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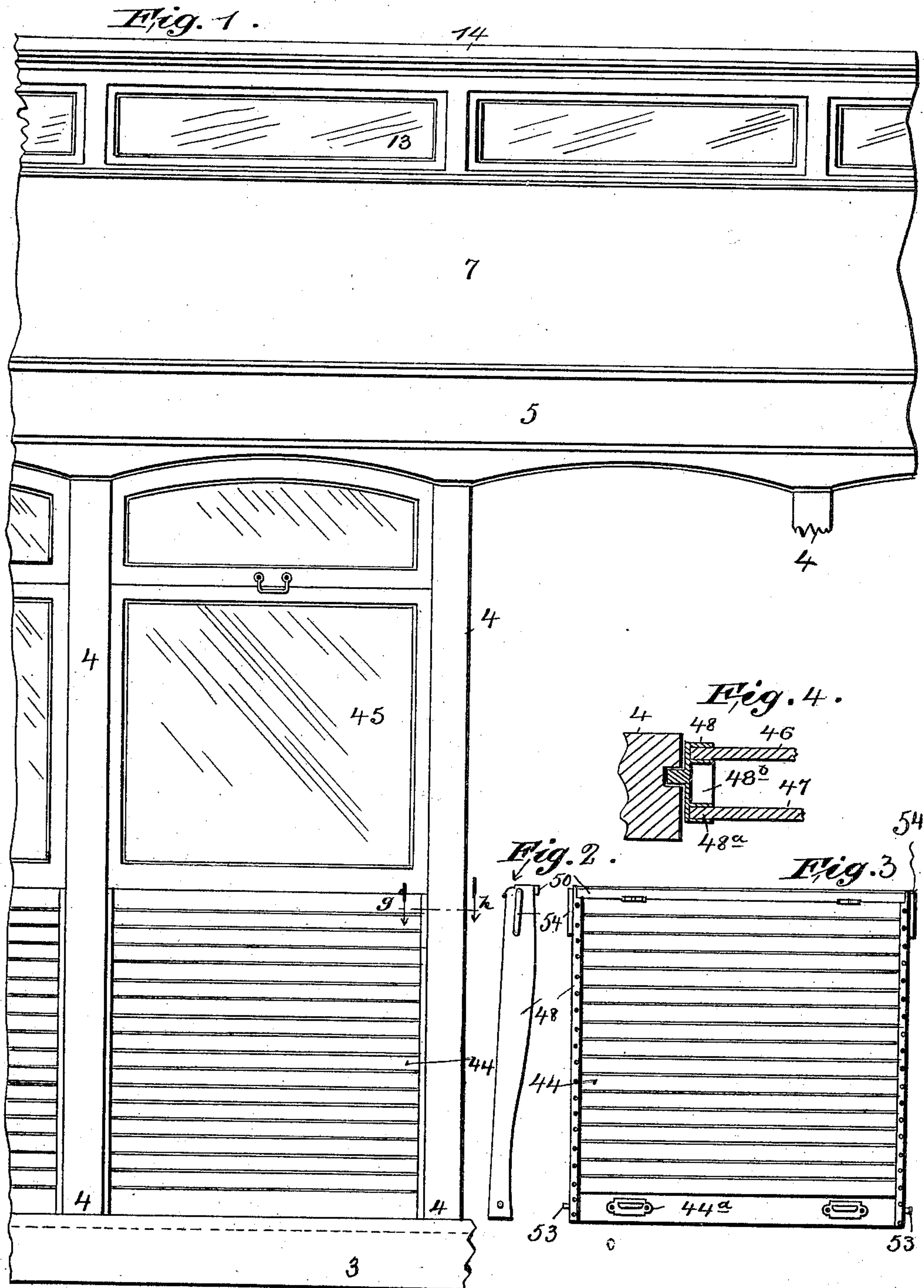
Patented Apr. 1, 1902.

J. A. BRILL.
CONVERTIBLE RAILWAY CAR.

(Application filed Jan. 8, 1901.)

(No Model.)

5 Sheets—Sheet 1.



WITNESSES
C. W. Benjamin
Chas. G. Hensley

INVENTOR
John A. Brill
BY *his* ATTORNEY
Joseph L. Levy

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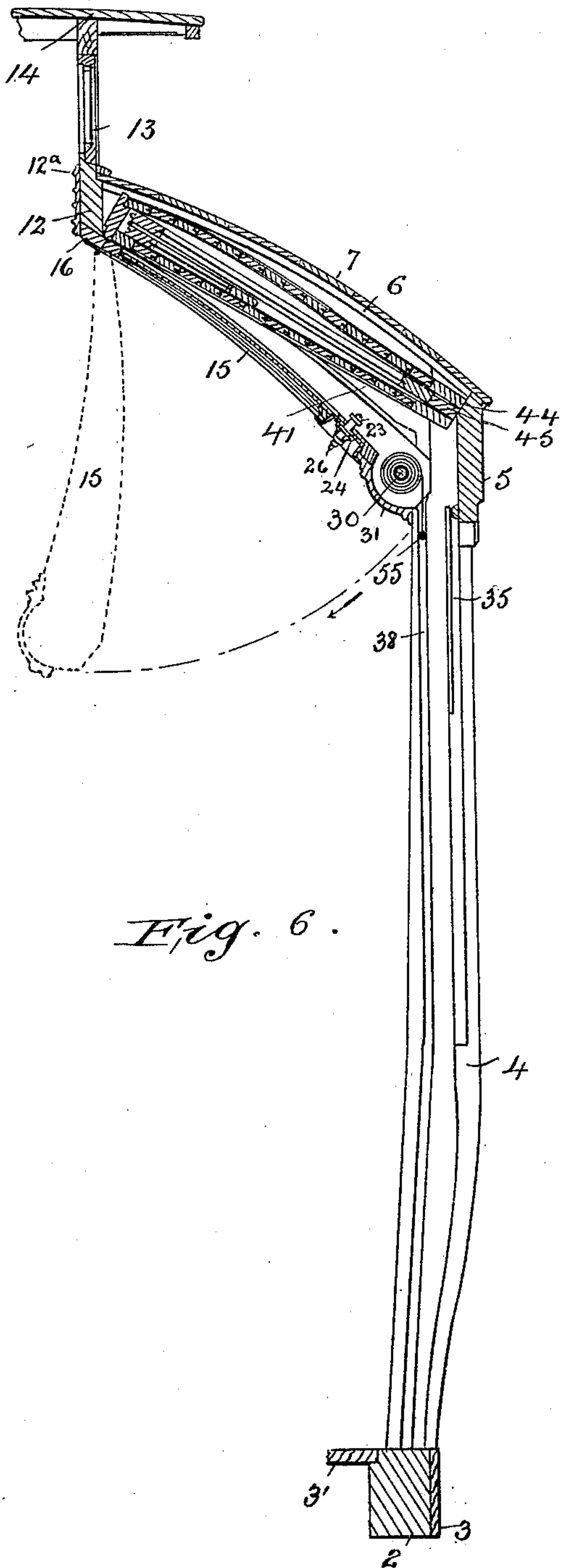


Fig. 6.

