(No Model.) 2 Sheets—Sheet 1.

# E. L. PHIPPS.

## CAR DOOR.

No. 513,414. Patented Jan. 23, 1894.

Fig. 1.

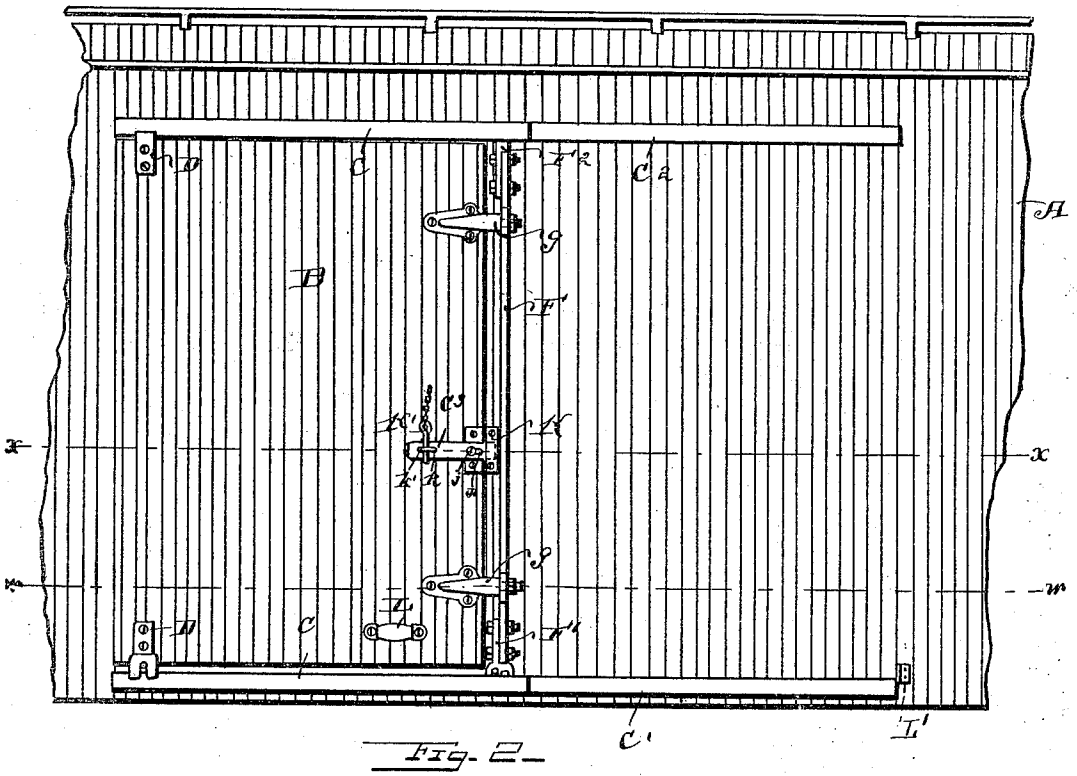



Fig. 2.

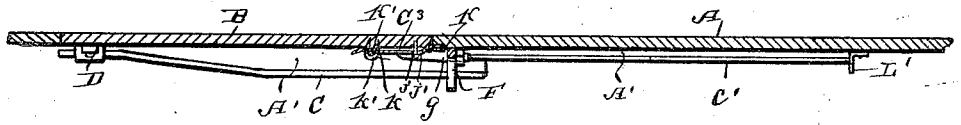
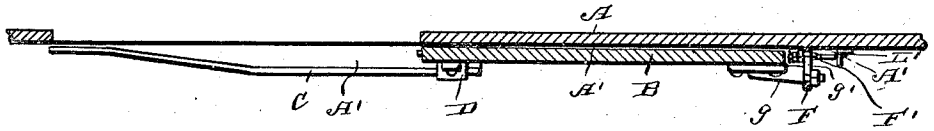



Fig. 3.

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(No Model.)

2 Sheets—Sheet 2.

# E. L. PHIPPS.

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No. 513,414. Patented Jan. 23, 1894.

Fig. 4.

