

No. 770,464.

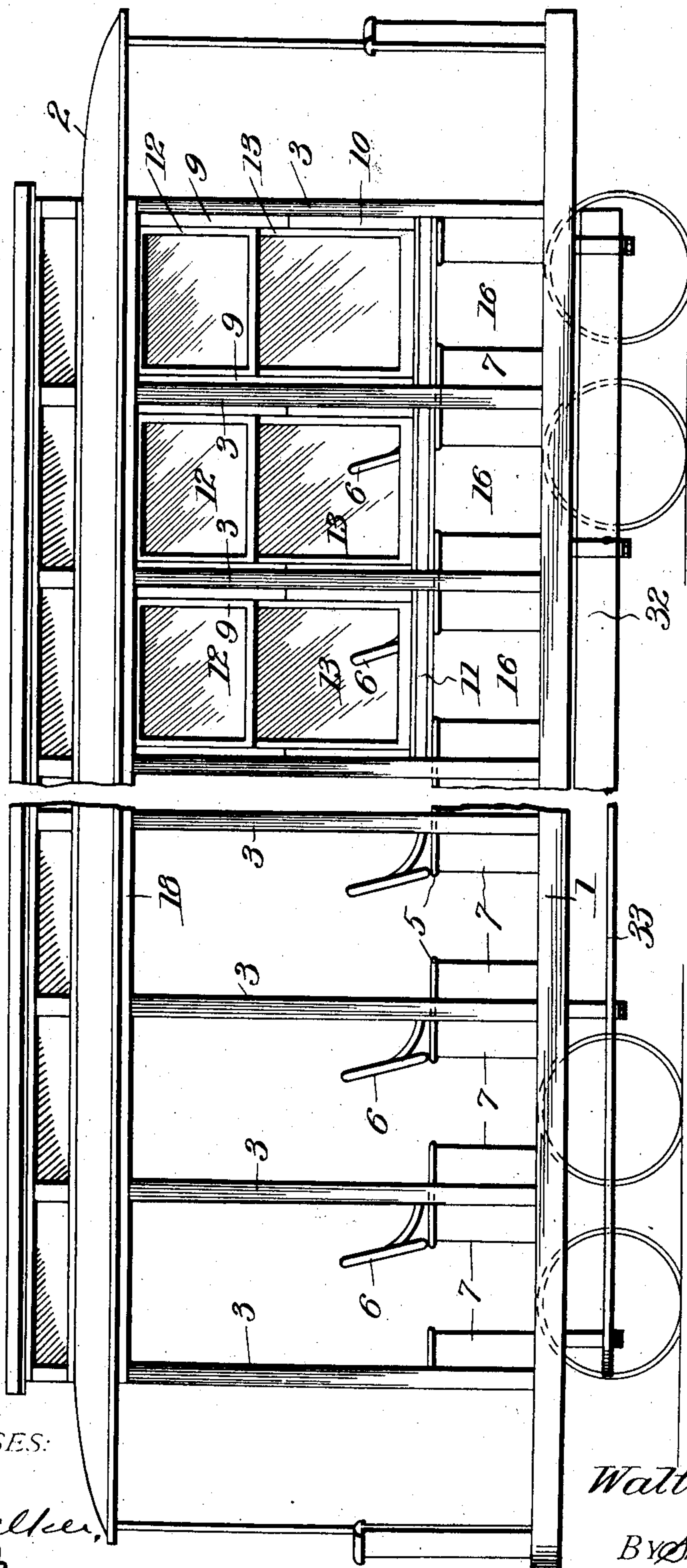
PATENTED SEPT. 20, 1904.