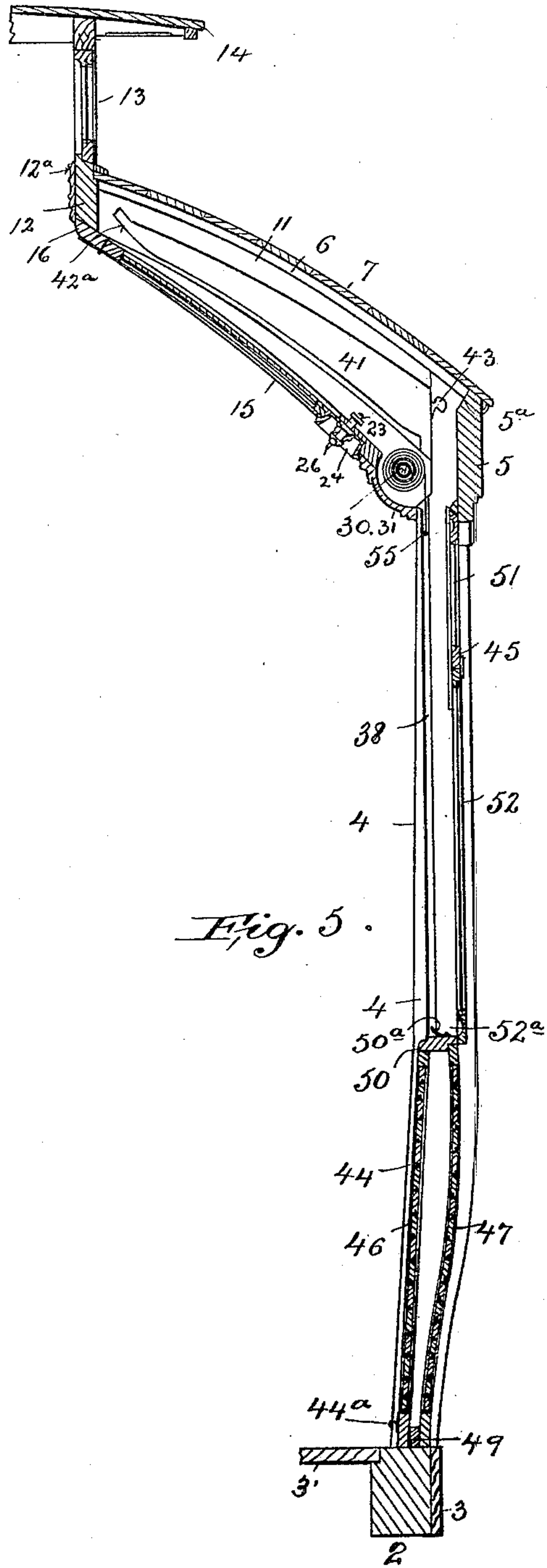


Fig. 5.

WITNESSES
C. W. Benjamin
Chas. G. Hensley

INVENTOR
John A. Brill
BY HIS ATTORNEY
Joseph L. Levy

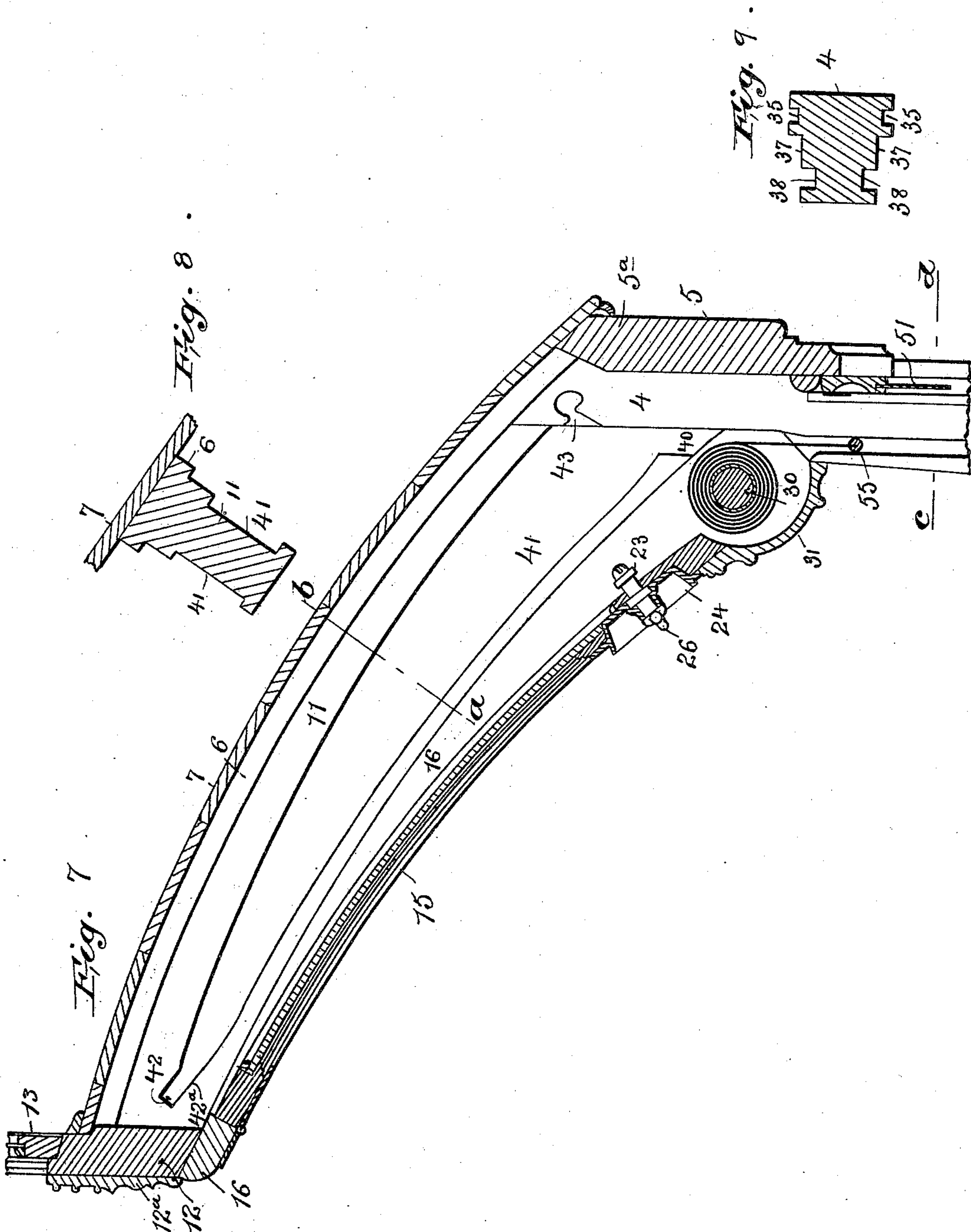
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(No Model.)

5 Sheets—Sheet 3.



WITNESSES
Chas. Benjamin
Chas. G. Hervey

INVENTOR
John A. Brill.
BY His ATTORNEY,
Joseph E. Kern

No. 696,408.

