(No Model.) 3 Sheets—Sheet 1.

R. H. WYMAN.

RAILWAY CAR.

No. 296,810. Patented Apr. 15. 1884.

Fig. 1.

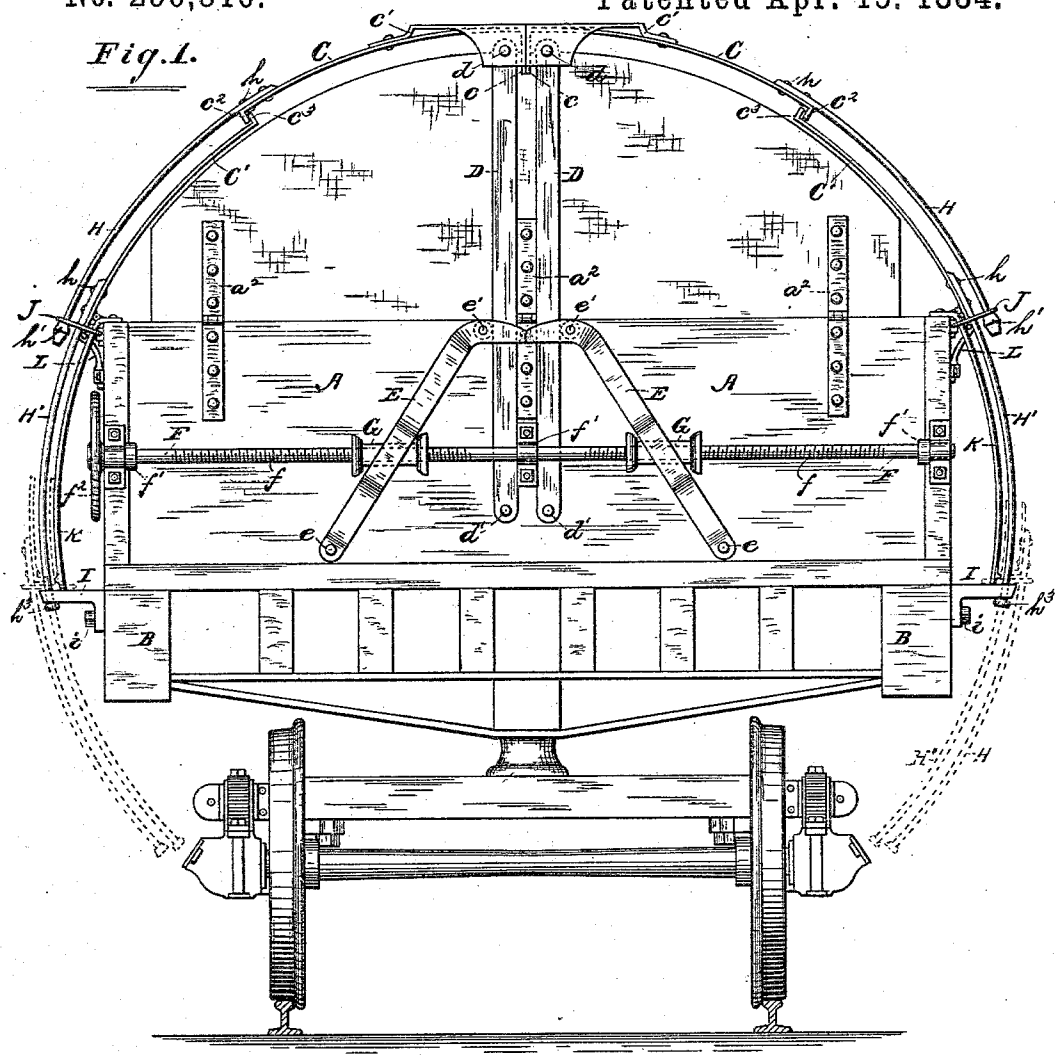


Fig. 2.