W. H. HOVENDEN.
CONVERTIBLE CAR.

APPLICATION FILED JUNE 29, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



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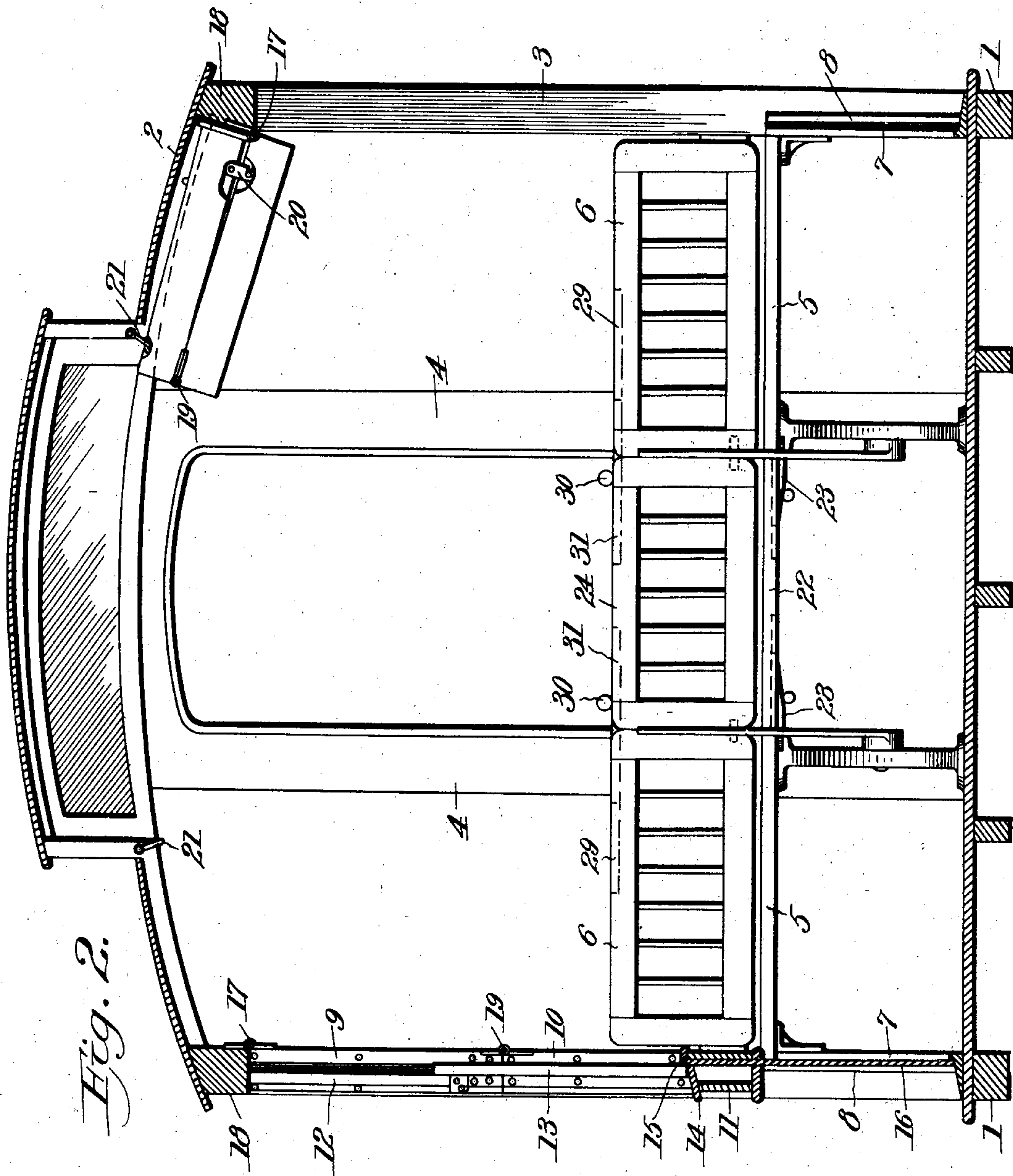


Fig. 2.

