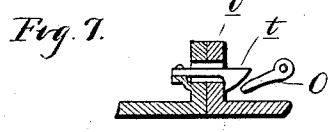
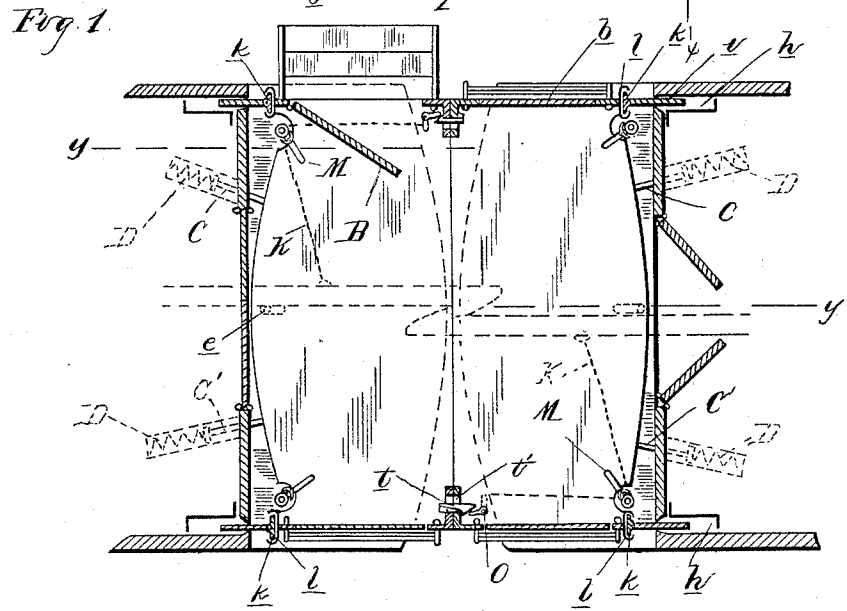
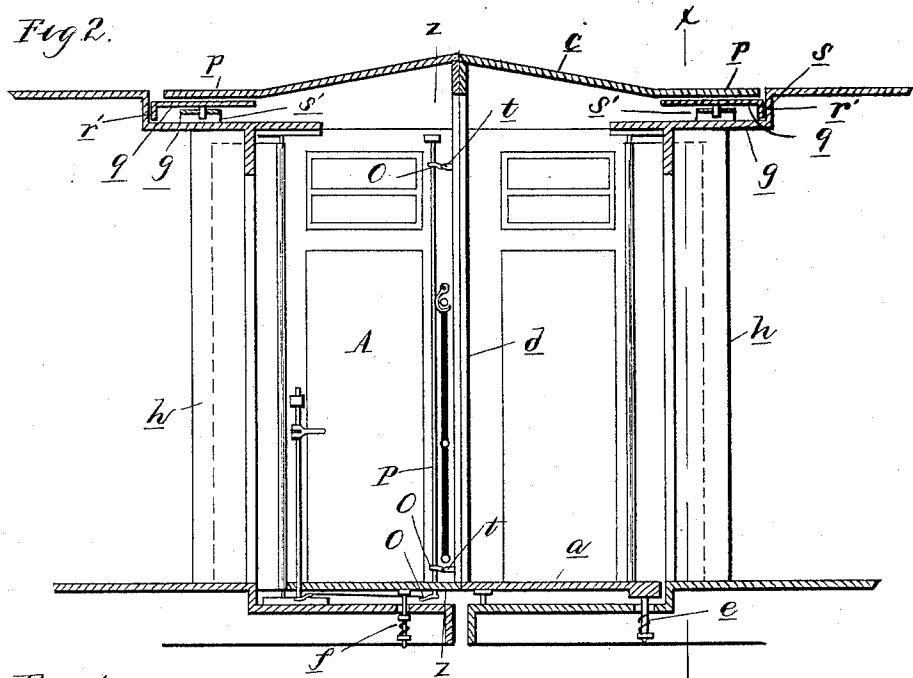


J. KREHBIEL. VESTIBULE CAR.

No. 482,744.

Patented Sept. 20, 1892.



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Fig. 3.

