b', is attached fixedly a bell-crank lever E, one end portion or arm of the angle of which lever extends along the end of the platform a short distance and is suitably secured to said platform. At the other end of platform D and secured to bar C is a bell-crank lever E'. Upon the side of the standard a^3, which is in the direction of the forward end of car A and within the side wall of the said car and a short distance from the upper end portion of said standard, is attached a bar-guiding staple or plate f. At a point on the said standard below the staple or guide f and nearly equidistant from each end of said standard is a guide-plate f'. In said guide-plates $f\,f'$ is a sliding

bar F, the lower end of which bar extends a short distance below the fixed point of the guide-plate f'.

To the lower end portion of the bar F is pivotally attached one end of a short link G, the other end of which link is pivotally attached to the other arm of bell-crank lever E at an angle to that connected with the platform D.

H is the folding shutter, which consists of a rectangular frame of the same described length as that of platform D and extends outwardly in nearly a horizontal position from the side of the car over the entrance when in the open position as seen in Fig. 1, and when folded in position nearly to the upper edge of the platform D, when said platform is in the same folded position as seen in Fig. 2.

The folding shutter C is hinged to the side of the car in the following manner: To the face-plate a', above the entrance or the doorway to the car and in a vertical line with the socket-plate b' on the sill a of the car, is attached, by suitable bolts, a hinge socket-plate i, the socket i' extending a short distance below the lower edge of the face-plate a'. To the upper or outer side and end of the shutter or gate H and extending from one longitudinal side of said shutter in the direction of the other side is attached a hinge-plate l. At the rear end of plate l, which extends toward the face-plate a' of the car A, is a pin i^2, which extends at right angles to said plate and within the socket i' on the said plate a'. The forward end of the plate l, which extends a considerable distance along the edge of the frame or shutter H, is bent upwardly a slight distance, as at i^3, and a pin i^4 extends laterally from the upper end of said bent portion i^3, the said plate and pin forming a crank. At the other end of the shutter is a hinged pin and socket, which is the same in construction and connected with the shutter and face-plate a', respectively, in precisely the same manner as the carriage-plate l. To the pin i^4 on plate l is pivotally connected one end of a link or bar K, the other end of which link is pivotally connected with the sliding bar F on the standard a^3 at a point a considerable distance beneath the guide-plate f. Upon the inner side of the standard a^2 in the direction of the rear end of the car is a sliding bar F', arranged on suitable guides and with which is pivotally connected a link K', which is pivotally connected with the shutter H, and also a link G', which is pivotally connected with the bar F' and bell-crank lever E', all of said parts being constructed and arranged in position, in precisely the same manner as described, on the shutter on standard a^3.

The platform D is nearly twice the thickness of the shutter or gate H, and for the purpose of fastening the platform and gate when in a closed or folded position a bolt L is rigidly connected with the front side portion of the standard a^3, which extends between the lower edge of the gate H and the upper edge of the platform D when in a closed position. On outer side and lower edge portion of the gate H is a hasp, which extends over the bolt L, which bolt is also perforated transversely and provided with a locking-pin l'. Upon the standard a^4 is a bolt and at the other end of gate H is a hasp, which is the same as the bolt L and hasp hereinbefore described.

In the operation of my improved car-door, the parts being in a folded position, as seen in Fig. 2, and the locking-pin being removed from the bolt L, sufficient power is applied to the platform D to vibrate the upper end outwardly and downwardly to the position seen in Fig. 1. In this movement of the platform D the bell-crank levers E E' push upon the levers G G', which are forced upwardly, and said movement operates the sliding bars F F', which in turn communicate movement to links K K', and the gate or shutter H is vibrated in an outward upward direction to a position as seen in Fig. 1, the weight of the platform D being overbalanced by the weight of the gate or shutter H, and the crank-arm formed by the pin i and plates l i^3 accelerate the movement.

My improved door may be employed in connection with the ordinary inside sliding doors to baggage-cars, the platform serving to facilitate the transmission of baggage and the shutter H affording shelter from rain. For freight-cars carrying live stock and cattle the danger of crowding and accidents in disembarking is avoided, the platform exceeding the width of the entrance to the doorway and the surfaces of the standards being free from obstructions or floor-fastenings of any description.

My invention is such as to enable the weight of the shutter to readily raise the platform as soon as the platform is raised at its vibrating side portion above the horizontal.

Having fully described my invention, what I now claim as new, and desire to secure by Letters Patent, is—

The combination with a car having an opening or doorway in its side walls and with the standards on each side of said opening of a vibrating shutter hinged at one side to the side of the car above the said doorway and a crank connected with and extending outwardly from the end portion of said shutter at a suitable distance from the hinged portion of the shutter in the direction of the vibrating portion, sliding bars arranged in suitable guides on said standards and a link pivotally connected at one end with the upper end of one of said sliding bars and with the crank on said shutter at the other end, a rocking bar journaled at each end in suitable sockets on the side of the car beneath the doorway and a bell-crank lever connected with said bar,

and an outwardly-extended vibrating platform adapted to close the doorway conjointly with the shutter connected at one side with said rocking bar and with one arm of said bell-crank lever and a link pivotally connected at one end with the other arm of the bell-crank lever and with the lower end of the sliding bar at the other end of said lever as and for the purpose described.

LEO JACOBS.

Witnesses:
FRANK TITUS,
A. L. GREER.