No. 671,852. Patented Apr. 9, 1901.

J. A. BRILL.

CONVERTIBLE RAILWAY CAR.

(Application filed Apr. 5, 1899.)

(No Model.) 3 Sheets—Sheet 1.

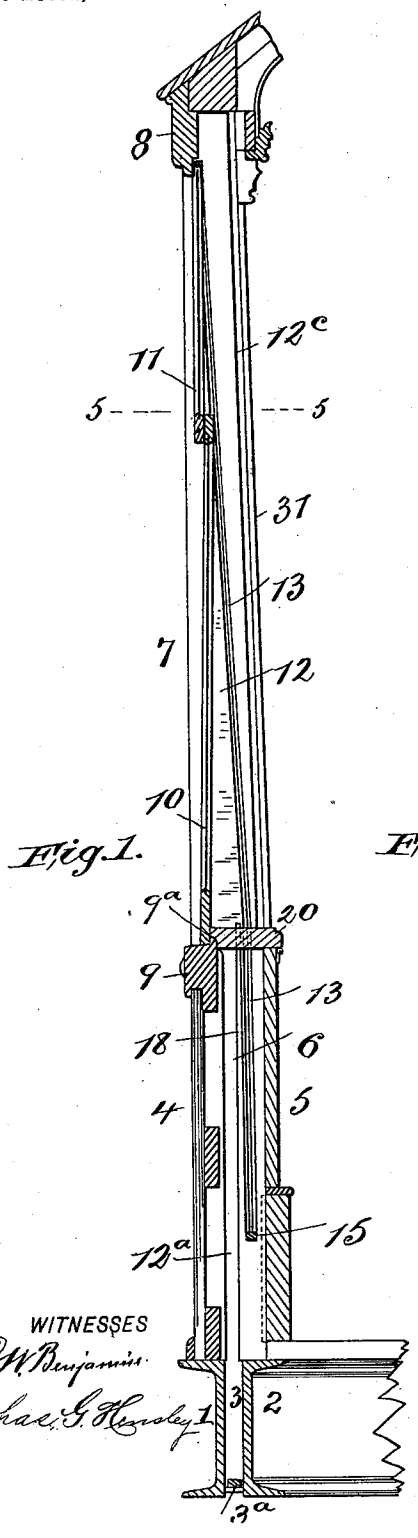


Fig. 1.

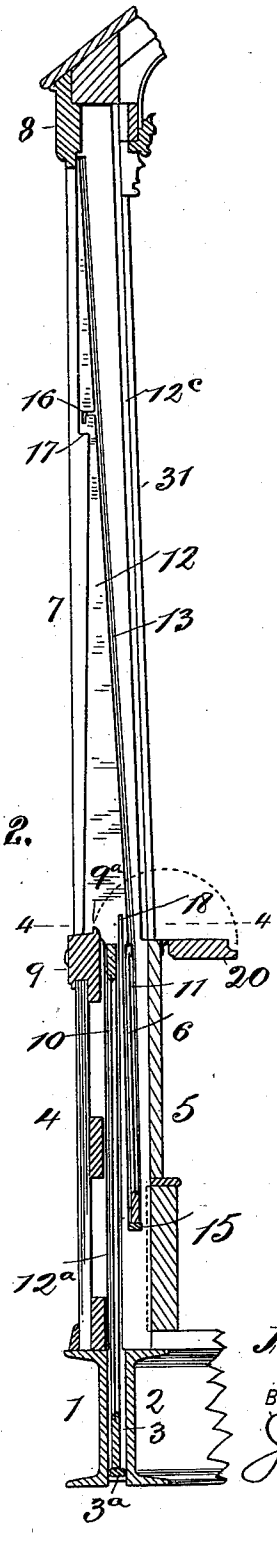


Fig. 2.