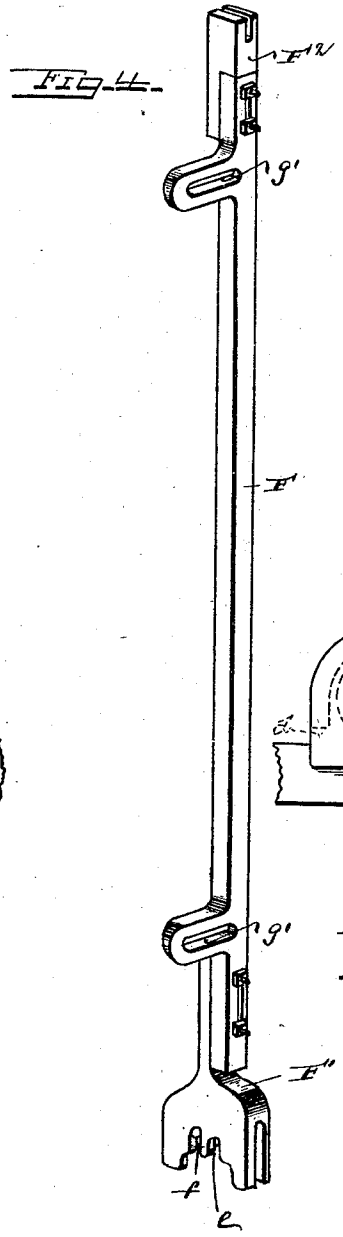


Fig. 5.

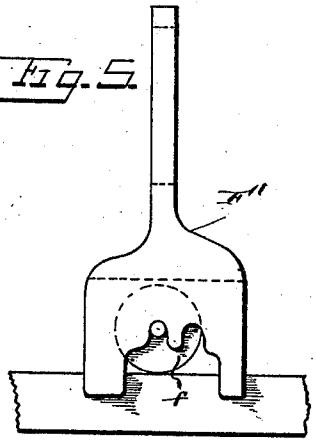


Fig. 6.

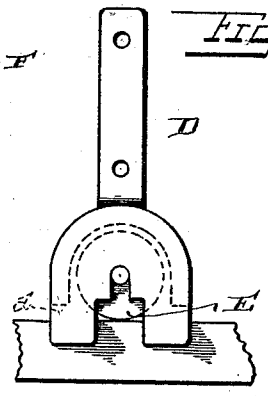


Fig. 7.

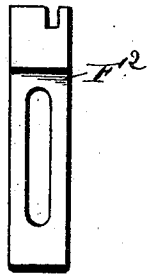


Fig. 8.


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# UNITED STATES PATENT OFFICE.

EDWARD L. PHIPPS, OF MILFORD, MICHIGAN.

## CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 513,414, dated January 23, 1894.

Application filed January 14, 1893. Serial No. 458,351. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD L. PHIPPS, a citizen of the United States, and a resident of Milford, in the county of Oakland and State of Michigan, have invented certain new and useful Improvements in Car-Doors; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of a portion of a car. Fig. 2 is a horizontal section on line *x*—*x*, Fig. 1. Fig. 3 is a horizontal section on line *w*—*w*, Fig. 1, with the door open. Fig. 4 is a detail perspective view of the vertical traveling bar. Fig. 5 is a front view of the lower runner F′. Fig. 6 is a front view of the lower runner D. Fig. 7 is a side elevation of the runner $F^2$. Fig. 8 is a side elevation of the upper runner D.

This invention relates to certain new and useful improvements in doors for freight cars, and it consists in the novel construction and combination of parts, all as hereinafter described and pointed out in the claims.

The object of the invention is to provide means for operating and supporting a door in such a manner as to enable it when closed to seat into the side of the car, and flush with the outer surface thereof.

Referring to the accompanying drawings, the letter A represents the side portion of an ordinary freight car, and B the door thereof. Secured to the side of the car, one above and one below the door, are cleats A′, A′, to which are secured tracks C. Secured to the upper and lower rear corner portions of the door, and projecting respectively above and below the upper and lower edge thereof, are runners D, which are recessed at *d* to embrace loosely the respective tracks. Journaled in the lower runner is an anti-friction roller E, which runs on the upper edge of the track.