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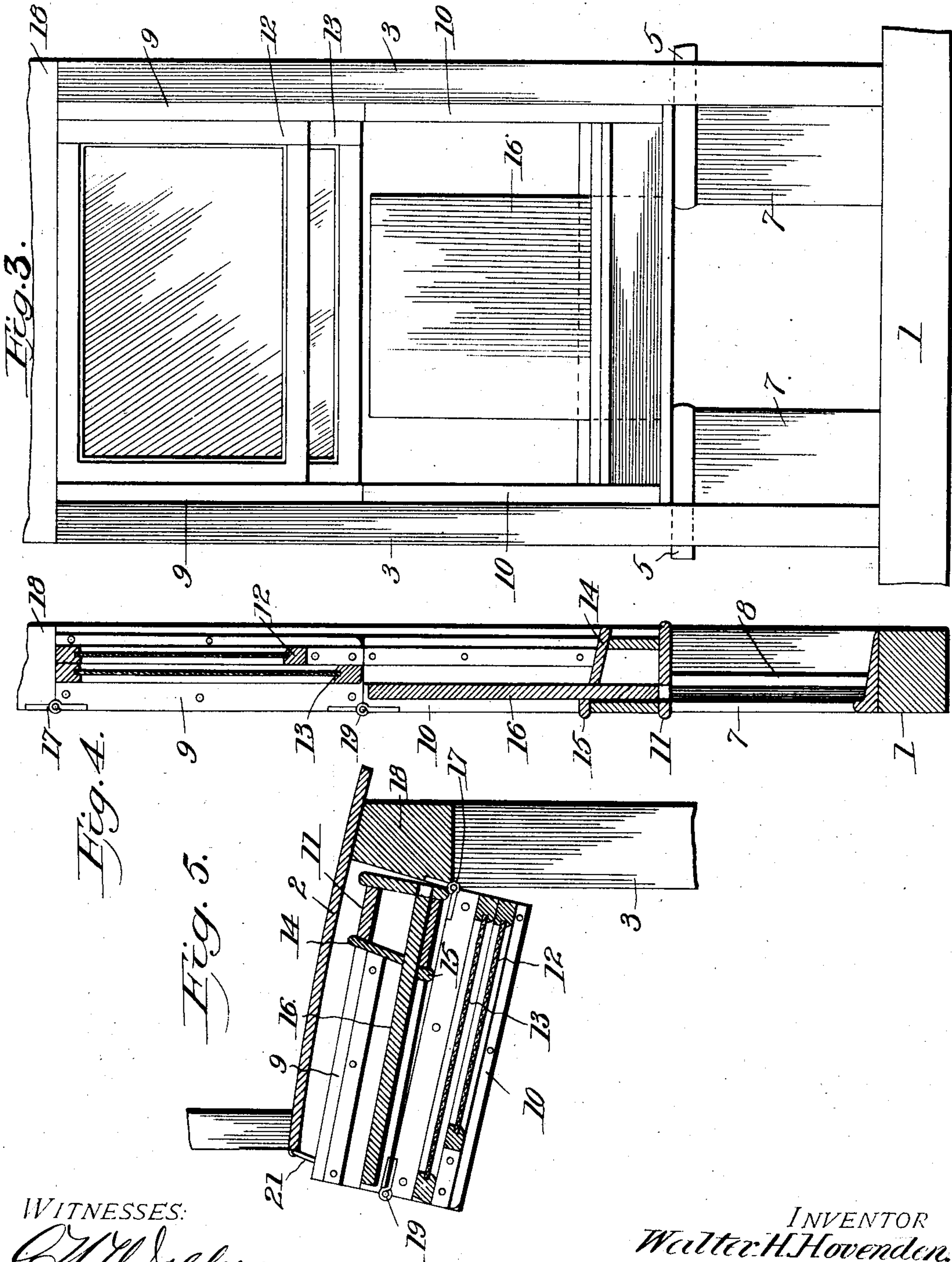
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