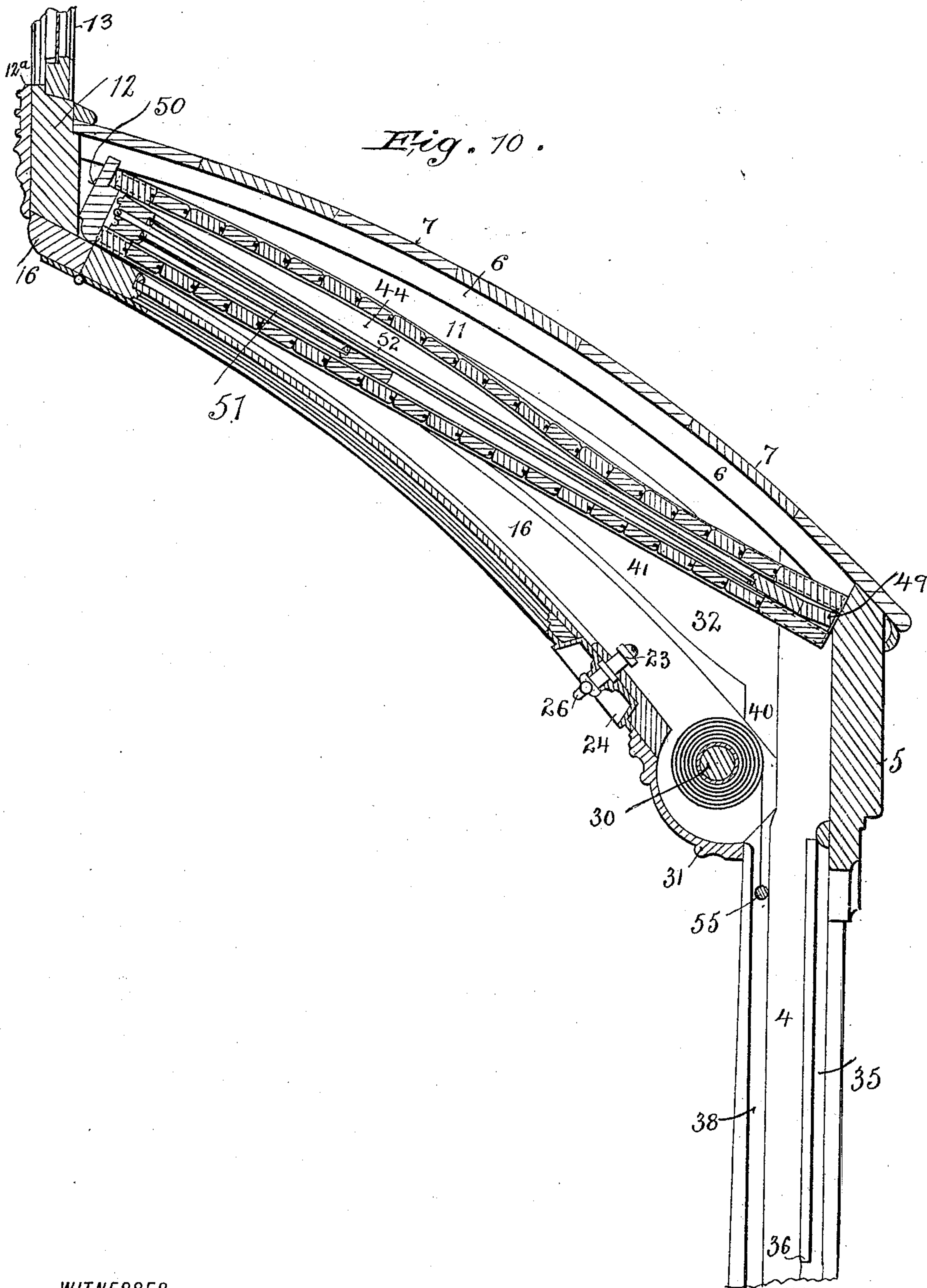
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(No Model.)

5 Sheets—Sheet 4.



WITNESSES
Chas. G. Hensley

INVENTOR
John A. Brill
BY *His* ATTORNEY
Joseph R. Levy

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5 Sheets—Sheet 5.

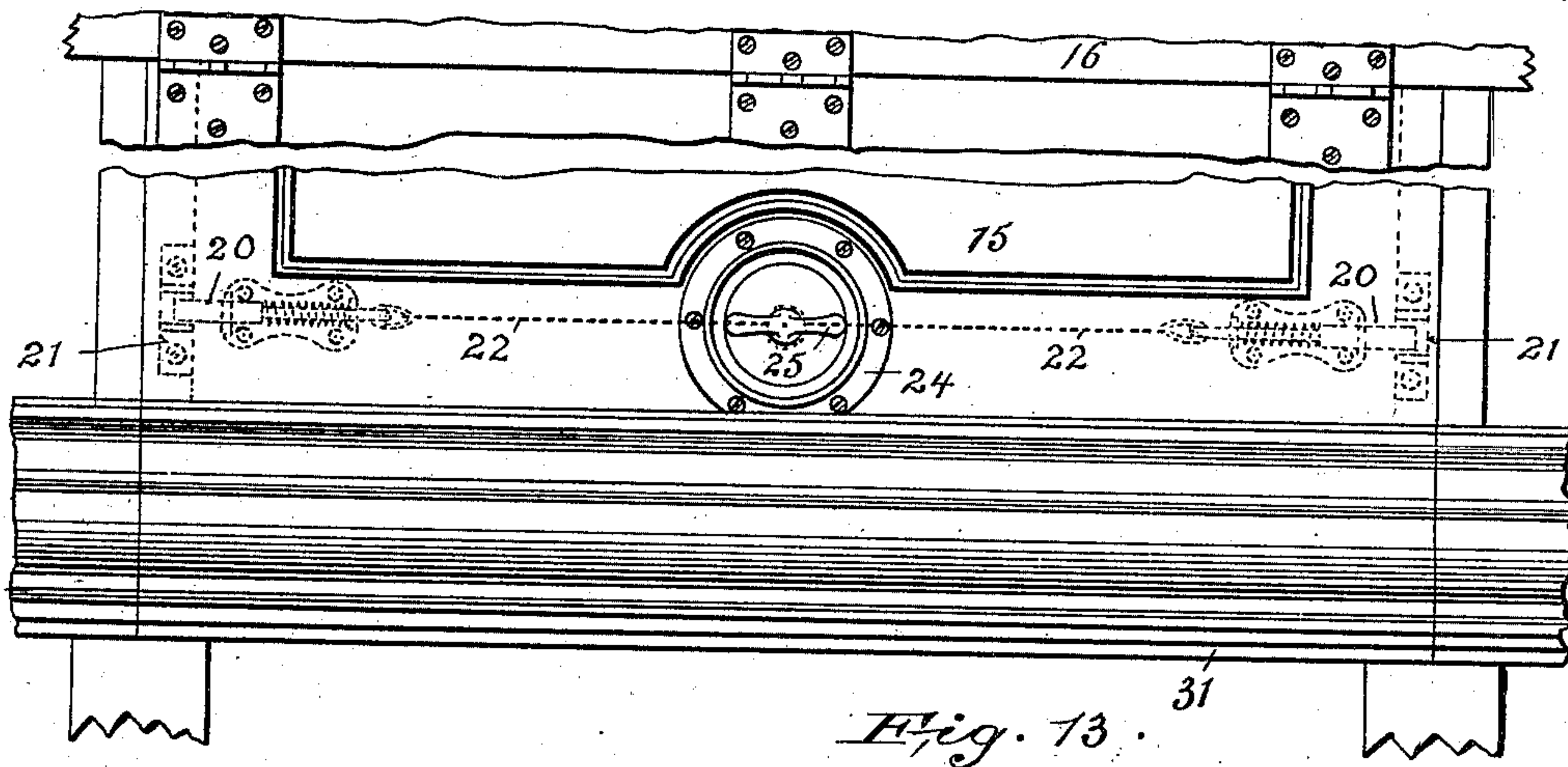


Fig. 13.

