

No. 632,600.

Patented Sept. 5, 1899.

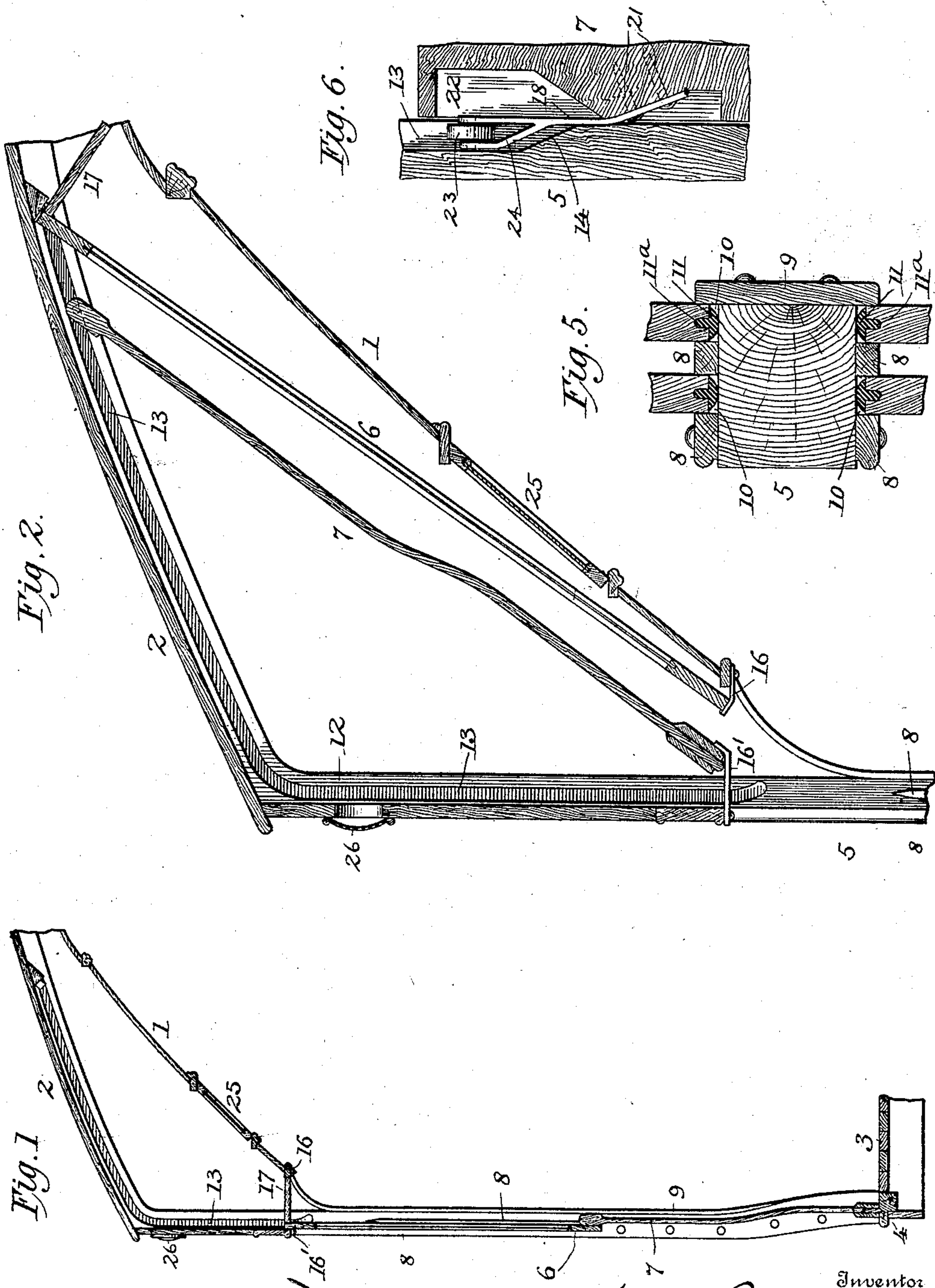
H. TROST.

CONVERTIBLE OPEN AND CLOSED CAR.