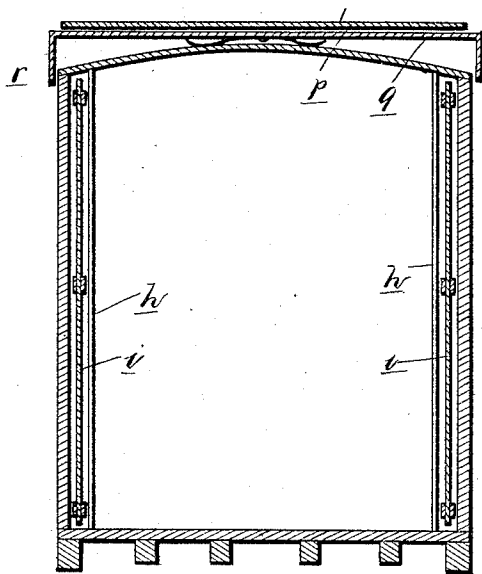


Fig. 5.

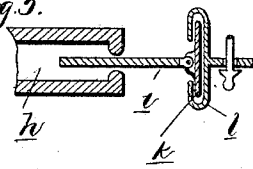


Fig. 6.

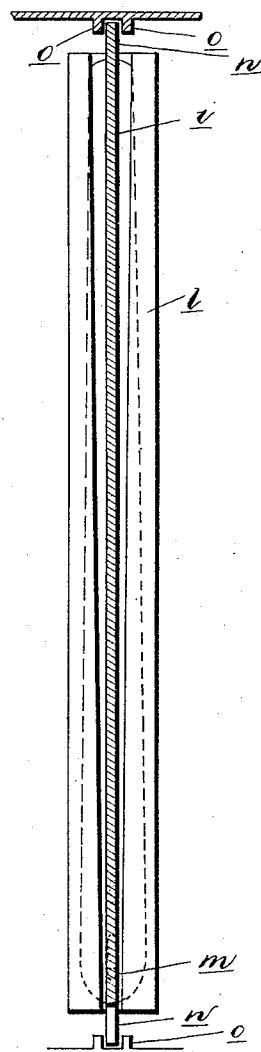
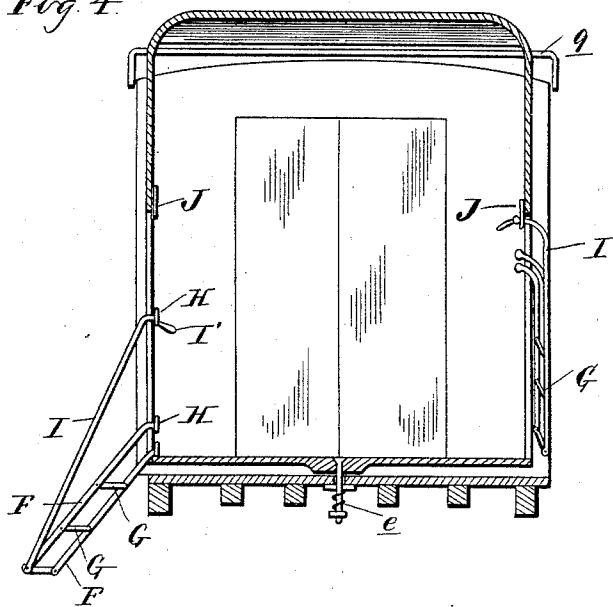


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN KREHBIEL, OF CLEVELAND, OHIO.

VESTIBULE-CAR.

SPECIFICATION forming part of Letters Patent No. 482,744, dated September 20, 1892.

Application filed April 15, 1891. Renewed April 18, 1892. Serial No. 429,580. (No model.)

To all whom it may concern.

Be it known that I, JOHN KREHBIEL, 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 Vestibules, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in vestibules for railway-cars; and it consists in the peculiar construction of the vestibule-section at the ends of the cars, which when two cars are coupled together forms a compartment which may be used for many purposes, such as a smoking-room, &c., utilizing the entire width of the platform.

The invention further consists in the peculiar construction of the sliding connection between the vestibule and car, avoiding the necessity of a bellows connection or other flexible joint and allowing of a flat side wall across the entire compartment.

The invention further consists in the peculiar construction of the steps and in the means for raising and lowering the same, and, further, in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described and shown.

In the drawings, Figure 1 is a central horizontal section through the meeting ends of two coupled cars to which my vestibule is applied. Fig. 2 is a vertical longitudinal section thereof on line *y y*. Fig. 3 is a vertical section on line *x x*, Fig. 2. Fig. 4 is a vertical section on line *z z*, Fig. 1. Fig. 5 is a section through the sliding connection between the vestibule and the car drawn upon a larger scale. Fig. 6 is an elevation of the vestibule part of such section, looking from the left end in Fig. 5. Fig. 7 is a detail of the locking mechanism.