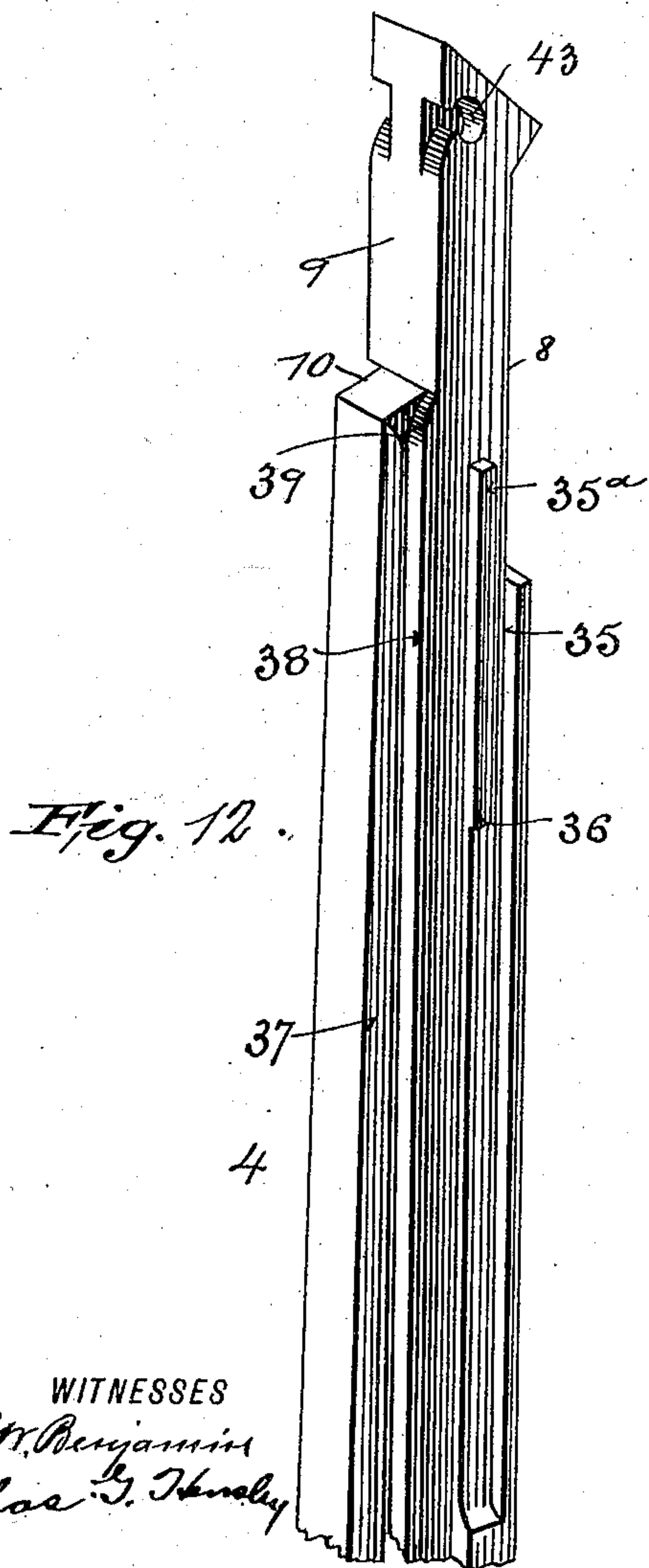


Fig. 12.

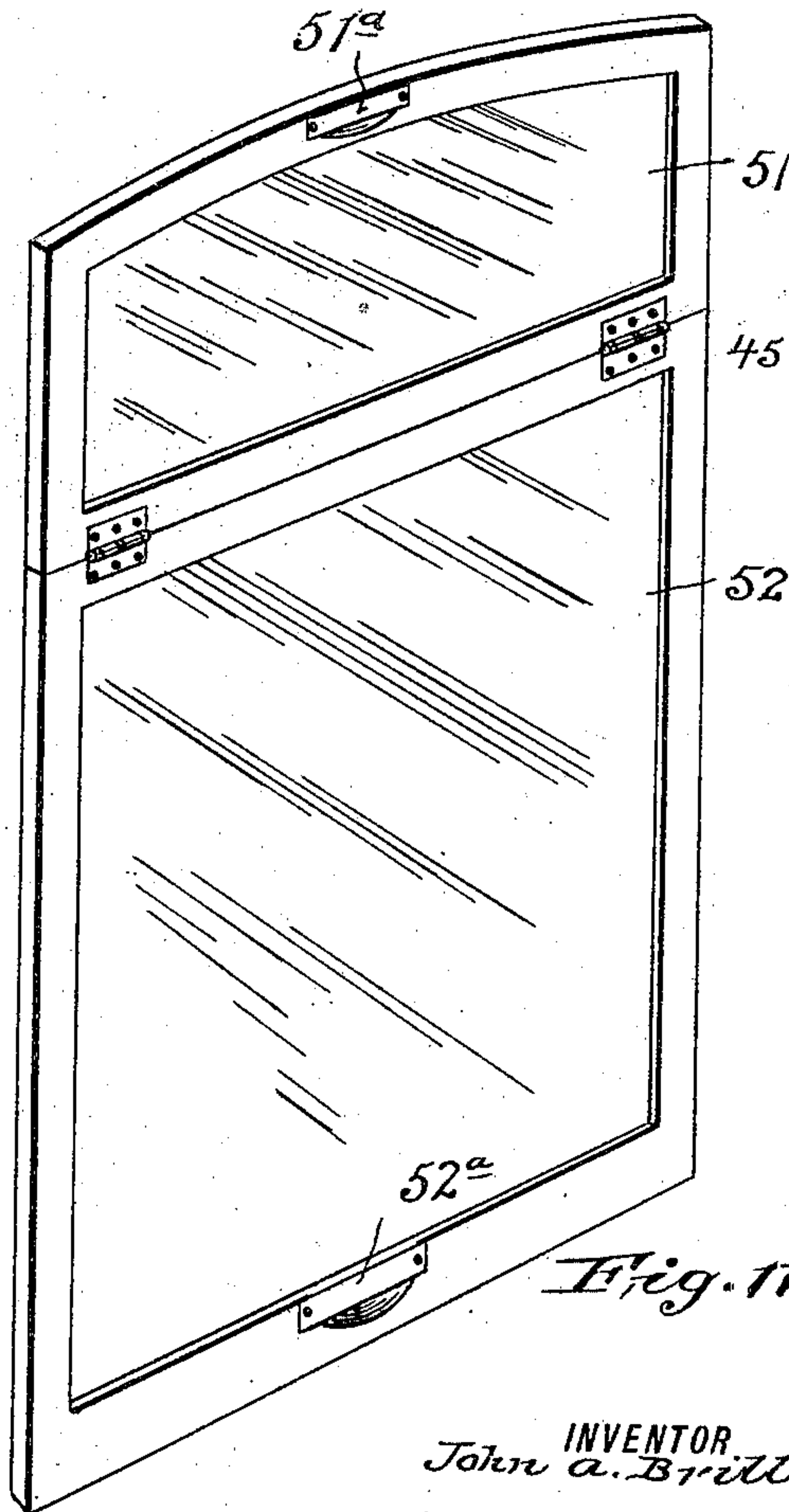


Fig. 11.

WITNESSES
Chas. Benjamin
Chas. G. Hendley

INVENTOR
John A. Brill
BY HIS ATTORNEY
Joseph L. Levy

UNITED STATES PATENT OFFICE.

JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

CONVERTIBLE RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 696,408, dated April 1, 1902.

Application filed January 8, 1901. Serial No. 42,485. (No model.)

To all whom it may concern:

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

My invention relates to improvements in convertible or combination cars—that is, cars which may be changed from closed or winter cars to open or summer cars, or vice versa, and although my improvements may be advantageously employed in cars or vehicles designed for any general carrying purposes such improvements have special application to cars designed for street or urban or suburban service.

My present improvements relate generally to those described in my prior patent, No. 623,764, dated April 25, 1899, and, like that, are designed to maintain the general appearance of an ordinary car in both its closed and open conditions to make a true open car with a side entry for summer use and a closed car with end doors and platforms for winter use.

Stated generally, the improvements may be said to consist in the panel arrangement whereby the car is converted from an open to a closed car, or vice versa, in the means for storing the said panels, and other details of construction, which render it cheap, simple, and very efficient against rattling and shaking and which makes a very complete closure to the sides of the car when closed. More specifically stated, they comprise, among other features, posts arranged at intervals, as in the former structure, but of improved design, and panel therebetween, forming when down the closed sides of the car, the lower panel being so constructed that it will receive and hold the upper panel when it is desired to open the car only partly, or when it is wished to open it entirely the whole is bodily lifted into a space provided for the same in the roof of the car, the posts and other parts serving to guide the same in its upward movement.

The invention further consists in the novel details of improvement and combination of parts hereinafter described, and further pointed out in the claims.