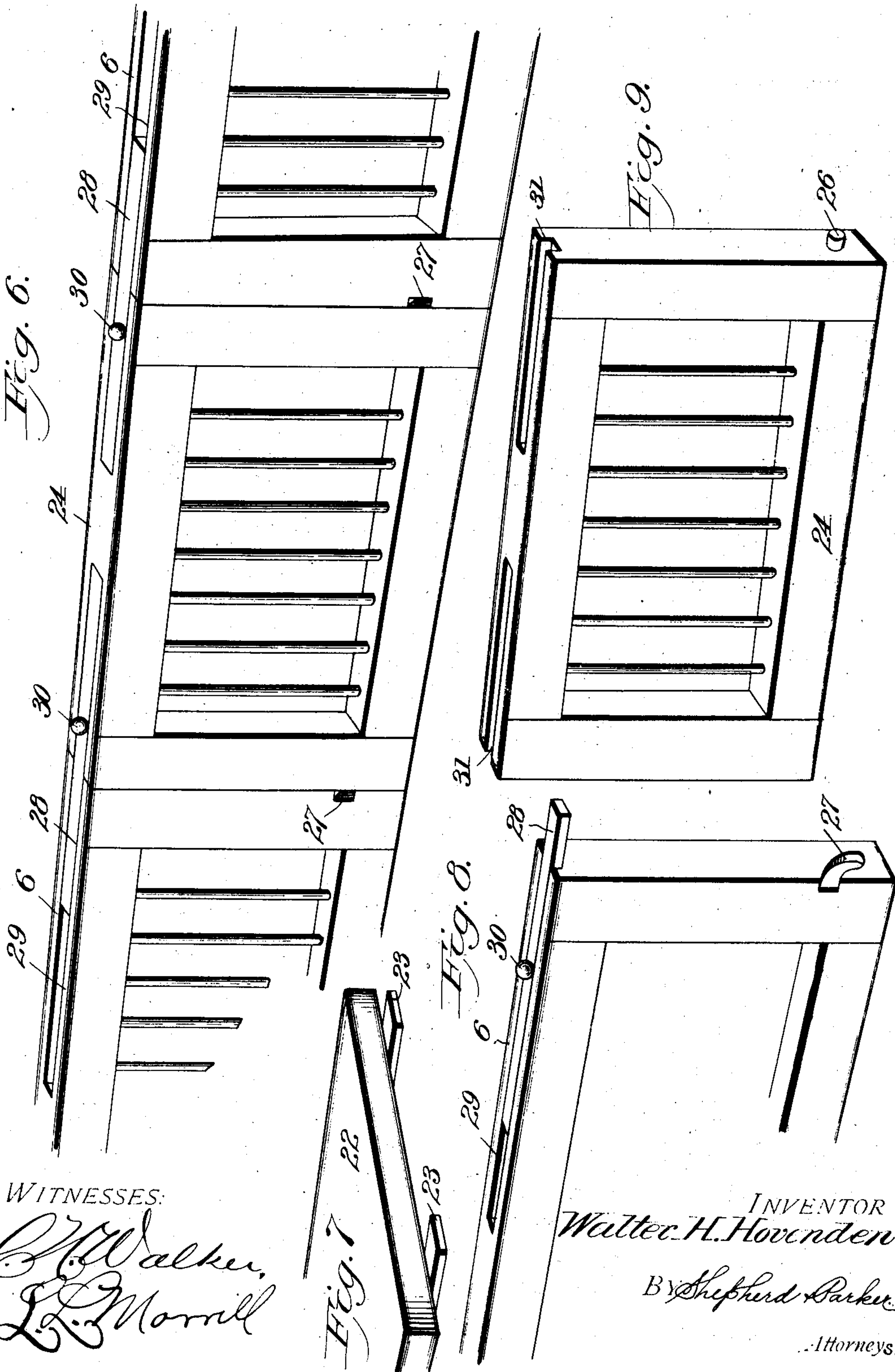
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UNITED STATES PATENT OFFICE.

