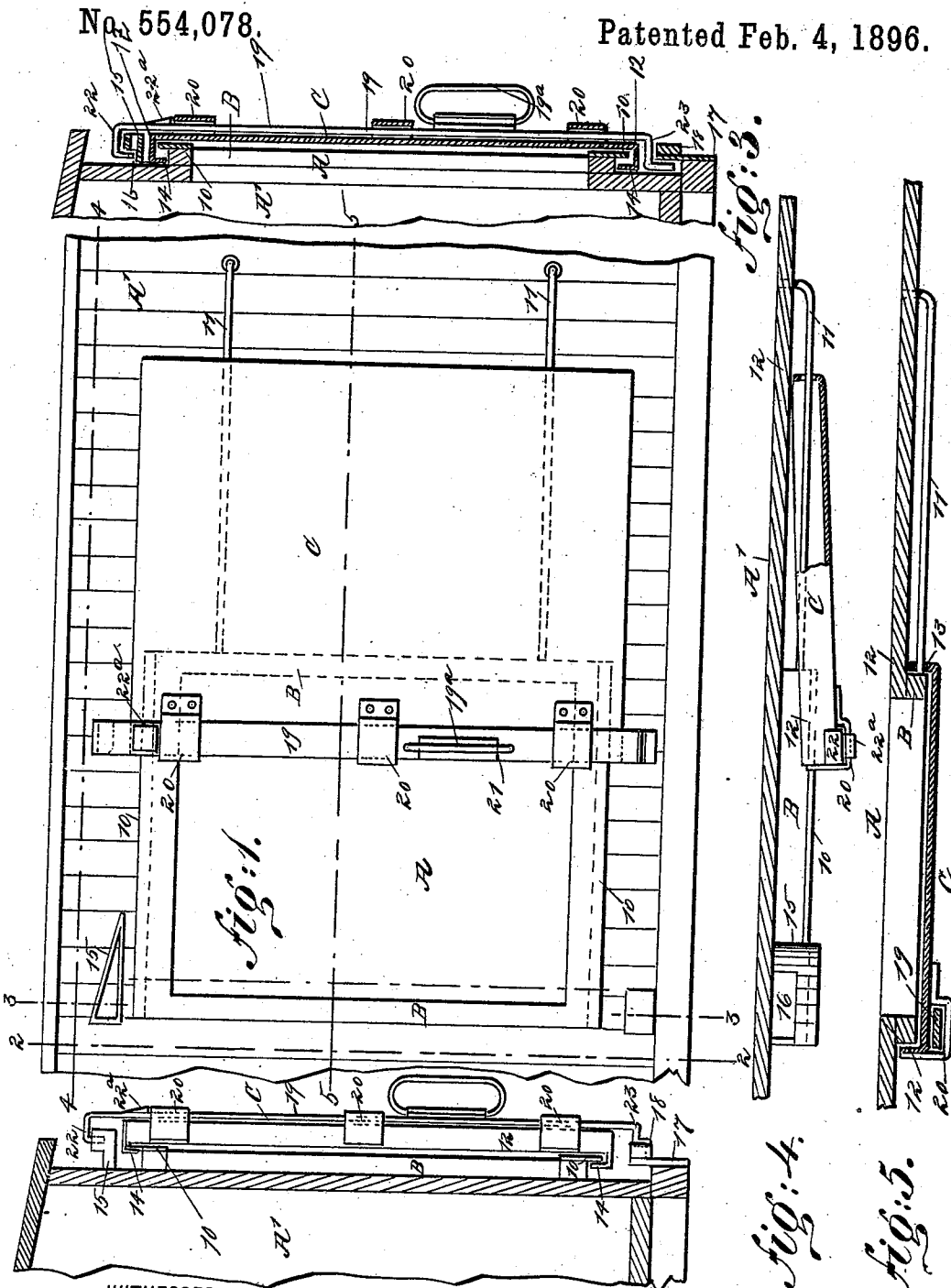


(No Model.)