In the accompanying drawings, forming

part of this specification, and in which the same reference characters represent like parts throughout the several views, Figure 1 is a side elevation of a part of the car, showing it closed. Fig. 2 is an end elevation of one of the base-panels. Fig. 3 is a side elevation of the same. Fig. 4 is a sectional view on the line *g h*, Fig. 1, showing in detail the arrangement for guiding the base-panel. Fig. 5 is a sectional elevation through the side of the car, showing the panels in position to close the same. Fig. 6 is a similar view showing the panels stored in the roof of the car. Fig. 7 is a sectional elevation through the roof of the car, showing in detail the construction of the same. Fig. 8 is a sectional view on the line *a b* of Fig. 7. Fig. 9 is a similar view on the line *c d*. Fig. 10 is a sectional elevation corresponding to Fig. 7 and showing the panels as stored for summer use. Fig. 11 is a detailed perspective view of the upper or sash panel. Fig. 12 is also a perspective view in detail of one of the upright posts, and Fig. 13 is a fragmentary view showing the means to secure the inside head-lining panel in closed position.

In the figures, 2 is the usual longitudinal sill of the car-body, having the base-board 3, of proper material and finish on the outside, attached thereto, to which sill the flooring 3' connects, and the vertical side posts or stanchions 4, placed at intervals along the sides, and at the ends of the car are secured the side posts, being usually located at the ends of the transverse seats, as in the ordinary open car. A running-board or step (not shown) may be secured to the sills 2 in the usual way. To the upper ends of these posts are secured the longitudinal top rail or weather-board 5, which is made in one piece and takes the place of the separate top rail and panel usual in some other constructions. It extends the length of the car and has its lower edge formed and curved as desired to conform to the location of the posts 4 and to present a pleasing appearance and has secured thereto and to the posts the car-lines 6 and side roof-boards 7. The said posts 4 extend to the car-lines 6 and are formed or notched at the upper ends at 8 (see Fig. 12) to fit the upper beveled edge 5^a, thus forming a close joint and firm connection between the posts, top

rail, and the roof members. On the other side of the post a recess 9, extending to the step 10, is formed, in which rests one end of of a curved brace or horn 11, which virtually
 5 constitutes a continuation of the posts 4 and to the other end of which the ventilator-rail 12 is secured, a molding 12^a being placed over the said rail. The horn lies beneath and follows the car-line 6 or roof 7. These horns or
 10 braces 11 are sometimes termed "rafters." It will be understood, of course, that there is one of these horns 11 for every post 4, it being of the same thickness as the post and having its sides flush with the sides of the post. It
 15 will also be apparent that the post and horn or brace may be made in one piece, if desired; but for various reasons the construction described is preferred. The balance of the roof is constructed in the usual way with
 20 ventilators 13 and upper deck 14, as shown in Figs. 1, 5, and 6.

The head-lining of the car, or "ceiling," as it is sometimes termed, consists of the panels or doors 15, which are hinged at their upper
 25 edges to the hinge-rail 16, that is secured to the lower edge of the rail 12. The term "ceiling," however, may include the whole inner side of the top portion and not be limited to doors 15. These panels extend longitudi-
 30 nally from center to center of the posts 4 and the braces 11 and at each end on the inner side are supported by curved bars, arms, or braces 16, which are secured to said panels and swing therewith and fit closely against
 35 the lower edges of the horns 11 to firmly hold the panels away a little distance, and at their lower ends they rest against the recesses 9 and beveled steps 10 of the posts 4, making a close and snug connection therewith,
 40 as shown. Sliding spring-bolts 20, Fig. 13, are attached to the inner sides of these panels, one at each end near the lower edge, and when the panel is closed are held in catches 21, mounted in the braces 11. They are con-
 45 nected by cords or chains 22, attached to the inner ends of the said spring-bolts and adapted to be wound about the spindles 23 of the releasing device 26. This releasing device has a casing 24 let into the panel 15, as shown
 50 in Figs. 7 and 13, and is provided with a handle 25, carried by the spindle 23, which when operated winds up the chain 22 and withdraws the bolts. The panel 15 is, in fact, a door to close the bottom opening of the cham-
 55 ber 32, and while it is shown and described as being hinged beneath the rail 12 it may be made much shorter, just so that the chamber 32 is opened enough to allow a free entrance thereto. The door may also be extended at
 60 the free end between the posts 4 to entirely close the said bottom opening of the chamber by properly arranging the curtain, but the construction shown is preferred. A curtain-roll 30 is carried at the lower end of the panel
 65 15 and is journaled between the braces 16, a molding 31 being attached to the panel and braces 16 to conceal the curtain-roll, provide

room therefor, and to present a pleasing appearance in the interior of the car. The curtain will thus partake of the swinging move- 70
 ment of the panel 15 and will not interfere in any way with the said movement of the panels. A space or chamber 32 is thus formed in the roof of the car between the panel 15, the roof proper, the rail 12, and the top rail 75
 or outer wall 5, which is utilized for the storage of the sash and base panels that form the sides of the car, as will be hereinafter explained.

The opposing faces of the posts 4 are grooved, 80
 as indicated in Fig. 12, the groove 35 at the upper end extending down substantially to the belt-rail of the car and having its inner edges or rail 35^a cut away below the point 36, as shown. The base or bottom of this groove 85
 is higher than the adjacent parts 37 of the same face of the post, as shown also in Fig. 9, for a purpose that will be hereinafter explained. A groove 38 in the portion 37 of the
 90 same face of the post extends from its lower end to the step 10, where both edges are curved outwardly, as shown at 39, to provide free and easy entrance to the groove for the parts which are designed to travel therein. The
 95 arm 16, the lower end of which normally rests above the upper end of the groove 38, is of such thickness as not to obstruct the said groove, which is extended, as at 40, into the horn or brace 11, where it is widened to nearly
 100 the full width of the brace at its lower end and tapers to about its original width at its extreme or inner end 42. The lower edge of the groove at this end is curved upwardly, as shown at 42^a. A notch 43, with an enlarged end
 105 and of the same depth as the groove, is formed in the upper end of the posts 4, as shown. These posts are preferably made from solid stock, but could be built up in any desired
 110 manner, the grooves being formed by securing cleats or strips thereto. The space between the posts 4 is closed for winter use by means of panels 44 and 45, the base-panel 44, consisting of a box-like structure or casing,
 115 having an inner and outer wall 46 and 47 of grooved-and-tongued slats or narrow strips of suitable material, the outer wall being curved to the desired outline for the lower
 120 outside parts of the car and the inner wall being substantially straight. These walls are properly spaced and held apart by the rigid end pieces 48, which may be castings, as indicated in Fig. 4, slats 46 47 being held
 125 in the sockets or grooves 48^a, while a web 48^b extends across the bottom of the casing on which the bar 49, which may be of any suitable depth and thickness, rests, and of
 130 rubber or other shock-deadener, in whole or in part, to close the opening in the bottom of the said box-panel. The top opening is adapted to be closed by the hinged lid 50, which also forms the window-sill and at the
 same time serves to hold the sash-panel 44 firmly in place and to make it weather-tight and to prevent rattling. As a sill it also pre-

vents things from being thrown into the hollow panel. A handle or lift 50^a is provided with which to assist in raising the lid or sill 50, while the sash 52 is recessed at 52^a to facilitate the same operation. Sockets 44^a are provided on the inside of the panel 44 with which to raise the same, and the panel 45 is likewise provided at 51^a and 52^a. The upper or sash panel consists of the upper sections 51 52, hinged together, each of which contains a single pane of glass. By properly proportioning these two panels 44 and 45 the sash-panel could be made of a single section, in which case the edge 35^a of the groove might be shortened, and, in fact, made into a mere lug or projection. The base-panel has trunnions or lugs 53 at its lower end and corresponding projections at its upper end, which are adapted to travel in the groove 38 in the opposing faces of the posts 4. The sash-panel is of such thickness as to slide in the groove 35 in the posts 4, the upper sash normally fitting therein above the cut-away portion, where it is held in place by the inner edge 35^a, and the lower end of the lower section just clears the upper edge of the walls of the base-panel. When both panels are in their proper positions, as shown in Fig. 5, the lid or sill 50 is closed against the lower edge of the sash-panel, which prevents it from working loose and out of position, the upper edge being held in place by the upper section of the panel, while the lower panel is held in proper position by the projections or trunnions 53 and 54, fitting in the groove 38. It will be observed that a weather-tight construction with but few parts is thus provided and in which the rattling is reduced to a minimum.