WALTER H. HOVENDEN, OF SALT LAKE CITY, UTAH.

CONVERTIBLE CAR.

SPECIFICATION forming part of Letters Patent No. 770,464, dated September 20, 1904.

Application filed June 29, 1904. Serial No. 214,610. (No model.)

To all whom it may concern:

Be it known that I, WALTER H. HOVENDEN, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented a certain new and useful Improvement in Convertible Cars, of which the following is a specification.

My invention relates to convertible cars, particularly for use on city and suburban cars, and has for its object to provide a car adapted for use as a closed car or an open car, as desired.

It is well known that railway companies find it necessary to provide closed cars for use during the winter months and other cars of the open or "summer" type for use during the summer period. Heretofore railway companies, and especially street-railway companies, have made it a practice to provide two separate and entirely distinct sets of cars for use in summer and winter, thereby entailing an enormous unnecessary expenditure for equipment and maintenance. It is also well known that during certain portions of the year in most localities the weather is uncertain, making it desirable to use a closed car one day and an open one the next, or even to use a closed car on one trip and an open one on the next. A great amount of space is required for storing the unused cars, and considerable inconvenience is experienced by the railroad management for this and other reasons in changing from one form of car to the other. During unsettled weather it is often found desirable to change from an open to a closed car for the protection of the passengers while the car is upon the road.

One object of my invention is to provide a car which shall be easily and readily converted from a closed to an open car, and vice versa.

A further object of my invention is to provide a car which when the car is open at the sides may be provided with seats extending entirely across the car, with space for ingress and egress at their opposite outside ends, and when the car is in use as a closed car a central aisle extending throughout the length thereof, with seats upon either side thereof transverse thereto.

A further object of my invention is to pro-

vide a convertible car wherein the facilities for changing from one form to the other are always carried upon the car and disposed for instant use.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a side elevation of my convertible car, showing the same partly closed and partly open and also showing the running-board at the side in position for use as with an open car and also folded up for use with a closed car. Fig. 2 is a transverse section showing upon one side the removable wall in position for use as a closed car and upon the other side folded upwardly into the top of the car in position for use as an open car and also showing the seat-section in position, converting the seat into one long seat extending across the car. Fig. 3 is a detail view, in side elevation, and Fig. 4 in transverse section, of a portion of the wall occupying a space between two side posts with the lower sash and the panel pushed upwardly in position for folding. Fig. 5 is a transverse sectional view of the panel, sashes, sill, and frames folded upwardly and detachably secured to the ceiling of the car. Fig. 6 is a perspective view of the seat-section which is designed to fill the space between the backs of the seats shown in position. Fig. 7 is a perspective view of the seat-section designed to fill the aisle-space between the bottom of two seats. Fig. 8 is a perspective view of the back of the seat, and Fig. 9 is a similar view of the section, showing in detail the means for securing the section between the two backs.

Like characters of reference designate corresponding parts throughout the several views.

In the preferred embodiment of my inven-

tion I construct a car with the usual base 1 and roof 2, said roof being supported by regularly-spaced side posts 3, disposed upon the side of and perpendicular to the base. The ends of the car are provided with the usual sliding doors 4.

Opposite each of the side posts 3, with one end rigidly secured thereto, is placed a seat 5 with the usual back 6, said seat extending from the side posts transversely within the car to a central aisle extending longitudinally throughout the length thereof. The ends of the seats next to the side posts are provided with supports 7, extending upon either side of the side posts parallel with the length of the car and of a width approximating the width of the seat. Without the supports 7 and rigidly secured to the posts 3 are cleats 8, disposed parallel with the supports 7, with a space between said cleat 8 and supports 7.

Adjacent to the side posts 3 is disposed the window-frame formed in two hinged sections. The upper section 9 is hinged at the top to the plate and extends downwardly adjoining such side posts through approximately half the distance from the top of such post to the seat 5. Hinged to the lower edge of frame 9 is the lower frame-section 10, continuing in the same plane with the section 9 from the lower edge thereof to the seat 5. These frames, composed of sections 9 and 10, are mounted in pairs upon opposite sides of the side posts 3. Between the lower ends of oppositely-disposed frame-sections 10 is rigidly secured a sill member 11, extending parallel with the length of the car and of a length sufficient to fill the space between two side posts. Between beads properly disposed upon the face of the frames are slidably mounted an upper and a lower sash of such dimension as to fill the space between the frames and to extend vertically from the plate to the window-sill 11. The upper sash 12 is mounted in the upper frame-section 9, being of a vertical dimension less than the vertical length of section 9. The lower sash 13 is mounted principally in the lower frame-section 10, but of a vertical dimension great enough to extend beyond the point of meeting of the sections 9 and 10 and its upper edge to contact with the lower edge of sash 12. The lower edge of sash 13 abuts with sill 11 upon the apron 14, adjoining on its inner side the window-stool 15.