(Application filed June 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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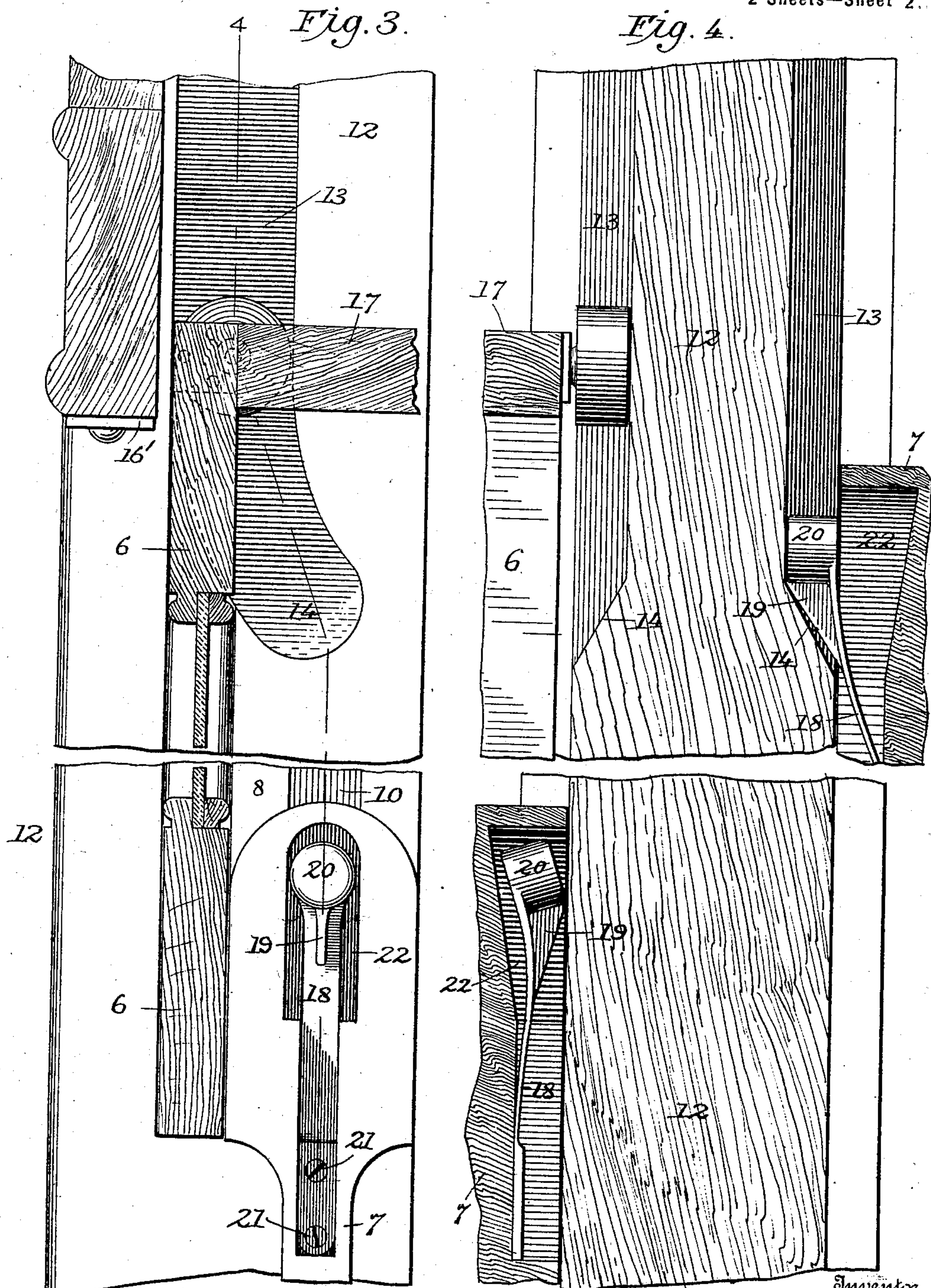
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2 Sheets—Sheet 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY TROST, OF COHOES, NEW YORK.

CONVERTIBLE OPEN AND CLOSED CAR.