Any kind of a sash instead of that described may be used, either two hinged together or a single sash of proper length or several separate ones, and there may be separate grooves for either or both of the sashes.

When now it is desired to open the sides of the car, the lid 50 of the base-panel is opened, the lower edge of the sash-panel is drawn inwardly over the opening in the base-panel and dropped down until the upper edge of the sash-panel is below the point 36 in the groove 35. The upper section of this panel is then folded down, and both sections are slipped completely inside of the lower panel, the lid of which is again closed, and the whole is lifted bodily into the space 32 in the roof, the trunnions or projections 53 and 54 following the grooves 38 and extensions thereof before described, the latter being wide at its lower ends, as explained, to accommodate the long projections 54 of the panel 44. Before the panel can be raised into the chamber 32 it is first necessary to open or let down the hinged section 15 on account of the narrow space between the curtain and the board 5. This storing of the sash-panel within the base-panel can be readily accomplished, as the sash-panel grooves are of less depth than the oth-

ers, and therefore the sash itself is narrower than the base-panel and can readily enter between its end members. When so stored, it is practically impossible to break the glass of the sash-panel in raising the said panels to the space within the roof, and a safe and economical method of storing them is provided. When the lid of the base-panel has reached the end of the space 32, the lower end of the panel is lifted toward the roof until the projections 53 pass into the notches 43, before described, whereby the panel will be held securely in the space 42. The upward curves 42^a of the grooves 41 facilitate with the aid of gravity the sliding back of the panel when its projections pass into said notches 43 and also serve to hold the same continually pressed back into this position to prevent rattling, the notches 43 being formed, as shown, to assist in holding the panel firmly, while its lower end also finds a firm seating against the weather-board 5, which is beveled at 5^a to the proper angle. The inside panel 15 is swung forward at this time in order to accomplish the storing of said panel and is afterward closed when the curtain-rod 55 is pulled down into the same groove 38. It will be noticed, therefore, that this groove 38 has the double function of accommodating the curtain-rod as well as the base-panel. When the panels are stored in the roof, the curtain may of course be pulled down to the floor of the car; but when the base-panel is lowered it can only reach the lid or sill 50, which, however, is sufficient.

It will be understood that there will be no danger of the base-panel binding on the interior panel 15 in being raised or lowered, for the latter is swung forward or inward at this time and does not conflict in any way with this movement; nor can they come down until section 15 is lowered, for beside being held by notches 43 there is not sufficient room between the curtain and the board 5. For the same reason the space between the panels 15 and the roof may be decreased at will, allowing only just sufficient room for the base-panel and the curtain-roll.

The car may also be used as a semi-open car, in which case the sashes 51 52 can be stored in the pocket of the lower panel and raised up into place in case of inclement weather or the curtain can be used instead of the sashes. The lid 50 of course would be closed during this time.

The described construction results in a compact and cheaply-constructed car which possesses the advantages of a summer open car and is also weather-tight for winter use and free from unusual noise and rattling.

While I have fully described my invention in reference to the details of construction, I would have it understood that it is not to be limited thereto, as many changes could be made and still come within its scope; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a convertible car, the combination with panels for closing the sides thereof, the lower or base panel being adapted to receive the upper panel, of means whereby the said lower panel with the upper panel may be stored beneath the roof of the car.

2. In a convertible car having side openings defined by upright posts, means for closing each of said openings comprising an upper and a lower panel, the lower panel being constructed to receive the upper panel when it is desired to open said openings, a roof for said car provided with storage-spaces and means whereby the said base-panel carrying the upper panel can be bodily lifted in the said storage-space in the roof.

3. In a convertible car having one or more side openings, the combination with upright posts to define said openings, of means for closing said openings comprising panels, one of said panels being constructed to receive and hold another of the panels, a roof for the car having spaces therein in which to store the panels, and means to permit said receptive panels to be lifted bodily into the said space in the roof of the car.

4. In a convertible car having side openings, upright posts to define said openings, a roof for the car provided with storage-spaces, panels fitting between said posts to close the openings for winter use, each comprising a lower or base panel, and an upper or sash panel, the lower panel being constructed to receive and hold the upper panel when it is desired to store the same, and means whereby the said base-panel may be bodily lifted and guided into the roof storage-space.

5. In a convertible car having side openings, upright posts to define said openings, a roof for the car provided with storage-spaces therein, means for closing each of said openings comprising a hollow base-panel and an upper or sash panel, the said sash-panel being adapted to be placed inside the hollow portion of the base-panel when it is desired to open the side of the car, and means whereby the said base-panel can be bodily lifted into the said roof-space.

6. In a convertible car having side openings therein, upright posts to define said openings, a roof for the car provided with storage-spaces, means to close said openings including a hollow base-panel forming a box or casing, an upper or sash panel adapted to slide down inside the box or casing, and means to guide the said box or casing to the space within the roof for the purpose of storage.

7. A convertible car provided with openings therein, upright posts to define said openings, a roof for the car having storage-spaces formed therein, means to close said openings comprising a base-panel having an inner and an outer wall spaced apart, and an upper or sash panel adapted to slide down into the space between the said walls when it is desired to open the side of the car, and guiding means connected with said posts whereby the

said base-panel with the contained upper panel can be lifted into the roof storage-space.

8. A convertible car provided with side openings therein, upright posts to define said openings, and having grooves formed in the opposing faces or sides of said posts, a roof for the car provided with storage-spaces corresponding to the said openings in the car sides, means for closing said openings comprising a base-panel having an open space between its sides and trunnions or lugs guided in one of said grooves, an upper or sash panel sliding bodily in another of said grooves, and means for guiding said sash-panel down into the receptacle of the base-panel, and further means whereby the said base-panel can be lifted into the said roof storage-space.

9. A convertible car provided with side openings therein, upright posts to define said openings, and having grooves formed in their opposing faces or sides, horns or braces in the top of the car, forming continuations of said posts, one of said grooves on each face being extended into said horn or brace, means for closing said openings consisting of a box or casing panel guided by said extended groove; and another panel guided by another groove and adapted to be received by said box or casing panel whereby both may be bodily lifted and guided to the top of the car for storage purposes between the braces or horns.

10. A convertible car having side openings, upright posts to define said openings and having grooves in their opposing faces, a roof for the car, braces or horns forming continuations of said posts into the roof, one of said grooves being extended into the horns and notches such as 43 being formed near the outer end of said extended portion of the groove, a hollow base-panel having lugs or trunnions sliding in said groove, a sash-panel normally held in another of said grooves when the side of the car is closed and adapted to drop into said hollow base-panel, whereby, when the said base-panel with its contained sash is raised, the said lugs and groove will guide the same into the space between the horns or braces in the roof, and one set of lugs or trunnions can be guided into the said notches 43 to hold the panel in its raised position.

11. In a convertible car having side openings, posts to define said openings, grooves in the opposing faces of said posts, arms or braces in the roof of the car forming continuations of said posts and into which one groove is extended, means to close the opening between said posts comprising a lower panel guided by the extended groove, a sash-panel guided by another of said grooves with its inner side on a line with the outside of the lower panel when the opening is closed, means whereby the sash-panel can be dropped inside the base-panel, and the latter being guided by its groove can be lifted into the space between the arms or braces.

12. In a convertible car having side openings therein, upright posts to define said openings, and removable sections adapted to be placed in said openings comprising a base-panel and a sash-panel, the base-panel being constructed to receive the sash-panel for storage purposes.

13. In a convertible car having side openings, posts to define said openings and removable sections to close said openings comprising a base-panel and a sash-panel, the base-panel being constructed to receive the sash-panel when it is desired to remove the sections and the sash-panel being made in more than one section to more readily fit the receptacle of the base-panel.