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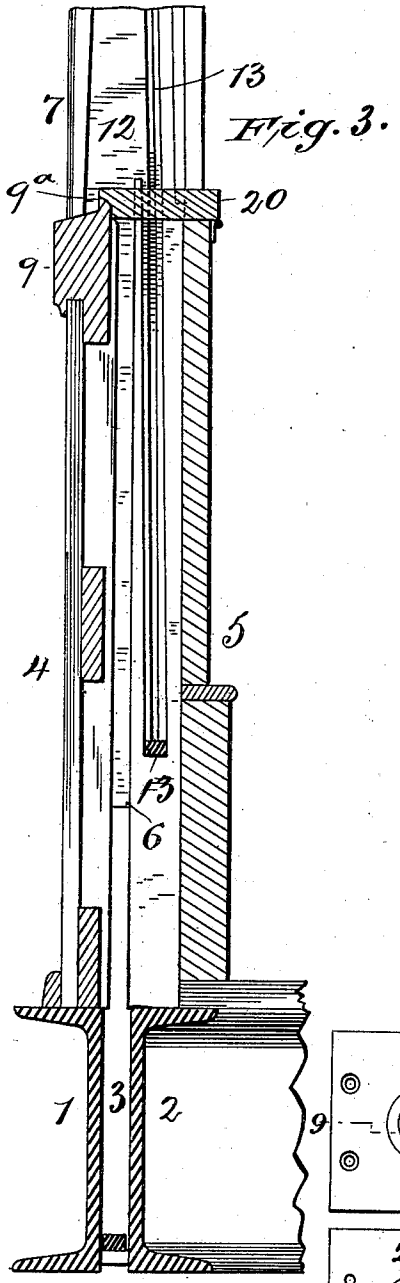


Fig. 3.

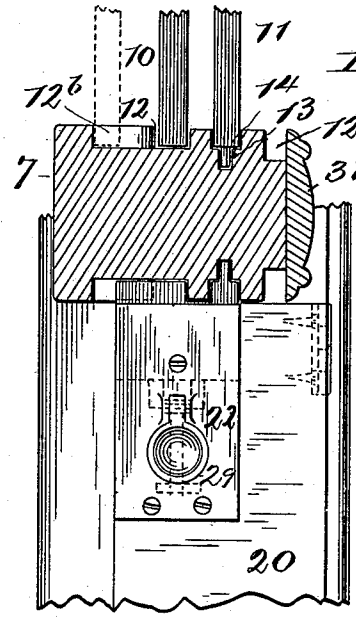


Fig. 4.

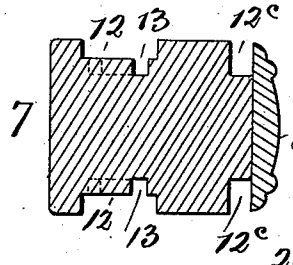


Fig. 5.

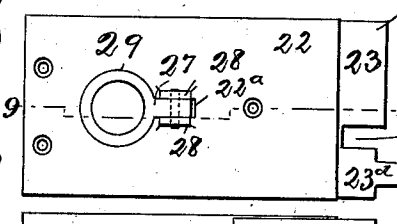


Fig. 7.

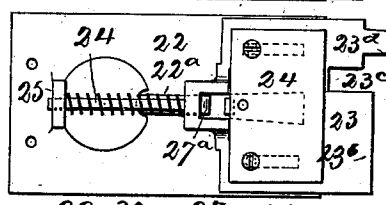


Fig. 8.

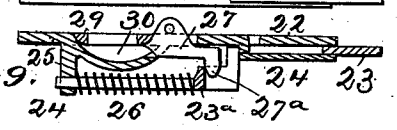


Fig. 9.

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(Application filed Apr. 5, 1899.)

(No Model.) 3 Sheets—Sheet 3.