SPECIFICATION forming part of Letters Patent No. 632,600, dated September 5, 1899.

Application filed June 20, 1899. Serial No. 721,227. (No model.)

To all whom it may concern:

Be it known that I, HENRY TROST, a citizen of the United States, residing at Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Convertible Open and Closed Cars; 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 the figures of reference marked thereon, which form a part of this specification.

My invention relates to convertible open and closed cars, and has for its main object to provide a construction in which the rigid window-sashes and rigid side panels may be raised independently of each other and stored away in the space between the car ceiling and deck or roof, said parts resting in an inclined position in said space, so as to occupy the minimum of space. By providing a construction by which the rigid sash and the rigid panel may be moved and stored in the space mentioned a car may be formed in which the sash and the portion forming the lower portion of the sides of the car-body will have the general appearance of the ordinary cars in use and will be more simple in construction and more durable in use than where the side portions are formed of flexible members or where the body of the car has to be made of a special form and the sash and panels have to be made of a special shape to conform to the special shape of the body of the car, and by having the construction such that the sashes and rigid panels can be moved independently of each other the sashes can be raised without disturbing the rigid panels, or if the parts be stored between the car ceiling and deck or roof the panels can be lowered without disturbing the sashes in their raised position. Such construction also makes it easier to manipulate both the sashes and the panels, as the weight in raising and lowering is less, owing to the fact that the sashes and panels, being independent of each other one can be manipulated without the weight of the other being thrown thereupon.

The invention has further for its object to simplify the construction and reduce the cost

of building a convertible open and closed car and at the same time maintain the general outline or appearance of the car to the cars that are in general use.

To the accomplishment of the foregoing and such other objects as may hereinafter be made to appear the invention consists in the construction and also in the combination of parts hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a vertical section through one-half of a car, showing a rigid window-sash and a rigid side panel in their lowered position. Fig. 2 is a similar section showing the sash and panel in their raised and stored-away position. Fig. 3 is a side elevation of one of the posts with parts broken away, showing the sash and solid panel in their lowered position, the parts being on an enlarged scale. Fig. 4 is a sectional view and on an enlarged scale, taken on the line 4 4 of Fig. 3, and illustrating on the left the sash and panel in their lowered position and on the right showing the panel partly raised with its guiding member in the lower end of the guiding-groove. Fig. 5 is a cross-section through a post and portions of a sash and panel, and Fig. 6 is a sectional view of a modified form of guiding-tongue.

In the drawings the numeral 1 designates the ceiling of the car; 2, the deck or roof; 3, the floor, and 4 the sill.

The numeral 5 designates one of the posts for the sashes and panels, and as all the posts are alike the illustration of one will answer for all.

6 designates the solid or rigid window-sash, and 7 the solid or rigid side panel. There will be as many sashes and panels as there are spaces between the posts to be occupied by the same, and each sash and panel will be formed like the others. Each post will have on two opposite sides the beads or strips 8 and on one side the bead 9 to form the ways or grooves 10 for the edges of the sash and panel to move in, and to the edges of the sash and panel will be attached rubber strips or caps 11, which may have a tongue 11^a fitting in a groove formed in the edges of the sash

and panel, so that said strips or caps will make close joints between the post and heads sash and panel for the purpose of excluding cold air and water when the car is used as a closed car. The parting-beads will be so formed or terminate at the proper point to permit the sash and panel to be tilted into the space between the ceiling and roof. From each post there extends upwardly and then inwardly a rib 12, which is formed with a longitudinally-extending groove 13, one on each side, which at its lower end is turned inwardly, as clearly indicated in Fig. 3, and at such point is formed with a beveled or inclined wall 14, as indicated clearly in Fig. 4. Each sash at its two opposite top corners is provided with a roller 15 or equivalent guiding member adapted to lie within the groove 13 of the rib 12, so that in the movement of the sash it will be guided or directed by the contour of the groove—as, for instance, when moved upward it will move in a substantially straight line for a distance and then have its upper end deflected inwardly by the change of direction of the groove until it is brought into the inclined position in the space between the car ceiling and deck or roof, as indicated in Fig. 2 of the drawings, where it may be supported by a fixed or pivoted catch or stop 16, as indicated in Fig. 2. The sash at its upper edge is also provided with an inwardly-extending bracket 17, in this instance intended to serve the purpose of closing the opening between the interior of the car and the space between the ceiling and deck when the sash is lowered. When the sash is down, the guiding-rollers, or the pintles, if the rollers are left off, will stand in the groove 13 in about the position indicated in Figs. 3 and 4 of the drawings.