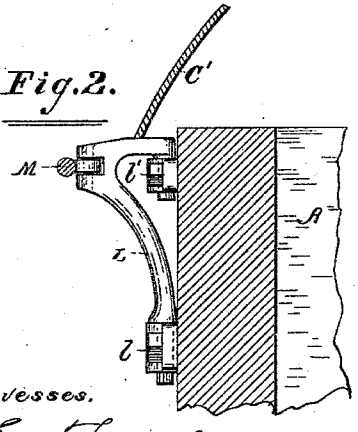
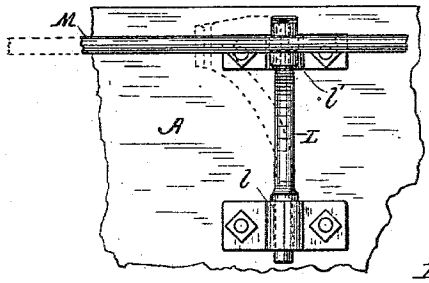


Fig. 3.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 4.

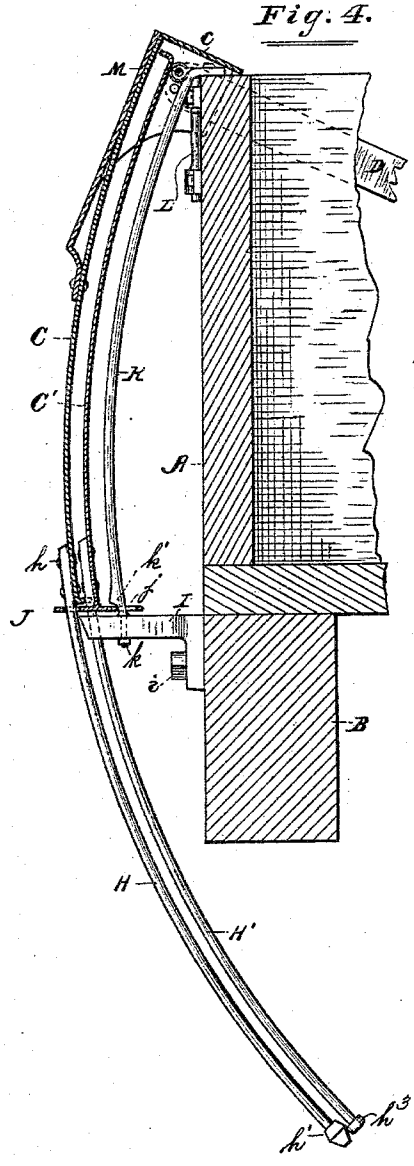


Fig. 5.

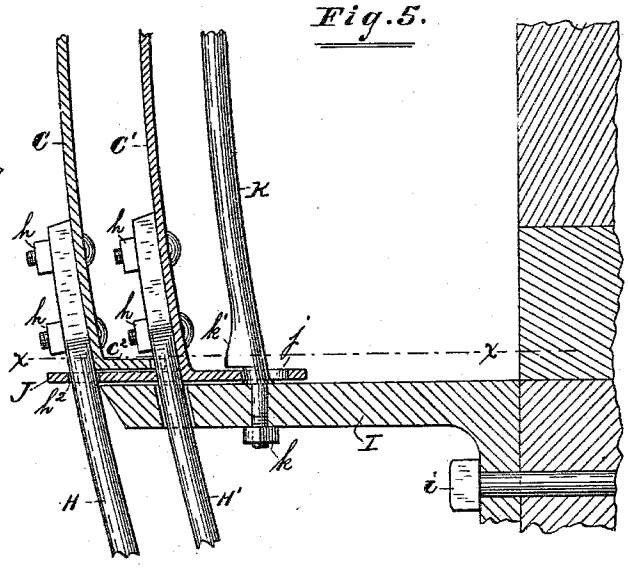


Fig. 6.

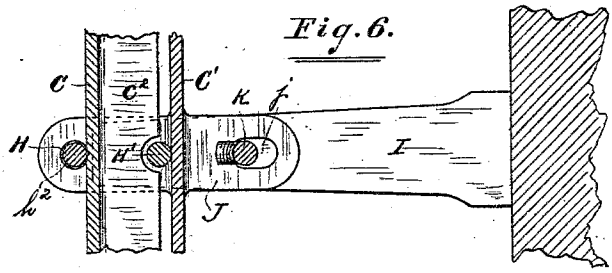
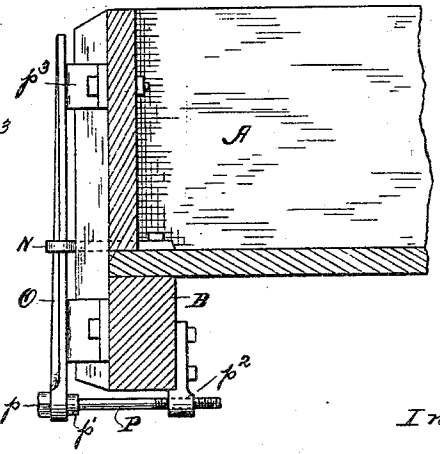


Fig. 7.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 8.