My vestibule consists of a rigid section or compartment A, formed of the platform *a*, the vertical sides *b* and roof *c*, and the buffer-plates *d*. This section or compartment is pivotally supported to the cross-bar by means of the bolt *e* at its rear end and the spring-support *f* at its front end, this construction being substantially as described in my patent, No. 417,567, of December 17, 1889. This structure or section is of sufficient width to

extend from side to side of the car-frame and from a point level with the platform of the car to a point above the section *g* of the roof thereof.

In order to make a tight joint between my vestibule-section and the car-body without the sacrifice of room within the section without the use of a flexible joint—such as a bellows connection—I form at each side of the car, extending, preferably, from top to bottom thereof, wells *h*, in which the vertical guide-plates *i* of the vestibule-section engage and which guide-plates may move in and out freely with little or no friction. These plates are hinged to the cross-heads *k*, which are slidingly secured in slotted guide *l*, which is secured to the rear edge of the vestibule-frame. The cross-head *k* is pivoted at its lower end by means of the pivot *m* to the guide *l*, and the aperture through which said pivot engages is elongated to allow of vertical movement of the vestibule without affecting the cross-head *k*. These cross-heads are provided at each end with pintles *n*, which engage in longitudinal guides *o*, formed, respectively, in the roof and platform of the car. Thus it will be seen that the guide-plate will always maintain its fixed relation to the car and can slide backward and forward in their guide-grooves at the top and bottom and that it is turned in and out by the movement of the vestibule-section, and the vestibule-section is formed to oscillate and to assume an angular position to said guide-plates without in any way damaging the parts. I also obviate the necessity of using the objectionable bellows construction.

Now to make a tight connection between the roof-section of the car and the roof-section of the vestibule and at the same time to support the roof in all its movements angular and oscillatory, I construct the parts as follows:

p is a horizontal extension of the roof, which is supported upon the saddle *q*. This saddle is provided at its end with the guide-flanges *r*, extending down the side of the car, and preferably at its rear end with the flange *r'*, slightly raised above the flat portion and also in contact with the vertical portion *s*, formed in the roof of the car. This plate is supported centrally upon the spring *s'*, to which it is se-

cured in any suitable manner. The roof of the car being curved and the saddle *g* being straight and supported only at its middle, it is evident that it is free to have a rocking motion, in which it will be guided by the flanges *r*. It is also evident that the extension *p* of the roof will be free to slide over the saddle to take up any oscillatory movement of the vestibule in relation to the car. Each vestibule is provided upon one side with the forwardly-extending hooks *t* and upon the other side with the apertures *t'*, with which the hooks of the adjoining vestibule engage when the cars are coupled, being held in engagement therewith by a spring or in any other suitable manner.

B are doors hinged in the side wall *b* of the vestibule.

C C' are rearward-extending arms secured to the platform of the vestibule-section backed by springs D, the function of which parts is, in case the vestibule should be at the end of the train or in connection with a car without a vestibule, to hold the vestibule-section in fixed relation to the car.

As my vestibule-section extends to the side of the car, it is evident that the usual recess formed for the steps must be dispensed with, and I therefore provide a step secured to the vestibule and having the following construction:

E and F are side bars to which the steps G are pivoted. These side bars extend to the side of the vestibule upon each side of the door and engage in suitable slots, being provided with heads H to prevent their disengagement therefrom.

I is a railing, one on each side of the steps, extending from the bottom of the bar F to a point about midway of the door, engaging in slots in the vestibule. It is evident that when these bars I are in the position shown in Fig. 4 the steps may be lowered and will afford easy means of exit from or ingress to the car.

When the car starts, the trainmen taking hold of the handle I' upon the railing I and lifting upward on the steps, drawing the heads H of the bars I, E, and F upward, the steps will be lifted up and will fold in against the side of the car, where they may be held by means of suitable hooks, such as J, or in any other suitable manner. When in this position they not only prevent any damage from stationary objects on the track, but also act as a guard to the door, so in case the door is opened when the steps are raised people can not find exit until the steps are lowered, and neither can people on the outside catch onto the moving train. I am thus enabled to prevent many accidents which now occur from people walking off the platform and from people catching hold of the platform while the train is in motion. A vestibule thus constructed utilizes all of the room between the meeting ends of the cars, giving a space eight feet square, which hitherto has been practically useless so far as seating capacity was

concerned, and in pleasant weather such a room as this will form a most attractive part of the train, or it may be arranged for smoking rooms or any other convenient use.