Slidably mounted between the seat-supports 7 and the cleat 8 is a panel 16, extending vertically from the base of the car upward through the window-sill, its upper edge forming a portion of stool 15. The panel 16 is of sufficient width to fill a space between two side posts 3 and is capable of a slidable upward movement through the sill 11 to a position wholly between the frame-sections 10.

The frame-section 9 is hinged at 17 to the usual plate 18, extending longitudinally

throughout the length of the car along the tops of posts 3. The lower frame-section 10 is hinged at 19 to the lower edge of frame-section 9.

A hook or catch 20 is provided for detachably securing the lower frame-section to the upper frame-section when folded upon hinge 19. A hook or catch 21 is likewise conveniently provided in the top of the car for the purpose of detachably securing the two frame-sections to the ceiling of the car when such connected sections are swung inwardly and upwardly.

For the purpose of converting the seats 5 into seats extending transversely entirely across the car a seat-section 22 is provided with slidable lugs 23 and adapted to fill the space between adjacent ends of oppositely-disposed seats and the slidable lugs 23, adapted to engage staples or similar devices upon the under surface of seats 5.

To convert the backs 6 into one back extending transversely entirely across the car, a back-section 24 is provided, which is adapted to fill the aisle-space between adjacent ends of oppositely-disposed backs. Within the ends of back-section 24 are placed pintles 26, adapted to engage grooves 27, formed within the ends of the backs 6. Within the edge of backs 6 are slidably mounted strips 28, within groove 29. The strips 28 are provided with any convenient device, as the knobs 30, for slidably moving them within the groove 29. The strips 28 when partly withdrawn from groove 29 are adapted to engage grooves 31, within the edge of back-section 24. Without the lines of the car and below the sill 1 is mounted the usual running-board. This running-board or step is adapted to be folded upwardly, as shown at 32, when the car is used as a closed car or to be disposed in an operative position occupying a horizontal plane when the car is used as an open car, as shown at 33.

The operation of my improved convertible car is as follows: With the various parts disposed to form a closed car, as shown in Fig. 1, and it being desired to convert the car to an open car, the panel 16 is pushed upwardly between the seat-support 7 and cleat 8 and through the sill 11. The sash 13 is pushed upwardly within the frames 9 and 10 to occupy a position beside the sash 12 wholly within frame-section 9. The movement of panel 16 out of engagement with supports 7 and cleat 8 releases frame-section 10 and permits of its being swung inwardly and upwardly. The sill 11 being rigidly secured between the lower ends of frame-section 10 and the panel 16 being engaged between such sections are swung with the frames and are all detachably secured by a hook or a catch adjacent to the upper section 9. The two sections 9 and 10 thus secured together are swung inwardly and upwardly on hinge 17 and detachably se-

cured by hook 21 to the ceiling of the car. This leaves the entire space between the seats and between the posts 3 open, as shown in Fig. 1. The seat-section 22 and the back-section 24 are carried in any convenient position, as beneath the seat 5. When the sides are removed, as above described, the seat-sections 22 are placed between the adjacent ends of oppositely-disposed seats 5, and the slidable lugs 23 are pushed outwardly to engage staples or other similar devices disposed beneath the ends of seats 5. The back-section 24 is placed between adjacent ends of oppositely-disposed backs 6 with the pintles 26 within and engaging grooves 27. The strips 28 are slidably moved outwardly along groove 29 to engage groove 31 and hold the back-section firmly in position.

It is obvious that the panel 16 may be mounted in conjunction with guides differing materially from the supports 7 and the cleat 8 and in different operative relation with the sill 11. It is also obvious that the frame-sections may be differently hinged and other devices provided for securing them either in the open or closed position. It is further obvious that different means of securing the seat and back section 22 and 24 in position may be provided and that various and other changes may be made in the form and minor details without departing from the spirit or sacrificing any of the advantages of my invention.

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

1. A convertible car having a window comprising an upper and a lower sash, the said lower sash being adapted to be pushed upward beside the upper sash and both sashes adapted to be swung upon a hinge inward and upward and in such adjusted position, detachably secured to the ceiling of the car.