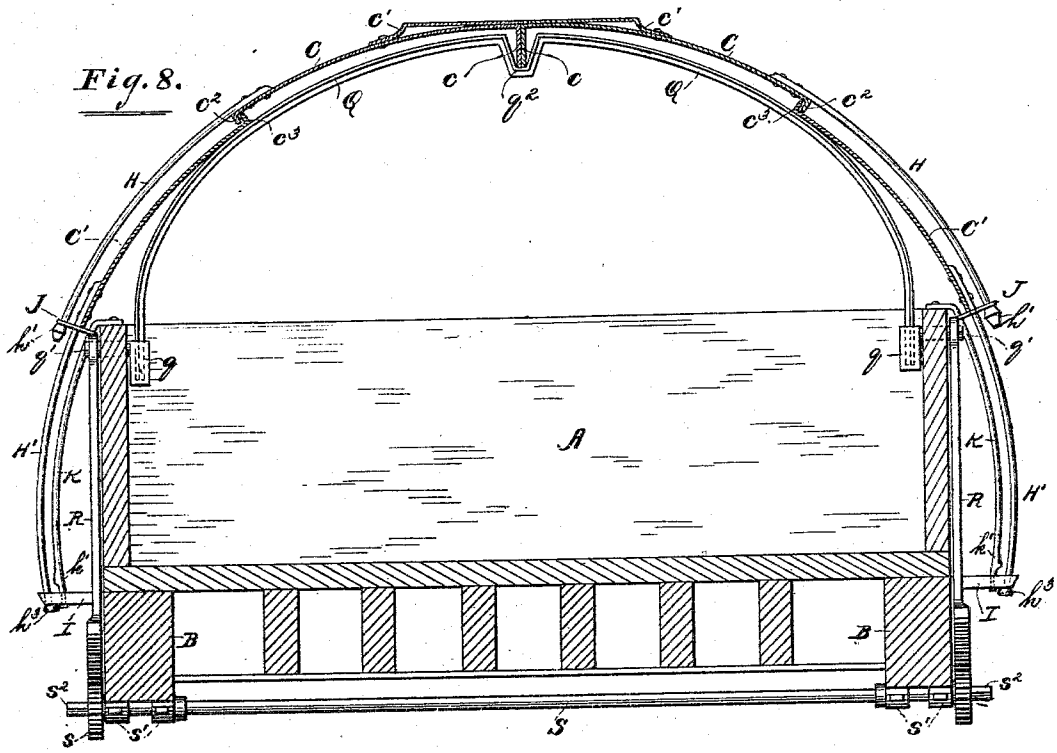
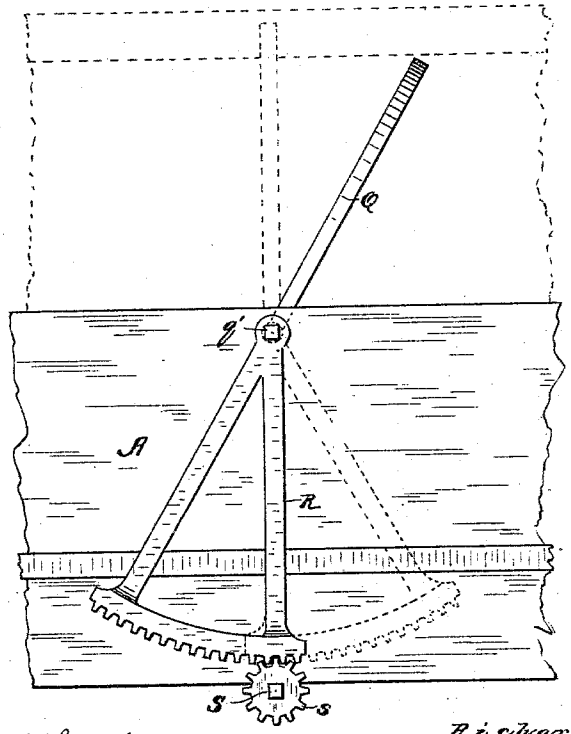


Fig. 9.