14. In a convertible car having side openings, posts to define said openings, and removable sections to close said openings for winter use, comprising a box-like or hollow base-panel, and an upper sash-panel, the latter being made in hinged sections adapted to fold together and slide down into the box or base-panel for storage purposes.

15. In a convertible car having side openings, upright posts to define said openings, removable sections to close said openings comprising a hollow lower or base panel having a lid or cover therefor, and an upper or sash panel adapted to slide down into said base-panel, which when the lid is closed is ready for removal and storage.

16. In a convertible car having side openings, upright posts to define said openings, removable sections to close said openings comprising a lower or base panel having an inner wall and an outer wall conforming to the desired contour of the outside of the car, said walls being spaced apart by rigid end pieces and a lid hinged to the inner wall to close the box, an upper sash-panel against the lower edge of which the said lid presses when down and the sash-panel is in place, the said lid then serving as the window-sill, and means whereby the said lid may be raised, the sash-panel dropped down inside the box, the lid again closed, and the whole removed for storage purposes.

17. In a convertible car having side openings, upright posts to define said openings, removable sections to close said openings comprising a lower or base panel having an inner wall and an outer wall conforming to the desired contour of the outside of the car, said walls being spaced apart by rigid end pieces and a lid hinged to the inner wall to close the box, an upper sash-panel composed of sections against the lower edge of which the said lid presses when down, to hold the same in place and to form the window-sill, and means whereby the said lid may be raised, the sash-panel folded up and placed between the walls of the base-panel and the whole removed for storage purposes.

18. In a convertible car having side openings, upright posts to define said openings, the opposing faces of said posts being broken

up into longitudinal parts in different places, a base-panel extending between the portions of said posts farthest apart, and a sash-panel between the parts a less distance apart, whereby the sash-panel is narrow enough to be received and held by the base-panel, a guiding means for the base-panel connected with the said post, and means whereby the said base-panel with its sash-panel may be lifted and stored away.

19. In a convertible car having side openings, posts to define said openings, and having grooves formed in the opposing faces, the bottom of one of said grooves being higher than the faces or edges of another, means to close said openings comprising a base-panel having a receptacle therein and guided by said deeper groove, a sash-panel guided by the other groove, the inner edge of which is removed for part of its length to allow the bottom of said sash to swing over the receptacle of the lower panel and to pass down therein, the latter being adapted to be lifted and stored in the roof of the car.

20. In a convertible car having side openings therein, upright posts to define said openings, and having an inner and an outer groove on their opposing faces, a roof for the car provided with storage-spaces, means to close said openings, comprising a hollow base-panel guided by said inner groove, a sash-panel guided by said outer groove, and located near the outer edge of the post and substantially on a line with the outside of the base-panel, the lower portion of the inner edge of said outer groove being removed so as to permit the lower edge of the sash-panel to swing forward over the hollow base and drop therein, said base-panel being adapted to be lifted and guided by its grooves into the said space in the roof.

21. In a convertible car having side openings therein, upright posts to define said openings, and having an inner and an outer groove on their opposing faces, a roof for the car provided with storage-spaces, means to close said openings, comprising a hollow base-panel guided by said outer groove, a sash-panel composed of sections and guided by said outer grooves, the inner edge of the grooves along the bottom section of the panel being removed to allow it to swing inward over the base-panel and to drop therein, and means whereby the said base-panel can be lifted to the storage-place in the roof.

22. In a convertible car having side openings therein, upright posts to define said openings, and having an inner and an outer groove on their opposing faces, a roof for the car provided with storage-spaces, means to close said openings, comprising a hollow base-panel guided by said inner groove, a sash-panel composed of sections guided by said outer grooves, the inner edge of the groove along the bottom section of the panel being removed to allow it to swing forward over the base-panel and means whereby the said sash-panel

may be drawn forward, folded up and dropped into the said hollow panel and roof storage-space.

23. In a convertible car having side openings, upright posts to define said openings, and having grooves formed in the opposing faces of said posts, a roof for the car provided with storage-spaces therein, means to close said openings comprising a box base-panel having a lid and an upper sectional sash-panel adapted to fold up and slide snugly into the base-panel, the latter being adapted to be guided in one set of said grooves to the roof storage-space.

24. In a convertible car having side openings therein, upright posts to define said openings, and having grooves in their opposing faces, means to close said openings comprising a base-panel slidable in one set of grooves, and a sash-panel slidable in another pair of grooves, and a curtain having a rod also slidable in one of said sets of grooves.

25. In a convertible car having side openings therein, upright posts to define said openings, and having grooves formed in the opposing faces, means to close said openings comprising a base-panel slidable in one of said grooves and a sash-panel slidable in another set of grooves, and a curtain having a rod slidable in the base-panel grooves.

26. In a convertible car having side openings, upright posts to define said openings having grooves formed in their opposing faces, a roof for the car having spaces formed therein, means to close said openings comprising a base-panel adapted to slide in the inner groove, a sash-panel adapted to slide in the outer grooves, the base-panel being constructed to be lifted into the storage-space in the roof, and a curtain having a rod which is capable of sliding in the base-panel grooves whether the said panel is in position between the lower ends of the posts or stored in the top of the car.

27. In a convertible car having side openings, upright posts to define said openings, a roof having storage-spaces therein, means to close said openings, comprising a base-panel, adapted to be lifted and stored in said roof-space, and a sash-panel, a guiding means for the base-panel connected with said posts, a curtain adapted to be guided by the same means, and additional means for moving said curtain out of the way of the base-panel when it is lifted up or down.

28. In a car, the combination with the posts, a head-lining forming the inside of a roof-pocket above the posts, said lining comprising a panel hinged at the upper inner end of the pocket, and means for securing the lower free end of the panel to the lower end of the pocket, substantially as described.

29. In a car, upright side posts, a curtain-roll, a hinged head-lining adapted to open and expose the roll, and a guiding means for said curtain connected with said posts.

30. In a car, upright side posts having

grooves in their opposing faces, a curtain guided by said grooves, and roll on which said curtain is wound, a hinged or pivoted support for said roll whereby the same may be entirely removed from the groove or the path of anything moving therein.

31. In a car, upright side posts having grooves in their opposing faces, a curtain guided by said groove, a roll for said curtain in the top of the car, a support of said roll hinged at its inner end and allowing the said roll to be swung inward away from the upper ends of the grooves for purposes of inspection and whereby the curtain is entirely removed from the grooves.

32. In a convertible car having side openings, posts to define said openings extending up into the roof of the car and having grooves in their opposing faces, means to close said openings comprising a base-panel and a sash-panel, the said base-panel being constructed to receive the said sash-panel and to be guided by said grooves into the top of the car, and a hinged head-lining adapted to be swung aside to permit a free passage for the said panel from the upright portions of said posts to the roof portions and vice versa.

33. In a convertible car having side openings, posts to define said openings, a roof provided with spaces therein, means to close said openings comprising a base-panel and a sash-panel adapted to be stored in the roof-space, and a removable head-lining corresponding to said space to readily permit said storage operations.

34. In a convertible car having openings in its sides, posts to define said openings, braces or horns in the roof of the car forming continuations of the posts and having grooves in their opposing faces corresponding to similar grooves in the posts, means to close said openings comprising a base-panel and a sash-panel, the base-panel being constructed to receive the sash-panel and having lugs near the top and bottom fitting in said grooves to guide the same into the space in the roof between the said horns for storage purposes, and a head-lining extending inward from the posts hinged near its inner end so that its outer end may swing away from the posts to provide room for the panel to pass from the posts to the roof-space.