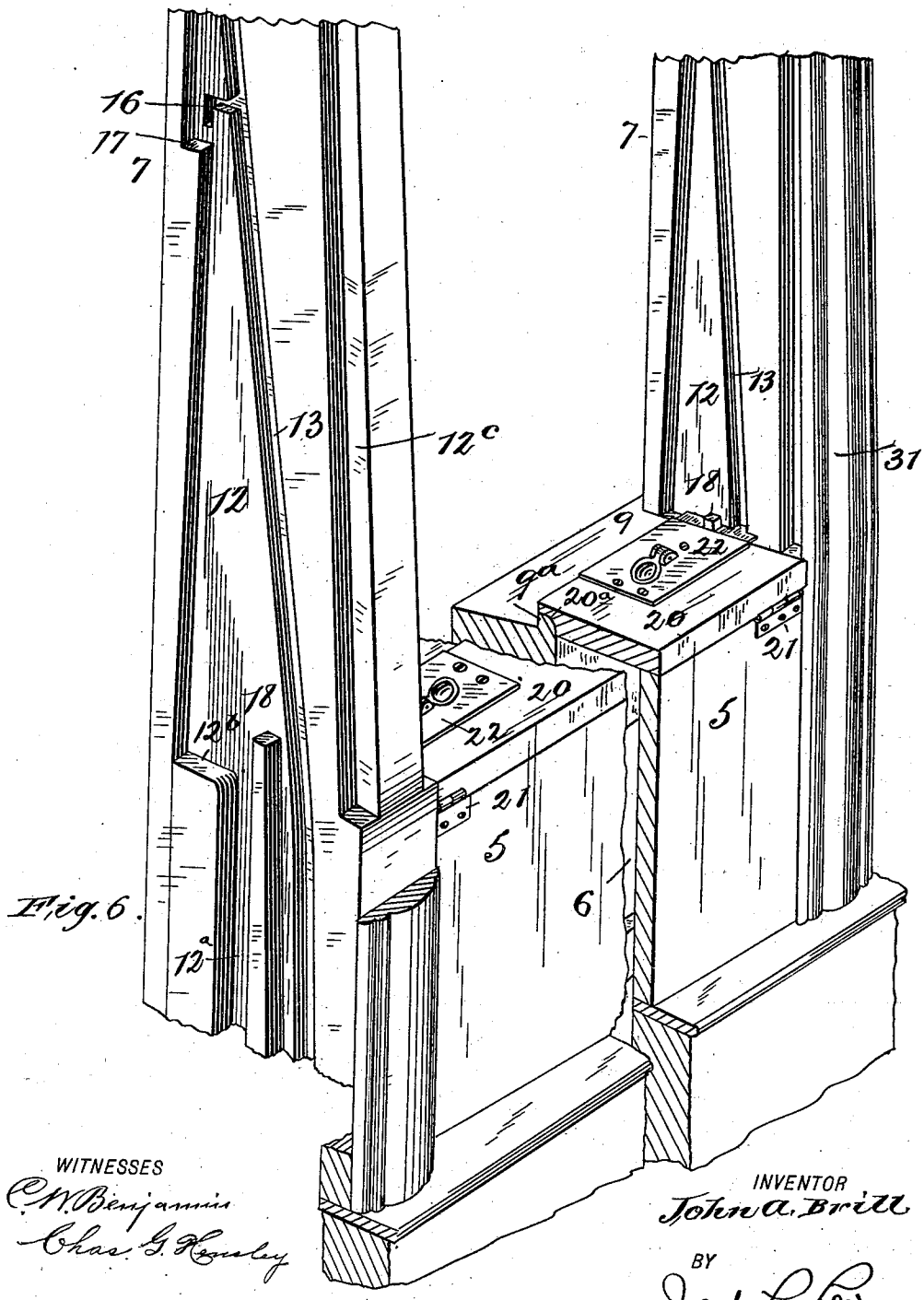


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

CONVERTIBLE RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 671,852, dated April 9, 1901.

Application filed April 5, 1899. Serial No. 711,837. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. BRILL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Convertible Railway-Car, of which the following is a specification.

This invention relates to the class of street-railway cars in which the window-sashes at the upper portion of the car near the roof and at the main body portion can be lowered to form a practically open car and can be raised to form a closed car; and the main object of the invention is to provide improved means whereby the upper and lower sashes can both be lowered into pockets and hidden from view, and also so that either the upper or lower sashes, or both, can be retained in position above the main body portion of the car at any time.