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UNITED STATES PATENT OFFICE.

RICHARD H. WYMAN, OF EVANSTON, ILLINOIS.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 296,810, dated April 15, 1884.

Application filed February 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, RICHARD H. WYMAN, of Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Cars, of which the following is a description, reference being had to the accompanying drawings, in which—

Figure 1 is an end view of my improved car. Fig. 2 is a transverse sectional view in detail of a portion of the side-board of an open car, showing a movable bracket attached thereto for the support of the cover. Fig. 3 is a side view of the same. Fig. 4 is a transverse vertical sectional view of one side of a car, showing the position of the movable cover when open, as well as the relative position at that time of the re-enforcing or supporting bars attached thereto. Fig. 5 is an enlarged detail view of a part of the construction shown in Fig. 4, illustrating its connection with the bracket and guide-bar. Fig. 6 is a top view of said bracket with the sliding plate thereon, taken on the line *x x*, Fig. 5. Fig. 7 is a transverse vertical sectional view of a portion of the side of a car, showing the side-board and sill, with my improved brace for retaining said side-board in line. Fig. 8 is a transverse sectional view of the body of a car at or near the center, showing my improved bail-support for the covers; and Fig. 9 is a detail view of a portion of the side of a car, showing the relative positions of said bail when operated.

Like letters of reference indicate corresponding parts.

My invention relates to certain improvements in movable covers for coal and other cars, the essential features of which I have heretofore described in Letters Patent on railway-cars, No. 292,192, issued to me on the 22d day of January, A. D. 1884; and in my application for Letters Patent on railway-car covers, filed January 21, 1884.

My present application embodies certain improvements in the construction and operation of covers, as well as certain devices for preventing the side-boards from "bulging" or bending, and thereby interfering with the movement of said covers, and certain means for more effectually supporting said covers, all of which is hereinafter more clearly and fully described.

Owing to the varying height of the trucks used upon open cars by the different railway companies, I have found a difficulty in applying my improved cover described in said Letters Patent to cars having small trucks, or to those in which the body of the car is very low, on account of the length of the segmental racks described therein. Further difficulties arise from the bulging or bending of the sides of the car, as above stated, which tends to interfere with the operation of said cover. Moreover, the middle of the cover is liable to sag unless supported by some additional means at that point, at which place it is impracticable to place a rigid or permanent support, as the same would interfere with the loading and unloading of the car. I am enabled to overcome these difficulties and to extend my improvements to a wider field by dispensing with said racks and applying certain novel supports and braces, hereinafter described.

In the drawings, A indicates the body or box of the car; B B, the frame or sills, while C C C′ C′ are the movable covers, preferably made from sheet-iron in sections of the entire length of the car, and provided with depending flanges *c c*, to strengthen the same, and plates *c′ c′*, to form a walk above when the covers are closed. Bars D D are placed at each end of the car, the upper ends of which are bolted at *d d*, or otherwise secured to the sections C C, while the opposite ends of said bars are pivoted to the ends of the car at *d′ d′*. Levers E E are likewise placed at each end of said car, the same being pivoted, respectively, at *e e*, and loosely connected with the bars D D by loops or in any approved manner, whereby they may move upon said bars, and at the same time actuate the same. Friction-rollers (indicated in dotted lines at *e′ e′*) are interposed to assist the movement thereof.

A bar or shaft, F, one of which is shown in Fig. 1, is placed at each end of the car, respectively, and is provided with right and left screw-threads *f f* thereon, said shaft being supported horizontally in the bearings *f′ f′ f′*, and having upon one or both ends thereof a hand-wheel or hand-wheels, f^2, for rotating the same. Sleeve-nuts G G, preferably made square and fitting into suitable slots in said bars E E, are placed upon said shaft or bar F, as shown, each of said sleeve-nuts being

provided with flanges *g g*, to form bearing-surfaces upon said bars E E. It is obvious that the turning of said shafts F will move the levers E E and D D, respectively, and lower or raise said cover in the manner described in my application above referred to, except that said covers, instead of folding upon each other, as described therein, are made to slide past each other, taking the position at the side of the car substantially as shown in said Letters Patent hereinbefore mentioned, the supporting devices therefor being different.

