

(No Model.)

C. M. HOLLINGSWORTH.
RAILWAY CAR.

No. 474,660.

Patented May 10, 1892.

Fig1.

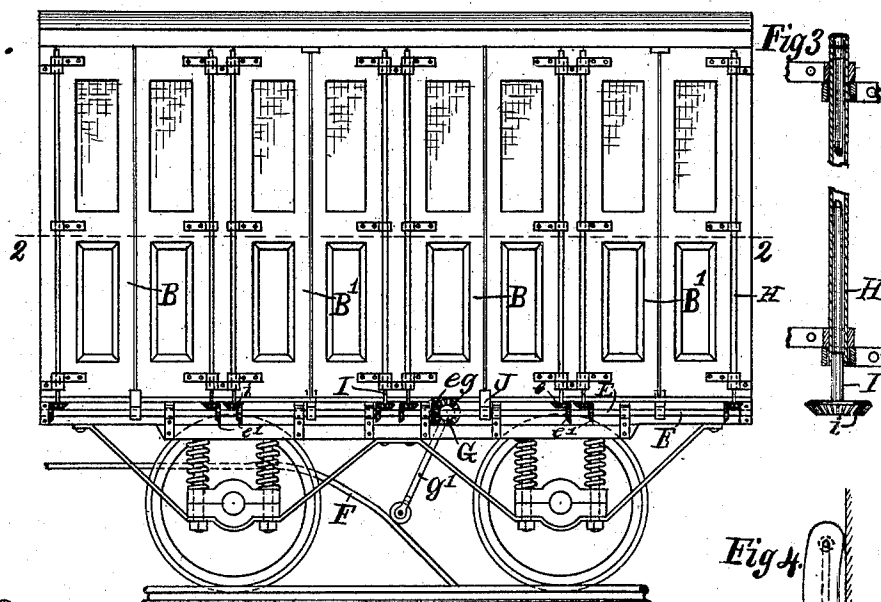


Fig2.

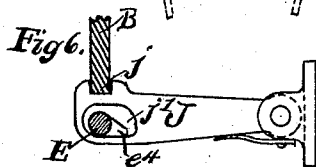
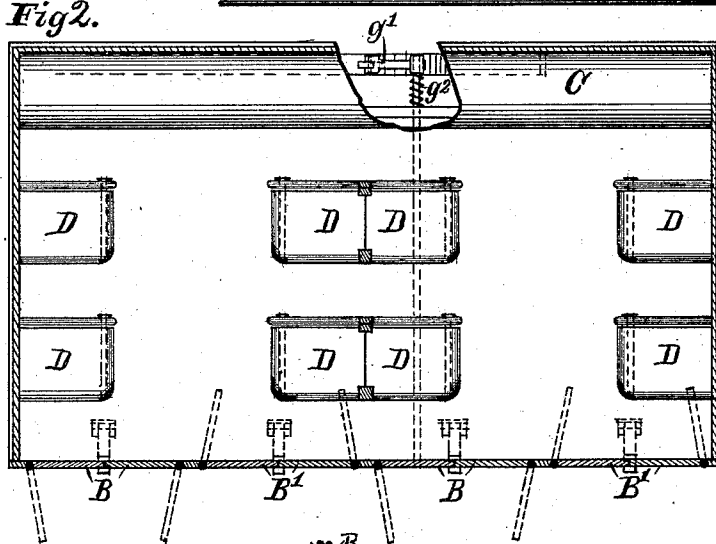


Fig3.

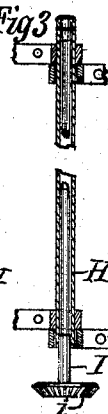


Fig4.

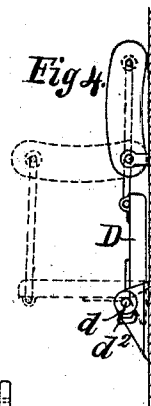
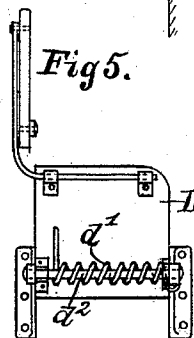


Fig5.



WITNESSES.

Frank Miller.

Albert H. Bates.

INVENTOR.

Charles M. Hollingsworth

By his attorney

E. L. Thurston

UNITED STATES PATENT OFFICE.

CHARLES M. HOLLINGSWORTH, OF CLEVELAND, OHIO.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 474,660, dated May 10, 1892.

Application filed July 25, 1891. Serial No. 400,768. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. HOLLINGSWORTH, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification.