2. A convertible car with sides consisting of regularly-spaced vertical posts with windows filling the spaces between the posts, said windows each consisting of an upper and a lower sash, the lower sash being adapted to be pushed upward beside the upper sash and both sashes adapted to be swung upon a hinge inward and upward and in such adjusted position detachably secured to the ceiling of the car.

3. A convertible car with sides consisting of regularly-spaced vertical posts, a removable wall filling the space between the posts and consisting of windows, each composed of an upper and a lower sash and a panel extending from the bottom of the lower sash to the floor of the car, and so disposed that the panel and lower sash may be pushed upwardly until the lower sash assumes a position beside the upper sash and both sashes adapted to be swung upon a hinge inwardly and upwardly and detachably secured to the ceiling of the car.

4. A convertible car with sides consisting of regularly-spaced vertical posts, a removable

wall filling the space between the posts and consisting of windows composed of an upper and a lower sash, a panel extending from the bottom of the lower sash to the floor, and so disposed that the panel and lower sash may be pushed upwardly until the lower sash assumes a position beside the upper sash, the panel being adapted to be folded inwardly and upwardly and removably secured beside the two sashes, and the sashes and panel adapted to be swung inwardly and upwardly and detachably secured to the ceiling of the car.

5. A convertible car having regularly-spaced transverse seats therein extending from regularly-spaced vertical side posts to a central aisle extending throughout the length of the car, a removable wall filling the space between the posts and consisting of a window composed of an upper and a lower sash and a panel extending from the floor to the bottom of the lower sash, and so disposed that the panel and lower sash may be pushed upwardly until the lower sash assumes a position beside the upper sash, the panel being adapted to be folded inwardly and upwardly and detachably secured beside the two sashes and the panel and sashes adapted to be swung inwardly and upwardly and detachably secured to the ceiling of the car.

6. A convertible car having removable side walls regularly-spaced seats therein extending from the side walls to a central aisle extending throughout the length of the car, and seat-sections adapted to be attached to adjacent ends of opposite seats and fill the aisle-space therebetween, the backs of the seats being provided at their adjacent ends with grooves and a strip longitudinally slidably mounted within each upper edge, a back-section provided at each end with a lug adapted to engage the groove in the end of a back and grooves along the edge of the back-section adapted to receive and engage the slidable strips.

7. A convertible car with sides consisting of regularly-spaced vertical posts with windows filling the spaces between the posts and each consisting of an upper and a lower sash, the lower sash being adapted to be pushed upward beside the upper sash and both sashes adapted to be swung upon a hinge inward and upward and detachably secured to the ceiling of the car, regularly-spaced seats within said car extending from the side posts to a central aisle extending throughout the length of the car and seat-sections adapted to be attached to adjacent ends of opposite seats and fill the space therebetween.

8. A convertible car with a side consisting of regularly-spaced vertical posts, a removable wall filling the space between the posts, and consisting of a window composed of an upper and a lower sash and a panel extending from the bottom of the lower sash to the floor of the car, and all so disposed that the

panel and the lower sash may be pushed upwardly until the lower sash assumes a position beside the upper sash and all adapted to be swung upon a hinge inwardly and upwardly and detachably secured to the ceiling of the car, regularly-spaced seats within said car extending from the side posts to a central aisle extending throughout the length of the car and seat-sections adapted to be attached to adjacent ends of opposite seats and fill the aisle-space therebetween.

9. A convertible car having regularly-spaced transverse seats therein extending from regularly-spaced vertical side posts to a central aisle extending throughout the length of the car, a removable wall filling the space between the posts and consisting of a window composed of an upper and a lower sash and a

panel extending from the floor to the lower sash, and all so disposed that the panel and the lower sash may be pushed upwardly until the lower sash assumes a position beside the upper sash, the panel being adapted to be folded inwardly and upwardly and detachably secured to the ceiling of the car, regularly-spaced seats within said car extending from the side posts to a central aisle extending throughout the length of the car and seat-sections adapted to be attached to adjacent ends of opposite seats and fill the aisle-space therebetween.

WALTER H. HOVENDEN.

In presence of—

J. W. ENSIGN,

C. L. HANNAMAN.