Instead of the segmental racks described in said Letters Patent, I cause a series of bars, H H H′ H′, to be rigidly secured to the lower sides of said sections by means of rivets or bolts *h h*, (better shown in Figs. 4 and 5,) said bars taking the same curve as said cover-sections, and assuming positions, respectively, as shown in Fig. 4 when said cover is open. At the bottom of said box, and extending outward therefrom, are brackets I, secured to the sill by bolts *i*, said brackets being intended to support the sections C C C′ C′ at the side of the car when the cover is thrown back, as shown in Figs. 4, 5, and 6. Upon the bottom of said plates C′ C′, and substantially at right angles thereto, are rigidly secured a series of plates, J, corresponding in number to said brackets I, and resting thereon, as shown in said last-named figures, when said covers are down. Said plates are provided with slots *j*, through which run guide-bars K, secured, as shown in Figs. 4 and 5, by bolts *k k*, to said brackets I and to the top of the car, respectively. A lug, *k′*, is formed upon each of said guide-bars K, far enough above the bracket I so that when the plate C′ is lowered the same, having a tendency to press inward against the guide-bar K, will cause the plate J to slide beneath the lugs *k′*, and thus lock the same in position until the sections C C are raised so that the flanges c^2 c^2 thereon engage with the flanges c^3 c^3 on the top of the sections C′ C′, when said plates J J are released from engagement with said lugs *k′*, as follows: On the lower ends of each of the curved bars H H are knobs *h′ h′*, Figs. 1, 4, and 8, sufficiently large to prevent said bars H H from passing out of and becoming wholly disengaged from the holes h^2 h^2, Fig. 6, in the plates J, through which they move up and down. The knobs *h′ h′* are beveled, as shown, and the outer ends of the brackets I are likewise beveled to correspond therewith, as in Figs. 4 and 5. When the sections C C and bars H H are raised, the beveled knobs *h′ h′* strike against the beveled ends of the brackets I, and in their upward movement are forced outward to pass said brackets, which movement causes the plates J to slide outward and become disengaged from the lugs *k′*, when said knobs *h′ h′*, meeting said plates J, carry the same upward, together with the sections C′ C′, until the sections C C meet at the center of the car. It is obvious that said knobs *h′ h′* should be correspondingly beveled in the opposite direction, in order to pass downward without being obstructed by said bracket I. The bars H′ H′ pass through holes in the brackets I, as clearly shown in Figs. 5 and 6, while the knobs h^3 h^3 thereon prevent the covers from moving too far. All lateral movement from the swaying of the cars is likewise prevented. It is obvious that by virtue of the device described the sections C C will always move upward first, and thus prevent a disarrangement of said covers which might otherwise be caused by friction and the like. To sustain said covers firmly in position when raised I provide movable or hinged brackets L upon the sides of the car at the top of the box, Figs. 1, 2, 3, and 4. Said brackets are pivoted or hinged in bearings *l l′* in such manner that they may be swung around against the side of the car, as indicated in dotted lines in Fig. 3. The projecting ends of said brackets are connected by rods M M, so that a single movement of said rods may draw out or push in all the brackets upon the respective sides. To lower the cover the same should first be pushed in as shown in Fig. 4, and when said bracket is raised the same are drawn out and the bottoms of the sections C′ C′ rest thereon, as in Fig. 2.

It is well known that the strain upon the sides of open cars soon causes them to bend or "bulge" out at the top. This renders it difficult, if not impracticable, to use either form of my improved cover without some means for preventing or obviating the same when it occurs. For this purpose I have devised a novel form of brace or support adapted for use in connection with either of the varying forms of cover mentioned herein.