I preferably provide the following means for automatically uncoupling the vestibules upon the uncoupling of the cars. K are chains connecting the couplers of the cars with the vertical shafts L, which are provided with the levers M, having a ratchet-and-pawl engagement therewith. N are chains connecting the shaft L with the bell-crank lever O upon the vertical shaft P at the front edge of the vestibule. These bell-crank levers are arranged opposite the spring-hooks *t*. It is evident that upon winding the chain K upon the shaft L the bell-crank lever is rocked and will disengage the hooks of one vestibule from the apertures of the other, and this will be performed in uncoupling the cars.

What I claim as my invention is—

1. In a railway-car, the combination, with the platform, of a horizontally-oscillating vestibule-section and a sliding connection between the car and vestibule, substantially as described. 90
2. In a railway-car, the combination, with the platform, of a horizontally-oscillating vestibule-section having its sides and roof overlapping the end of the car and having a sliding engagement therewith, substantially as described. 95
3. In a railway-car, the combination, with the platform, of a rigid vestibule-section pivoted thereon and a sliding connection between the car and vestibule, substantially as described. 100
4. In a railway-car, the combination, with the platform and an oscillating section thereon, of a guide-plate hinged to the sides of said vestibule and guide-bearings in the car with which said plates engage, substantially as described. 105
5. In a railway-car, the combination, with the platform, of the oscillating vestibule-section thereon, guide-plates at the sides of the vestibule, a hinge-joint in said plates, and a sliding connection between the vestibule-section and said plates, substantially as described. 110
6. In a railway-car, the combination, with the platform, of the oscillating vestibule-section thereon, the guide-plates engaging in bearings in the end of the car and hinged in said plates, and the sliding connection between the plates and the vestibule-section, substantially as described. 120
7. In a railway-car, the combination, with the platform, of the vestibule-section having a horizontal and vertical oscillation, the guide-plates engaging in guide-bearings in the car, a hinge in said plates, and a socket in the vestibule adapted to slidably engage with said plates and arranged to permit the oscillation of said socket on the plates, substantially as described. 125
8. In a railway-car, the combination, with 130

the vestibule, of the guide-plates *i*, the cross-heads *k*, the pins *n*, guide-grooves *o*, sockets *l*, and pins *m*, substantially as described.

9. In a vestibule-car, the combination, with the vestibule-section extending from side to side of the car, of extensible steps secured to said vestibule, substantially as described.

10. In a railway-car, the combination, with the vestibule-section extending from side to side of the car, of steps secured to said vestibule-section and means for raising and lowering said steps, substantially as described.

11. In a railway-car, the combination, with the vestibule-section extending from side to side of the car, of steps secured to said vestibule-section by means of rods forming the steps supporting a railing, and means for raising and lowering said rod to fold the steps beside the vestibule-section, substantially as described.

12. In a railway-car, the combination, with the vestibule-section, of steps secured thereto and adapted to be folded up across the door thereof, substantially as described.

13. In a railway-car, the combination, with a rigid vestibule-section supported upon the platform, of an extension of the roof of said vestibule slidingly engaging with the roof of the car, substantially as described.

14. In a vestibule-car, the combination, with the vestibule-section supported upon the platform, of an extension of the roof overlapping the roof of the car and a saddle upon which this extension is supported, substantially as described.

15. In a railway-car, the combination, with the platform, of a vestibule-section supported thereon, an extension of the roof overlapping the roof of the car, and an oscillating saddle upon which said extension slidingly engages, substantially as described.

16. In a railway-car, the combination, with a pivotal vestibule-section, of the springs *D*, applied to opposite sides thereof, substantially as and for the purposes described.

17. In a railway-car, the combination, with the vestibule-section, of the buffer-plates at the front side thereof, the hooks *t*, corresponding apertures in which said hooks engage, the bell-crank levers *O*, and means for rocking said bell-crank levers to disengage said hooks.

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

JOHN KREHBIEL.

Witnesses:

M. B. O'DOHERTY,
N. L. LINDOP.