The primary object of the invention is to provide improved facilities whereby a passenger-car may be quickly emptied and filled. The generic invention is adapted to any railway system; but the specific embodiment thereof, which is shown in the drawings and hereinafter explained in detail, is especially adapted to use in a railway system substantially like that described in my copending application, Serial No. 400,157, in which passengers are required to pass from the train to a transfer-platform or from said platform to the train while both are moving forward in fixed juxtaposition with each other. In the railway system above referred to passengers pass into and from the cars on only one side of the train. Therefore the car shown is provided with doors only on one side. If, however, it is desired to use the car in a system where the entrance and exit of passengers take place on both sides of the train, suitable doors may be provided on both sides of the car. No doors are shown at the ends of the car for the reason that in the railway system to which this particular car is especially adapted no necessity is believed to exist for providing means for the movement of passengers or train-men from one car to another. If it should be advisable to provide for such movement, suitable doors could be placed in the ends of the car.

I will now proceed to describe in detail the car shown in the drawings, and will particularly point out in the claims the features of invention therein contained.

In the drawings, Figure 1 is a side elevation of the car. Fig. 2 is a plan view of the same with the upper part of the car removed at the point indicated by line 2 2. Fig. 3 is a vertical section of part of the means for operating the car-doors. Fig. 4 is a side view, and Fig. 5 is a front view, of one of the folding seats when closed; and Fig. 6 is a detached view of the catch for holding the doors closed.

The car shown in the drawings is a short

car, mounted on four wheels. The length of the car and the number of its wheels may, however, be varied to suit the conditions under which it is to be used.

Referring to the parts by letters, A represents the car-body. On one side of the car are arranged the doors B B'. The doors are suitably hinged to the car-frame and are arranged in sets, as shown, of which one set swings outward and the next set swings inward. It is intended that passengers who are about to leave the car shall do so through the doorways of which the doors swing outward and that the passengers about to enter the car shall do so through the doorways of which the doors swing inward. The upper part of the doors may be provided with glass windows, through which light may enter the car and the passengers may look out.

Along the closed side of the car a seat C is placed, and folding seats D are fixed to the floor of the car in such relative position to the doors that when the seats are folded transverse aisles are formed leading to said doors. The seats are constructed in such a manner that when the passenger who has been sitting on one gets up the seat is automatically folded up, substantially as shown in Figs. 4 and 5. As shown in said figures, the seat D is hinged to suitable supports, as at *d*. The seats are adapted to swing up but not down from the horizontal position, and a spring *d'*, coiled around the hinge-arbor *d*², exerts its force to swing said seat upward.

A car having substantially the construction and arrangement of seats which I have above described is especially adapted for use on a road having no way-stations, but which transports passengers between two terminal stations only. When so used, the car is completely emptied and loaded each time there is any transfer of passengers to and from it. When, therefore, the point is reached where the transfers are to be made, the passengers will rise preparatory to leaving and the seats D will fold up, leaving almost the entire floor as space to be occupied by passengers passing into and from the car.

When the car is used in a railway system in which the transfers of passengers to and from it are made while the car is in motion and during the time the car remains in fixed

juxtaposition to a moving transfer-platform, the time during which said transfers may take place is limited. It is therefore desirable that everything shall be in readiness for the passage between the car and platform as soon as possible after they have come into the desired relation. I have therefore provided means whereby the doors of the car are automatically opened at regular points on the line, at which points it is intended that the car and platform will be in the necessary relation to each other. I therefore mount in suitable bearing along the lower edge of the side of the car on which the doors are placed a longitudinal shaft E, having the bevel-gear *e* rigidly secured to it. Beneath the car I mount the transverse shaft G, having on one end a bevel-gear *g*, which meshes with the bevel-gear *e*. A crank-arm *g'* is secured to the shaft G in such a position, substantially as shown, whereby it will strike against a tripping-piece F, arranged at the proper point alongside of the track. A coil-spring *g²* is placed around the shaft G and exerts its force to return said shaft to its normal position—that is to say, the position it occupies when the car-doors are closed—when the arm *g'* no longer engages with the tripping-piece F. This tripping-piece extends along the track nearly as far as the car and platform commonly remain in fixed relation to each other—that is to say, the tripping-piece ends just before the point at which the car and platform begin to change their relative position.

The pintle of the door-hinges is a tube H, and the leaves of the hinges which are attached to the door are rigid with said tube. I represents a torsion-spring rod, which extends through said tube. It is rigidly secured at its upper end to the tube, while a bevel-gear *i* is rigidly secured to its lower end, which extends below said tube. The bevel-gears *i* mesh with bevel-gears *e'*, which are secured to the shaft E.