A further object of the invention is to provide means for covering the sashes in the pockets at the body of the car, so that they will not in any manner be exposed, and also so that air will not circulate up through said pockets.

The invention consists in the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a vertical section through one side of a car embodying my invention, showing the sashes in the raised position to form a closed car. Fig. 2 is a similar view showing the sashes in their lowermost position, forming an open car. Fig. 3 is an enlarged detail section of the lower body portion of the car, showing the pockets that receive the sashes. Fig. 4 is an enlarged detail horizontal section on the line 4 4 in Fig. 2, showing the cover over the sash-pockets. Fig. 5 is an enlarged cross-section through one of the posts on the line 5 5 in Fig. 1. Fig. 6 is a detached perspective view, enlarged, of a portion of a car-body and two posts, showing the grooves for the sashes and the cover for the sash-pockets. Fig. 7 is a detail plan view of the latch or lock for holding the covers of the pockets closed. Fig. 8 is an inverted plan view thereof, and Fig. 9 is a section on the line 9 9 in Fig. 7.

Similar numerals of reference indicate corresponding parts in the several views.

1 2 indicate the longitudinal lower sills of a car-body, which may be secured in any well-known manner, and they are spaced apart to form a pocket 3 for the reception of the sashes. Above the sills 1 2 are inner and outer panels 4 5, forming the lower sides of the car-body, which may be arranged in any suitable manner, and they are spaced apart to form a pocket 6 for the reception of the sashes, pockets 3 and 6 communicating. (See Fig. 3.)

7 represents posts extending vertically above the sills 1 2 and secured at their lower ends in any well-known manner, said posts leading to the lower part of the roof of the car, to which they are attached in any well-known manner, 8 being a longitudinal sill or beam at the upper end of the posts and connected with said posts.

9 represents longitudinal bars or beams extending between the posts 7 and secured thereto above the panels 4 at the main body portion of the car.

10 is a lower sash and 11 an upper sash, both of which sashes are adapted to fit in the pocket 6, and the sash 10 is also adapted to pass into pocket 3, as in Fig. 2. The sash 10 is shown higher than the sash 11.

The posts 7 have vertical grooves or working spaces 12, in which the sashes 10 11 are adapted to travel, it being understood that the posts at the ends of the car only have such grooves on one side, while the posts between said end posts have grooves on two sides. The grooves or working spaces 12 extend nearly up to the top of the posts and are shown tapering from the bottom upward. In the bottom of the groove 12, toward the inner part of the car, is a narrow groove 13, which the groove or working space overlies, which groove 13 is adapted to receive a pin or pins 14, carried by sash 11, (see Fig. 4,) the groove 13 leading up to the sill or beam 8 and down into pocket 6, at which point the bottom of the groove forms a seat, a cross-bar 15 extending between two posts 7 at the bottom of grooves 13, forming a rest for sash 11. (See Fig. 2.) Toward the upper part groove 13

has an outwardly and downwardly extending groove extension 16, in which the pin 14 is adapted to pass, and 17 is a stop in post 7, just below groove 16, the arrangement being such that when sash 11 is elevated to about the limit of its travel its lower end can be pushed outwardly, so that pins 14 will pass sidewise into grooves 16 and down through the depending part thereof, whereby the lower end of the sash can rest upon the stops 17, and thus the sash will be located between the posts.

The width of the groove 12 in line with the groove 16 is such that the lower rail of sash 11 and the upper rail of sash 10 can register when sash 10 is elevated, as shown in Fig. 1. When sash 10 is raised to this position, its lower end can be swung bodily outwardly through the wide part of groove 12 until it rests upon the bar or beam 9, the latter having a longitudinal rib 9^a, behind which the lower rail of sash 10 can fit. (See Figs. 1 and 2.)