J. J. MULLIGAN.
CAR DOOR.

No. 554,078.

Patented Feb. 4, 1896.



WITNESSES:

Chas. Nida
Protector

fig. 2

INVENTOR.

J. J. Mulligan
BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN J. MULLIGAN, OF VICKSBURG, MISSISSIPPI.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 554,078, dated February 4, 1896.

Application filed July 6, 1895. Serial No. 555,161. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. MULLIGAN, of Vicksburg, in the county of Warren and State of Mississippi, have invented a new and useful Improvement in Car-Doors, of which the following is a full, clear, and exact description.

My invention relates to an improvement in car-doors, and especially to an improvement in the doors of freight-cars; and the object of this invention is to provide a freight-car door, or a door for similar purposes, which will be exceedingly tight when closed and which may be opened in an expeditious and convenient manner, being guided in its opening movement and held in proper relation to the body of the car.

Another object of the invention is to provide a means whereby when the door is brought to the closing position it will substantially automatically lock itself, and, furthermore, to provide a means whereby the door while being strong may also be made quite light, and will be economic and durable in construction.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a portion of a freight-car, illustrating the door in a partially-open position. Fig. 2 is a vertical section taken substantially on the line 2 2 of Fig. 1. Fig. 3 is a similar view taken substantially on the line 3 3 of Fig. 1. Fig. 4 is a horizontal section taken practically on the line 4 4 of Fig. 1, and Fig. 5 is a similar section taken on the line 5 5 of Fig. 1.

In carrying out the invention the usual door-opening A is provided in the car-body A' either at the side or at any other desired point. The said door-opening is provided with a box-frame B, which surrounds it, and this box-frame carries at top and bottom a flange 10, which is substantially flush with its outer face, and therefore removed a distance from the vertical plane of the car-body. Tracks 11 are secured to the aforesaid box-

frame B, at one side thereof, in any approved manner, and these tracks are carried horizontally a predetermined distance along, for example, the side of the car, being removed a predetermined distance from its side face, and the outer extremities of these tracks are fastened securely to the aforesaid car-body, as shown best in Figs. 4 and 5.

The opening A is adapted to be closed when desired by means of a sliding door C, and this door, which is preferably made of metal, although it may be made of other material, is formed with a marginal flange 12, and the door is of such proportions that the flanges thereof will fit over the box-casing B surrounding the opening A. What may be termed the "rear flange" of the door is provided with apertures or openings 13 to receive the tracks 11, and these openings are of greater width than the width of the tracks in order that the door may have play on the tracks to and from the car-body. The flange of the door at top and bottom is provided with a lip 14, extending downwardly from the inner edge, and these lips are carried inward to such an extent that they will engage with the rear faces of the flanges 10 at top and bottom of the door-opening, thus providing a guide for the door C while it is being closed over the opening and being opened out therefrom, as is shown in Figs. 2 and 3.

By reason of the box-casing B the door may be carried outward a considerable distance from the side of the car, or inward, as shown in Fig. 3.

Over what may be termed the "closing-stile" or "margin" of the door-opening A a substantially triangular block 15 is secured to the side of the car immediately above the upper flange, 10, the contracted end of which block faces that side of the door-opening past which or near which the door C will travel when opened. Therefore this block 15 is placed over the closing-stile of the said opening, as is best shown in Fig. 1. The block 15 is so placed that its upper face will be an inclined plane, and in the upper face of the said block, adjacent to the car, a slot 16 is made, as shown in Fig. 4, adapted for the reception of the head of a latch to be hereinafter described.

Below the closing-stile of the door-opening

A keeper 18 is located, which is preferably secured to a vertical plate 17 attached to a side sill of the car, as shown in Fig. 2, but this keeper may be otherwise secured if in practice it is found desirable, so long as the keeper is removed from the face of the car at its inner edge substantially the same distance that the inner edge of the slot 16 is removed from the same surface.