Secured to the bottom of the car by bolts or otherwise, and projecting somewhat outward from the side, I place eyebolts N, Fig. 7, through each of which is inserted a brace, O, the lower end of which is pierced for the reception of a set-screw, P, having a head, *p*, upon the outside for turning the same, and a shoulder, *p′*, within to bear against said brace. The opposite or threaded end of said screw turns in a downwardly-projecting lug, p^2, bolted to the sill B. The upper end of the brace bears against a projection, p^3, secured at or near the top of the car. It is apparent that by turning said screw P the brace O may be caused to bear against said projection, and thus, by having a sufficient number of braces, the side of the car may be forced into line and so maintained. One or more additional supports for said covers, to prevent the same from sagging, may, and I think in practice would, be required at the center, especially of long cars; and as a rigid or stationary support within the car would be undesirable, if not wholly impracticable, I have provided the following device as being adapted for use in the same manner as said brace O, with each and all of my improved forms of cover, or with any movable cover operated in any similar

manner: A detachable arch or bail, Q, Figs. 8 and 9, preferably made from angle or T iron, is inserted in sockets *q q*, Fig. 8, upon the inside of the car. Said sockets are rigidly secured to bolts *q'*, extending through the sides of the car, where they connect with downward-extending bars R R, preferably made as shown in Fig. 8, and terminating in segmental racks. A shaft, S, with pinions *s s* upon either end, is extended transversely beneath the car through bearings *s' s'*, said pinions engaging with the segmental racks upon the levers or bars R R. The ends of said shaft are caused to project, as at s^2 s^2, Fig. 8, and are squared to receive a wrench or crank. Said bail is notched, as at q^2, Fig. 8, to receive the depending flanges *c c* therein. When said rack is in the position shown in Fig. 9, the bail Q will be sufficiently lowered as to be wholly disengaged from said flanges, which are indicated in dotted lines, and the covers may be lowered, while on the other hand, when the covers are closed, said bail may be forced firmly in position by said rack, and said covers supported thereby. The flanges *c c*, resting in said notch q^2, are wholly prevented from lateral movement, and the locking of said rack or pinion serves to effectually lock the car. In loading the car said bail may be lifted from the sockets *q q*, thus leaving it free and unobstructed.

The rounded ends of the car above the usual end-boards may be provided with hinges a^2 a^2 a^2, as shown, or may have hinges upon the inside of said end-boards, with shanks extending to the bottom of the car, whereby said pieces may be laid flatly upon the bottom of the car when the cover is thrown back; or the entire end-board may be made of one solid piece.

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

1. In a railway-car cover, the combination of the movable sections C C C' C', provided with the rigid supporting-bars H H H' H', brackets I, and bars D D and E E, with screw-threaded shaft and sleeve-nuts for operating the same, substantially as and for the purposes set forth.

2. In a railway-car cover, the combination of the movable sections C C C' C', provided with the rigid supporting-bars H H H' H', brackets I, bars D D and E E, with screw-threaded shaft F, sleeve-nuts G G, for operating said sections, and movable brackets L, for supporting said sections when closed.

3. In a railway-car cover, the combination of the movable sections C C C' C', provided with the rigid supporting-bars H H H' H', having knobs *h h h' h'* thereon, brackets I, locking-plates J, with bars D D and E E, screw-threaded shaft F, sleeve-nuts G G, and means for operating said shaft, substantially as and for the purposes set forth.

4. In a railway-car cover, the combination of the movable sections C C C' C', provided with the rigid supporting-bars H H H' H', having knobs *h h h' h'* thereon, brackets I, locking-plates J, movable brackets L, and connecting-rods M, with bars D D and E E, screw-threaded shaft F, sleeve-nuts G G, and means for operating said shaft, substantially as and for the purposes set forth.

5. The combination of the supporting-brace O and set-screw P, having suitable bearings, as shown, with the side of a car having movable covers, whereby said side may be forced into line and so retained, substantially as and for the purposes set forth.

6. The combination, with the body of a car having sectional movable covers, of the detachable bail Q, sockets *q q*, and segmental racks and pinions, whereby said bail may be released from contact with said sections, and vice versa, substantially in the manner and for the purposes set forth.

7. The combination, with the body of a car having sectional movable covers, of the detachable bail Q, provided with the notch q^2, sockets *q q*, and segmental racks R R, with a suitable shaft and pinions for operating the same, substantially in the manner and for the purposes specified.

RICHARD H. WYMAN.

Witnesses:
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HENRY FRANKFURTER.