18 is a rib carried by post 7, which extends from the pocket 6 upwardly a short distance above the bar 9, thus dividing the pocket 6 into two compartments, forming a groove 12^a, that is a continuation of the main groove 12, (see Fig. 6,) whereby when sash 10 is raised from bar 9 and drawn inwardly over rib 9^a it will abut against the upper end of rib 18, which will act to guide said sash into groove 12^a and pocket 6 in line with the pocket 3. The upper edge of bar 9 should be about flush with a stop 12^b at the lower part of groove 12. (See Fig. 6.) Thus it will be seen that the pocket 6 is so divided as to form a separate receptacle for each sash.

With the arrangements described, if it is desired to form a closed car the sash 11 is first raised to its uppermost position, its pins passing through the narrow grooves 13 in the opposed posts, and when the lower pins come in line with groove 16 the sash is pushed outwardly until said pins rest in the bottoms of said grooves and the sash rests upon the stops 17. The lower sash 10 is then raised until its lower rail is above the bar 9, when its lower end is moved bodily outwardly and passed behind the rib 9^a and brought to rest upon the bar 9 and stops 12^b. If it is desired to convert the car into an open car, the sash 10 is first raised until its lower rail passes over rib 9^a, and it is then lowered into pockets 6 and 3 until it comes to rest upon a stop 3^a at the bottom of pocket 3. The upper sash 11 is then raised and drawn outwardly to free its pins from the grooves 16, and then it is lowered into its compartment in pocket 6, both sashes now being in the positions shown in Fig. 2, their upper rails being below the bar 9.

By preference I provide a cover 20, that is adapted to overlie the pocket 6 when the sashes are lowered into the same, which cover serves as a window-sill and prevents air from circulating upwardly through the pocket, and also keeping the sashes confined in the pocket. There is a cover 20 for each pocket, and by preference the cover is hinged to the panel 5, as by hinges 21, so that the cover can swing inwardly away from the pocket. Where the opposite longitudinal edge of the cover comes upon the bar 9, it is shown provided along the lower edge with a groove 20^a, adapted to receive the rib 9^a. (See Fig. 6.) Any suitable means may be provided for locking the cover 20 in the closed position over pocket 6, as in Figs. 1, 3, and 6. The arrangement I have shown for the purpose consists of a plate 22, adapted to be secured upon cover 20 at its end, and 23 is a bolt suitably carried by a keeper 24, attached to plate 22, so that said bolt can slide back and forth, the bolt 23 being normally held in such position that one end will project beyond plate 22, and thus beyond the end of cover 20. For this purpose the bolt 23 is shown provided with a stem 24, passing through a guide 25, carried by plate 22, a coil-spring 26 surrounding said stem and pressing at one end against guide 25 and at the other end against part of the bolt. (See Figs. 8 and 9.)

27 is a lever for actuating bolt 23, which lever is shown pivoted between lugs 28 on the upper side of plate 22, the lever projecting through an opening 22^a in plate 22 and having a handle 29, shown in the form of a ring that preferably lies in a recess 30, formed in plate 22, whereby a person's finger can be passed through the handle 29 to lift the lever. The opposite end of lever 27 has a projection 27^a, that is adapted to act against an abutment 23^a of bolt 23, so that when handle 29 is raised projection 27^a will act upon abutment 23^a to draw the bolt back under plate 22, and spring 26 not only forces the bolt outwardly, but causes abutment 23^a to push on projection 27^a to keep handle 29 in recess 30 of plate 22. The outer end of bolt 23 is shaped to fit the grooves in the post 12 and to receive the rib 18, as follows: The part 23^b of the bolt is adapted to enter the lower portion of groove 12 between the rib 18 and the outer surface of the post. A recess 23^c is adapted to receive the rib 18, and the portion 23^d of the bolt is adapted to enter the part of groove 12 that lies between the rib 18 and the inner portion of the post, a projection 23^e entering the narrow groove 13. From the foregoing it will be understood that when the cover 20 is to be placed over the pocket 6 the handles 29 at opposite ends of the cover are raised to draw back the bolts, and then the cover is swung over the pocket and the handles released, whereupon the bolts are moved outwardly by the spring 26 and they coact with the grooves and rib 18, as explained. When it is desired to swing cover 20 away from pocket 6, the handles 29 are grasped and lifted, whereupon the bolts are withdrawn and simultaneously the cover is swung upon its hinges.