The door C is provided at what may be termed its "forward" end, or that which is to cover the closing-stile of the door-opening, with a vertical latch or bolt 19, the said bolt being adapted to have vertical movement in guides 20 secured to the aforesaid door, and the bolt is provided with a loop or handle 19^a, whereby it may be raised and lowered. The upper end of the bolt is provided with a latch-head 22, so shaped that it may extend over the inner edge of the slot 16 of the inclined plane or block 15 when the door is closed over the opening A, being adapted to ride up the said plane as the door is being closed, and the downward movement of the said bolt is limited by a stud 22^a, or other form of projection on its outer face and above the upper guide, 20.

At the lower end of the bolt a second latch-head, 23, is made, which is of angular construction and adapted when the door is closed and the bolt is in the upper position to be within the plane of the inner face of the keeper 18 or the support thereof, and in operation, when the door is carried over the aforesaid opening A, the upper latch of the bolt will ride up the inclined plane, thereby drawing the lower latch-head, 23, upward above the keeper 18, and the door being in position to be closed, by pushing the door inward or in direction of the car-body, its flanges will fit over the casing or boxing B of the door-opening, and the bolt will be free to drop, its upper latch-head entering the opening 16 and its lower latch-head the space between the keeper 18 or its support and the side of the car-body.

Under this construction it will be observed that an exceedingly light and thoroughly weatherproof door may be provided for any freight-car or for a receptacle of similar character, in which the door may be conveniently slid over the opening to a closed position, the door being guided in either its opening or closing movement and being prevented from having other than a sliding movement at any time, and whereby, furthermore, when the door is closed a lock is provided which will bolt the door in substantially an automatic manner.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a car or other receptacle provided with a door-opening, a door having sliding movement over the said opening, a bolt carried by the said door, and keepers located at the top

and bottom of the aforesaid car-door opening, the upper keeper presenting an inclined plane to the door and being provided with a recess to receive the latch-head of the bolt, the lower keeper having also a recess to receive the lower latch-head of the bolt, as and for the purpose specified.

2. In a car or like receptacle provided with a door-opening, a boxing surrounding the said opening, an inclined plane located above the said boxing, and a keeper below the boxing, both inclined plane and keeper being at the locking-stile of the said boxing, a door having a marginal flange adapted to be fitted to the boxing of the said opening, guides upon which the door travels, emanating from the said boxing, and a bolt adapted for engagement with the inclined plane and the aforesaid lower keeper, as and for the purpose specified.

3. The combination, with a car or like receptacle having a door opening therein, a boxing surrounding the said opening, a keeper located above the locking-stile of the boxing, the forward face whereof is provided with an inclined plane, and a keeper located below the locking-stile of the said boxing, of a marginally-flanged door, the flange of which is adapted to fit over the boxing of the aforesaid opening, rails extending from the boxing in a horizontal direction and passing through the outer side flanges of the door, a bolt having sliding movement, located upon the said door and provided with upper and lower latch-heads, the upper latch-head being adapted for engagement with the inclined plane of the upper keeper and to enter the recess therein, and the lower latch-head being adapted for engagement with the lower keeper, as and for the purpose specified.

4. The combination, with a car or like receptacle having a door-opening produced therein, a marginal boxing surrounding the door-opening, a block or keeper located above the locking end of the boxing, the upper face whereof is inclined in direction of the rear stile of the boxing and is provided with a recess, and a keeper located below the said locking end or stile of the boxing and having also a receiving-recess, of tracks horizontally located and extending from the inner stile of the said boxing, being likewise secured to the car-body, a door having a marginal flange adapted to be fitted over the boxing of the said opening and having apertures in its flanges to receive the said tracks, a bolt having vertical sliding movement on the forward end of the door and provided with an upper and a lower latch-head, adapted to enter the recesses in the upper inclined keeper and in the lower keeper, as and for the purpose specified.

JOHN J. MULLIGAN.

Witnesses:

JOHN BRUNINI,
S. M. SHELTON.