The rigid or solid panel 7 is provided at its upper end, at opposite corners, at its side edges, with a member adapted to pass into and travel in the groove 13 of the ribs 12, so as to guide said panel into an inclined position in the space between the car ceiling and deck or roof the same as the rigid window-sash. For that purpose the lower end of the groove 13 is turned inwardly, as before described, so that when the panel is lifted its guiding member will enter the groove 13 at its inturned portion, which will then direct said member into the main portion of the groove, which from that point upward directs the panel in its upward movement, and also when the panel is lowered the inturned portion of the groove directs the panel into its proper position between the posts. The members at the top of the panel for guiding it through the grooves may be any suitable device for the purpose; but I have specifically designed for that purpose a spring pin or tongue 18 with an inclined neck or rib 19 and a head 20, which preferably is round, as indicated in Fig. 3 of the drawings. This spring guiding pin or tongue is secured by screws 21 to the edge of the panel and is of

such form that its normal tendency is to project its head beyond the edge of the panel, so that when the panel is lifted far enough to bring the tongue opposite to the inturned portion of the groove 13 the head of the tongue will spring into the groove, and thus serve to guide the panel in its proper path in traveling along the groove. The edges of the panel are recessed, as shown at 22, so that when the panel is lowered to a point below the groove 13 in the rib 12 the spring-tongue will be pressed into said recess, as indicated in the lower left-hand portion of Fig. 4, thus permitting the panel to be lowered to its lowermost position. The inclined neck or rib 19 in the downward movement of the panel comes in contact with the inclined wall of the lower inturned portion of the groove 13, as indicated in the upper right-hand portion of Fig. 4, so that there will be no sudden checking of the movement of the panel and so that the spring-tongue will be gradually pressed into its recess by the inclined wall of the groove. This spring-tongue will also serve to prevent any rattling of the panel when lowered. A modified form of this spring-tongue 18 is illustrated in Fig. 6 of the drawings, in which the upper end of the tongue is represented as forked and having a revoluble roller 23 mounted in the fork, the prong 24 of the fork serving the purpose of the neck or rib 19 of the first-described form of the tongue. The roller 23 serves to guide the panel into and through the groove the same as the head to the other form of the device.

Each panel 7 may be supported in its inclined position between the ceiling and roof by a suitable catch or stop—for instance, by a movable stop 16'—which may be pivoted to the under face of the upper portion of the side of the car, as illustrated clearly in Fig. 2 of the drawings, so that it may swing sideways to a point outside of the grooved portion of the post, and thus be out of the way in raising and lowering the sash and panel. It will also be observed that when the sash and panel are tilted in the space between the ceiling and roof the lower ends of the sash and panel are free to be moved away from the guideways, and by reason thereof a greater unrestricted movement is allowed to said parts and they can be more satisfactorily stored in said space, and the angle at which they may lie therein will not be restricted to the extent that would be the case if the lower ends were restricted by the guideway.

The feature of this present invention, so far as relates to a solid or rigid window-sash and a solid or rigid side panel formed and operating so as to lie in the space between the car ceiling and deck or roof, consists in the construction and arrangement by which each can be moved into such space and out of the space independently of the other. The advantage of that is that the sash can be first moved into such space and then the rigid panel moved

into the space. This also enables the rigid panel to be moved down again to its position at the base of the car without disturbing the sash, which may remain in the space between the ceiling and roof. This is of advantage in the event that the car makes a return trip without turning around. In such case the panels on the side next to the adjacent track can be lowered to serve as a safety-guard, and the panels on the opposite side raised without in either case interfering or being interfered with by the window-sashes, which remain stored in the space between the ceiling and roof, and so in the event that the car is used as a closed car and the conductor, owing to the crowded condition of the car, is not able to pass from end to end through the middle aisle he may walk along the side steps and raise the sash with one hand and have the use of the other hand for collection of fares or for other uses. Another advantage is that under the construction described both the rigid window-sash and the rigid side panel can be moved through the same single groove, and the panel lying over the sash in the space between the ceiling and roof the panel is in position to be moved into and out of place without disturbing the sash, which would not be the case were the sash made to lie over the panel and a separate groove used for both. I make no claim in this application broadly to the rigid sash and to the rigid panel.