F designates a vertical traveling bar, which is parallel with the forward edge of the door, and situated a short distance in advance thereof. Secured to the upper and lower end portions of said bar are runners $F^2$, F′, the lower of which runs on a track C′. The upper runner $F^2$ is recessed at its upper end to engage a track $C^2$. Said runners are preferably adjustably connected to the bar, in order that they may be adjusted to take up for wear, and the sag of the car. A second bearing *e* is usually formed in the lower runner F′ for adjustment of the anti-friction roller *f* when desirable, on account of the sagging of the car. Said rod or bar is connected to the door by means of short arms *g*, *g*, which project from the forward edge of the door, and loosely engage horizontal slots *g*′, in said bar, so that the forward edge of the door can swing outwardly. The tracks C′, $C^2$ throughout their length are parallel with the side of the car, but the tracks C upon which the rear runners run, for about one half their length, are inclined outwardly from the side of the car, from the rear end forward, and the rear end portions of the track C′ $C^2$ are overlapped a short distance by the forward portions of said tracks C.

$C^3$ designates a hasp loosely connected to the door by a pin *j* engaging a slot *j*′ therein. Said hasp at its forward end projects beyond the forward edge of the car, and when the door is closed, engages under a plate K on the car. The hasp also has a slot *k*′ to the rear of the slot *j*, which fits over a staple *k*′. To lock the door, a pin K′ is inserted through this staple. To open the door, the pin K′ is removed, and the hasp slid backwardly from under the plate K, and caused to take a bearing against the outer face of said plate, being used as a lever to throw the forward portion of the door out of its seat. The door may also be opened by pulling on the handle L after the hasp is disengaged from the plate K. In closing, the hasp may be caused to take a bearing under said plate and used as a lever to force the door into its seat. As the forward edge of the door is thrown outwardly, the arms *g*, *g*, move outwardly in the slots *g*′ of the bar F. The door is now pushed forwardly, and the runners D, running along the outwardly inclined portions of the tracks C, carry the door outwardly from its seat. A stop L′ limits the forward movement of the door. In closing the door, the runners D ride back on the inclined portion of the track, and

the runners F′, F² run onto the end portions of the tracks C′, C², which are overlapped by the tracks C. The forward edge of the door is then pushed back into its seat.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a car door, arranged to seat flush into the side of a car, of the tracks having the outwardly inclined portions, the runners on said door, the vertical slotted bar in advance of the forward edge of said door, the runners carried by said bar, and the arms carried by the door and having a loose connection with the slots in said bar, substantially as specified.

2. The combination with an inseating car door the outwardly inclined tracks above and below said door, and the runners traveling on said tracks, of the horizontally slotted vertical bar in advance of the forward edge of the door, the arms projecting from the door, and loosely engaging said slots, the runners carried by said bar, and the straight tracks traveled by said runners, substantially as specified.

3. The combination with an inseating car door, the outwardly inclined tracks above and below said door, and the runners on said door arranged to travel on said tracks, of the slotted vertical bar in advance of the forward edge of the door, arms projecting from said door, and loosely engaging the horizontal slots in said bar, the runners adjustably secured to the end portions of said bar, the upper and lower straight tracks traveled by said runners, and the hasp, substantially as specified.

4. The combination with an inseating car door, and the bearings for the rear portions thereof, of the horizontally slotted vertical bar in proximity to the forward edge of said door, runners or bearings carried by said bar, and engaging suitable tracks, and arms carried by the door and loosely engaging the horizontal slots of said vertical bar, substantially as specified.

5. The combination with an inseating car door, the outwardly inclined tracks above and below said door, and the runners on said door arranged to travel on said tracks, of the horizontally slotted vertical bar in proximity to the forward edge of said door, the arms carried by the door and loosely engaging the slots of said vertical bar, the runners or bearings carried by said vertical bar and traveling on suitable tracks, the slotted hasp connected to the door by a pin loosely engaging its slot, and the plate K on the car adapted to be engaged by said hasp, said hasp being arranged to act as a lever to throw the door into and out of its seat, substantially as specified.

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

EDWARD L. PHIPPS.

Witnesses:
PHILIP C. MASI,
GEO. H. PARMELEE.