The bolts arranged, as shown, to enter the grooves serve as a lock for the cover, in that the cover cannot be raised, owing to the presence of the bolt in the grooves, and at the same time the bolts fill up the space between the end of the cover and the grooves in the post, so as to keep air from circulating therethrough. While I have shown the bolt 23 as adapted to slide, it is evident that it could be hinged so as to be raised up and lowered in performing its functions.

Where it is desired to provide for a curtain, the posts 7, along their inner edges, may have vertical recesses 12° cut in them, over which a beading 31 is placed, (see Figs. 4 and 5,) whereby grooves are formed to receive the ends of rods on the curtain.

I do not limit my invention to the precise details of construction shown and described, as they may be varied without departing from the spirit thereof.

Having now described my invention, what I claim is—

1. In a car the combination of a body having posts provided with grooves and a body portion having inner and outer walls forming inclosed pockets divided into compartments communicating respectively with said grooves, sashes, means between the posts and the sashes for guiding one sash into one compartment and the other sash into the other compartment, a cover movably secured to one wall of said pocket, and adapted to rest on the opposing wall to cover the opening in the pocket, and a coacting rib and groove on one wall and the cover, substantially as described.

2. In a car the combination of a body portion having posts and an inclosed pocket, said posts having grooves transversely one at the bottom of the other, one of the grooves above said pockets being wider at its lower portion than at its upper portion, sashes, one of which is adapted to move bodily sidewise at its lower end in the wide groove, and means for guiding the other sash in the groove at the bottom of the wide groove, separate grooves in said pockets to receive the respective sashes, and a cover movably secured over the top of said pocket, substantially as described.

3. In a car, the combination of a body having posts provided with grooves, and an inclosed pocket intermediate the ends of the posts, one of said grooves forming a single working space overlying the other groove, sashes guided in said grooves, one of the sashes having pins adapted to enter the underlying grooves, a stop in the other of the grooves to support the latter sash, and separate grooves in the pocket to receive the sashes, substantially as described.

4. In a car, the combination of a body having posts provided with grooves, and pockets communicating at their ends with said grooves, common to both the upper and lower sash, ribs on said posts located in said pockets, and forming compartments in the pocket, a stop above the pocket, sashes guided in said grooves to rest upon said stop and to travel in one of said compartments, and a sash and means for independently guiding the same into the other compartment, substantially as described.

5. A car having a body portion provided with pockets and posts, said posts having grooves that are wider at the lower than at the upper part and an additional groove at the bottom of the other groove that leads to the upper part of the post, said grooves communicating with said pockets, the second-mentioned groove having an offset, sashes guided in said grooves, one sash having pins or projections to enter the narrow grooves and the offsets thereof, and a stop in the other groove to receive said sash, the main groove at the lower rail of the upper sash being adapted to receive the upper rail of the lower sash, a stop to receive the lower rail of the lower sash, said posts having ribs dividing the pockets into two compartments whereby the lower end of the lower sash can be moved bodily sidewise to enter one of said compartments, substantially as described.

6. A car having a body provided with grooved and ribbed posts, and panels between the posts forming a pocket, in combination with sashes movable in said grooves, a cover for said pocket hinged to one of said panels, and means interlocking with the grooves and ribs for locking said cover in its closed position over said pocket movably secured to said cover, substantially as described.

7. A car having a body provided with pockets and posts, said posts having grooves, in combination with sashes guided in said grooves, covers for said pockets, and locks for the covers having bolts adapted to pass into the grooves in the posts, substantially as described.

8. A car having a body provided with pockets and posts, said posts having grooves and ribs to guide sashes, in combination with said sashes, covers for said pockets, and locks having a bolt provided with projections to enter the recesses and a recess to receive the rib, substantially as described.