I have also shown a ventilating-window in the ceiling and a ventilator in the side of the car beneath the roof, but lay no claim to the same herein.

I have illustrated and described what I consider to be the best form and arrangement of the several parts; but it is obvious that changes can be made therein and the essential features of my invention still be retained.

Having described my invention and set forth its merits, what I claim is—

1. In a convertible open and closed car, the combination with guideways in the space between the ceiling and the roof of the car, of a rigid sliding window-sash and a rigid sliding side panel, each movable independently of the other, and each provided with means connecting it with its guideway, the sash and panel being adapted to be independently tilted in an inclined position in the space between the ceiling and roof and supported therein, substantially as described.

2. In a convertible open and closed car, the combination with guideways in the space between the ceiling and roof of the car, of a rigid sliding window-sash and a rigid sliding side panel, each movable independently of the other in the same guideway and adapted to tilt and lie in an inclined position in the space between the ceiling and roof with the panel lying over the sash in said space, substantially as described.

3. In a convertible open and closed car, the combination with a storage-chamber between

the ceiling and roof of a car, of a rigid sliding sash and a rigid sliding side panel adapted to be moved into said chamber and tilted therein with the panel lying over the sash, said panel extending below the sash when the sash and panel are moved into their lowermost positions, substantially as described.

4. In a convertible open and closed car, the combination with guideways in the space between the ceiling and roof of the car, the lower ends of said guideways being deflected from a straight line, of a sliding rigid sash and a sliding rigid panel, one of which lies in a different vertical plane from the other and both of which have members to move in said guideways, the members of one of them entering the deflected portion of the guideway and movable in the other portion of the guideway whereby both will move in the same guideway in the space between the ceiling and roof and one will lie over the other in said space, substantially as described.

5. In a convertible open and closed car, the combination with guideways in the space between the ceiling and roof of the car, of a sliding rigid sash and a sliding rigid panel, each movable independently of the other, and each provided with means connecting it with its guideway, the sash and panel being adapted to be tilted into an inclined position in the space between the ceiling and roof, the lower ends of the sash and panel being free to move away from the guideways when tilted in said space, substantially as described.

6. In a convertible open and closed car, the combination with guideways in the space between the ceiling and roof of the car, the lower ends of said guideways being deflected from a straight line and having an inclined wall, of a sliding rigid sash and a sliding rigid panel both of which have members to move in said guideways, the member of one of them being movable to and from the part to which it is attached and adapted to contact with said inclined wall and by it be pressed in one direction to permit the part which carries it to pass said wall, substantially as described.

7. In a convertible open and closed car, the combination with guideways in the space between the ceiling and roof of the car, the lower ends of said guideways being deflected from a straight line and having an inclined wall, of a sliding rigid sash and a sliding rigid panel both of which have members to move in said guideways, the members of one of them being a spring-projected tongue adapted to enter said guideways and when brought opposite said inclined wall to be pressed by it into a recess formed in the part which carries it, substantially as described.

8. In a convertible open and closed car, the combination with a post, and a guideway in the space between the ceiling and roof of the car, the lower end of said guideway being deflected from a straight line and having an inclined wall, of a sliding panel having a recess

formed in the edge thereof, and a spring-tongue carried by the panel and having a head to enter the guideway and an inclined portion to contact with the inclined wall of the
5 guideway to permit the tongue to be pressed into the recess of the panel when its inclined portion and said inclined wall contact with each other whereby the panel may slide down

the post below the deflected portion of said guideway, substantially as described. 10

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

HENRY TROST.

Witnesses:

JOHN HENEY,
PHILIP TROST.