J represents a transversely-disposed spring-catch, which is pivoted to the car at or about the floor-level. The notch *j* in the upper face of the outer end thereof fits over the lower edges of the doors B B' and prevents them from being swung open by any pressure against them. A slot *j'* is made in said catch J and the shaft E passes through it. A cam *e⁴*, secured to said shaft, operates in said slot, and when the shaft E is turned to operate the doors the cam forces the catch down and thereby releases said doors. If an emergency arises when it is desirable to open the doors at some point other than that at which they are opened automatically, a person by pressing his foot on the part of said catch just inside the door forces it down and leaves the door free to be opened. The torsion-spring rod I, which forms a part of the connection between the doors and the shaft E, will twist enough to allow a door to be partly opened without any movement of said shaft.

In practical operation the car in traveling

over the road will move to a point where the arm *g'* strikes the tripping-piece F. This rocks the shaft G, whereby the shaft E is likewise rocked. The first effect of the movement of the shaft E is to withdraw the catch J, after which the doors are swung open, the doors B swinging outward and the doors B' inward, the passengers rise, the seats fold up, thereby forming transverse aisles opposite the doors, and the passengers leave the cars through the doors B and enter the cars through the doors, B'. When the car passes the tripping-piece, the doors are automatically closed and latched.

Although the described car is particularly adapted to be used in the railway system above referred to, and although I have heretofore pointed out its peculiar features for such use I do not intend to limit the invention to use with said system or any other particular system. The invention contained in the car is independent of any specific use, and the invention may be used under any conditions to which it is applicable.

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

1. A railway-car having a series of doors along its side, a part of which swing outward and the rest inward, combined with seats arranged upon the floor of said car in substantially the manner described, whereby transverse aisles leading to said doors are formed, for the purpose set forth.

2. A railway-car having along its side a series of doors arranged in pairs, of which every other pair swings outward and the alternating pairs swing inward, substantially as and for the purpose specified.

3. In a railway-car, a series of doors along its side, combined with folding seats placed in the car, substantially as described, whereby when said seats are folded transverse aisles are formed leading to said doors, for the purpose specified.

4. In a railway-car, a series of doors along the side thereof and a longitudinal seat along the other side thereof, combined with self-folding seats arranged on the floor of the car, substantially as and for the purpose specified.

5. A railway-car having doors along its side, combined with means whereby said doors are automatically opened and closed at predetermined points along the road, substantially as and for the purpose specified.

6. A railway-car having a series of doors along its side and mechanism for simultaneously opening all of said doors, combined with a tripping-piece extending alongside of the track and adapted to be engaged by the door-opening mechanism, whereby the said doors are simultaneously opened while the car is in motion and are held open so long as said engagement of the door-opening mechanism and tripping-piece continues, and means for automatically closing said doors when the said engagement terminates, substantially as set forth.

7. In a railway-car, a series of doors along its side and catches for holding said doors closed, combined with a longitudinal shaft, and suitable connections between said shaft and doors and shaft and catches whereby all of said doors may be simultaneously released and opened, substantially as and for the purpose specified.

8. In a railway-car, a door on the side of the car and a longitudinal shaft suitably connected with said door, combined with a transverse shaft adapted to operate the longitudinal shaft, an arm rigid with said transverse shaft, and a tripping-piece alongside of the track, substantially as and for the purpose specified.

9. A railway-car having a series of doors hinged along its side, hinge-pintles secured to the hinge-leaves which are fastened to the doors, a bevel-gear secured to each hinge-pintle, a longitudinal shaft having bevel-gears which mesh with the bevel-gears first named, a transverse shaft, bevel-gear connec-

tions between said two shafts, and an arm rigid with said transverse shaft, combined with a tripping-piece alongside of the track adapted to engage with said arm, substantially as and for the purpose specified.

10. In a railway-car, a series of doors hinged along its side, each having a tubular hinge-pintle rigid with the hinge-leaves which are fastened to the door, a torsion-spring rod extending through said tube and fastened thereto at its upper end, and a bevel-gear on the lower end of the rod, combined with a longitudinal shaft having bevel-gears which mesh with the bevel-gears on the torsion-rod, catches adapted to hold the doors closed, cams on said shaft engaging with said catches, and means for oscillating said shaft, substantially as and for the purpose specified.

CHARLES M. HOLLINGSWORTH.

Witnesses:

E. L. THURSTON,
FRANK. MILLER.