9. A car having a body provided with pockets and posts having ribs and grooves to guide sashes, in combination with said sashes, covers for the pockets, locks for the covers having sliding bolts provided with recesses for engaging the ribs, and levers to actuate the latter, substantially as described.

10. A car having grooved and ribbed posts, a sash-pocket, and a movable cover for said pocket, combined with a lock for said cover comprising a plate, a bolt having projections coöperating with the grooves and ribs, said bolt being guided to slide on the plate, and a lever pivoted to said plate and having a projection to act on said bolt, substantially as described.

11. A car having grooved and ribbed posts, a sash-pocket, and a movable cover for said

pocket, combined with a lock for said cover comprising a plate, a bolt having projections coöperating with the grooves and ribs, said bolt being guided to slide on the plate, said bolt having a stem, a guide on the plate to receive the stem, a spring to throw the bolt, and a lever pivoted to the plate and having a projection to act on the bolt, substantially as described.

12. A car having grooved and ribbed posts, a sash-pocket, and a movable cover for said pocket, combined with a lock for said cover comprising a plate and having a recess in one face and an opening, a pivoted lever in said opening having a handle portion passing into said recess, a projection at the opposite end and a spring-actuated bolt having projections coöperating with grooves and ribs, said bolt being guided by said plate and having an abutment to receive said projection, substantially as described.

13. In a car-body construction, the combination of the opposing posts, a closed pocket intermediate of the posts having separate grooves to receive the upper and lower sashes when lowered, the said sashes, a laterally-expanded single working space in said posts above the pocket for the sashes merging into one of said pocket-grooves, further grooves in said working space for the other sash merging into the other pocket-groove, and means on the latter sash for engaging the latter grooves, substantially as described.

14. In a car-body construction, a compartment having separate grooves to receive the upper and lower sashes when lowered, a single working space above the said compartment for the separate sashes, guide-grooves in said working space for one sash and pins on said sash working in said grooves.

15. In a car-body, the combination of upright posts and pockets or compartments between said posts for the reception of the sashes when lowered, separate grooves in the posts within said compartment, said posts having grooves above said compartment which are wider at their lower ends and common to both the lower and upper sashes, and having offsets for the support of the upper sash, sashes adapted to move independently in the said grooves, and means for guiding said sashes independently into said pockets, substantially as described.

16. In a car-body, the combination of the upright posts having the shoulders 17 intermediate their ends, the pocket or compartment at the lower end having the exterior rail 9, the grooves 12 12^a formed in the posts, the groove 12 above the rail 9 forming a single working space for the sashes, the grooves 13 formed in the posts laterally beyond the grooves 12 12^a and diverging outwardly and upwardly from said pocket toward and past said shoulders, the angular offsets 16 adjacent said shoulders, the lower sash adapted to work in the grooves 12 12^a, and rest on the rail 9, and the upper sash having pintles working in the grooves 13 and offsets 16 and adapted to bear on said shoulder, substantially as described.

17. The combination with the cover for the sash pocket or compartment at the lower end of the sash-guides, of plates movably secured to the said cover and having ends shaped to conform to the cross-section of outline of the sash-guides, substantially as described.

18. In a convertible car, the combination with guides for the sash allowing lateral movement of the sash and a pocket at the bottom of said guides for the reception of the sash, a cover for said pocket and movable plates secured to said cover and shaped at their ends to conform to the cross-sectional outline of the sash-guides, substantially as described.

19. In a car-body construction embodying uprights, sashes guided in grooves in said uprights, pockets or compartments between said uprights for the reception of the sashes, means for closing the said pockets, comprising a hinged cover fitting between the posts and movable plates secured to the said cover and having tongues arranged to engage in the sash-grooves, substantially as described.

Singed in the city and county of New York, State of New York, this 27th day of March, 1899.

JOHN A. BRILL.

Witnesses:
JOSEPH L. LEVY,
CHAS. G. HENSLEY.