35. In a convertible car having openings in its sides, posts to define said openings, braces or horns in the roof of the car forming continuations of the posts and having grooves in their opposing faces corresponding to similar grooves in the posts, means to close said openings comprising a base-panel and a sash-panel, the base-panel being constructed to receive the sash-panel and having lugs near the top and bottom fitting in said grooves to guide the same into the space in the roof between the said horns for storage purposes, a head-lining panel adjacent the posts, hinged at its inner end, and a curtain-roll carried by said head-lining and journaled near its outer

end, so that both the head-lining panel and the roll may be swung away from the posts.

36. In a car, the combination of a swinging roof-section, a curtain carried thereby, side posts for the car having grooves, the free end of the said curtain being guided by said grooves.

37. In a car, the combination of a swinging roof-section having a recess formed therein, a curtain carried on the section in said recess, side posts for the car having grooves for the free end of the curtain and alining with the said recess, when the said swinging section is in normal position.

38. The combination in a convertible car, having side openings and a roof storage-space, of means for closing said openings comprising a box-panel and a sash-panel, and means for dropping the sash-panel into the box-panel, the said box-panel being adapted to be lifted into the roof storage-space.

39. In a car, the combination with posts to define side openings, removable panels to close said openings comprising a lower panel and an upper panel, the upper panel being adapted to be stored in the lower panel and readily raised therefrom, whereby the car may be used as an open or semi-open car.

40. In a street-car having side openings, the combination with posts to define said openings, removable panels to close said openings comprising a lower panel having a pocket, and an upper sash-panel to be stored in said pocket, and to be readily raised therefrom when the car is being used as a semi-open car.

41. In a street-car having side openings, posts to define said openings, means to close the openings comprising a lower or base panel having a pocket and adapted to remain in position when the car is closed or semi-open, and an upper sash-panel adapted to be stored in said pocket for either semi-open or open use of the car.

42. In a street-car having side openings, posts to define the same, removable panels to close the openings comprising a lower panel having a pocket and an upper panel adapted to be stored in said pocket either for bodily removing or for semi-open use of the car, and a curtain capable of use during the closed, semi-open, or open conditions of the car.

43. In a car, the combination with removable panels to close side openings comprising a lower panel and an upper panel, both panels being removed for open-car use, and only the upper panel for semi-open use, and a curtain capable of being drawn only to the top of the lower panel in the closed or semi-open conditions of the car, and to the floor in its open condition.

44. In a convertible car having side openings and roof storage-spaces, side posts to define said openings, panels to close said openings and adapted to be stored in the roof, the lower end of the stored panel resting against an abutment in said space.

45. In a convertible car having side open-

ings and roof storage-spaces, side posts to define said openings, means to close said openings comprising a base-panel and a sash-panel, means for lifting and storing said panels in the said space, and an abutment in said space for the lower end of the stored panel.

46. In a car, having side openings, a top having a storage-space therein between the roof and the ceiling and the weather-board, removable panels for said side openings adapted to be stored in said space comprising an upper and a lower panel and an abutment for said lower panel formed in said weather-board.

47. In a car having side openings, a roof provided with a storage-space therein, means to close said openings comprising removable panels adapted to be stored in said roof-space, means to extend and contract the entrance and exit of said space.

48. In a car having side openings, a roof having a storage-space therein, panels to close said openings and adapted to be stored in said space, and a removable part of one wall of said space to allow said panels to pass therein.

49. In a car having side openings, posts to define the openings, a roof provided with a storage-space having an entrance and exit, panels to close said openings and adapted to be stored in the said space, and means to extend said entrance and exit to allow the passage of said panels therethrough.

50. In a car having side openings, a roof having storage-spaces with which said side openings connect, posts to define said side openings, panels therebetween adapted to be stored in said spaces, a swinging door or section in the roof to enlarge the entrance to said space to allow the said panels to pass therethrough.

51. A car, provided with spaces in the top thereof and with side panels consisting of sash-casings and sashes, said casings being adapted to receive said sashes and to be raised into the spaces in the top of the car, and devices for holding said casings in said spaces, substantially as shown and described.

52. A car which is adapted for use either as an open or a closed car, said car being provided with side panels composed of sash-casings and sashes, said casings being adapted to receive said sashes, and said casings being adapted to be raised and stored in the top of the car, substantially as shown and described.

53. A car constructed as herein described and provided with spaces in the top thereof, side posts, side panels consisting of window-sashes and sash-casings, the sash-casings being adapted to receive the sashes, said side panels being held in place by grooves or by cleats or strips secured to said posts, substantially as shown and described.

54. A car provided with side posts and grooves in the sides thereof, forming spaces to receive side panels, and side panels mounted in said spaces, and consisting of sash-cas-

ings and sashes, said casings being adapted to receive said sashes, substantially as shown and described.

55. A car which is adapted for use either as an open or closed car, and which is provided with vertical side posts which are provided with grooves forming panel-spaces, sash-casings and sashes mounted in said spaces, said casings being provided with chambers open at the top, and adapted to receive said sashes, said casings being adapted to be raised into spaces in the top of the car and supported therein, substantially as shown and described.

56. A car provided with vertically-movable side panels consisting of sash-casings and sashes, said casings being adapted to receive said sashes, and spaces in the top of the car into which said casings are adapted to be raised, said spaces being provided with means for holding the said casings in place, substantially as shown and described.

57. A car constructed as herein described and provided with spaces in the top thereof, side panels consisting of window-sashes and sash-casings, the casings being adapted to receive the sashes, said side panels being held in place by grooves, substantially as shown and described.

58. A car constructed as herein described, and provided with side posts, having grooves in the sides of the said posts, sash-casings and sashes mounted in the spaces formed by said grooves, said sash-casings being adapted to receive said sashes, said car also being provided in the top thereof with spaces into which the sash-casings are adapted to be raised and with devices for holding said sash-casings in said spaces, substantially as shown and described.

59. In a convertible railway-car, the combination with a car-body having between the roof and ceiling a chamber with a stationary outer wall, and a bottom opening provided for said chamber, of side posts provided with separate sash and panel grooves communicating with said opening, a sash and panel guided into and out of said opening by said grooved side posts, and movable into and out of said chamber through said bottom opening, and a movable door for said opening.

60. In a convertible car, the combination in a car-body having upright posts, and between the roof and ceiling a chamber with a stationary outer side wall and a bottom opening aligning with the posts, of grooves formed in the posts alining with the opening, sashes or panels movable in the grooves into and out of said chamber through said bottom open-

ing, and a head-lining hinged at or near the car-ventilator rail, and extending between its hinge and groove in the posts, its lower free end being adapted to enlarge or contract the said chamber within a zone coextensive with the height of said sashes or panels, substantially as described.

61. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening; of a sash and panel movable into and out of said chamber through said opening; means for supporting the lower end of the lowered sash, a movable door for said opening, and means to support the upper end of the lowered sash, substantially as described.

62. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening of a sash and panel movable into and out of said chamber through said opening; a movable door for said opening, means to support and guide the sash and panel as the same are moved into and out of said chamber, substantially as described.

63. In a convertible car, the combination with the car-body, having between the roof and ceiling a chamber with the bottom opening, and posts, of sashes or panels movable along the posts into and out of said chamber through said opening, a movable door for said opening, a curtain, and supports for said curtain mounted on the lower inside end of said door, and grooves for the free end of the curtain formed in the post alining with the said opening, and adapted to receive said free end.

64. In a convertible car, the combination with a roof, floor, and a ceiling constructed with a panel-receiving chamber having a fixed outer wall, a bottom opening for said chamber formed by an aperture in the ceiling adjacent to said outer wall, of stationary vertical side ribs or posts provided with grooves or panels slideways leading to said chamber-opening, a panel movable in said slideways into and out of said chamber, means for supporting the panel in said chamber, and a door coextensive in length with the said panel attached to the ceiling and movable across said opening, substantially as described.

Signed in the city and county of Philadelphia, State of Pennsylvania, this 3d day of January, 1901.

JOHN A. BRILL.

Witnesses:

J. W. CAMAC,

R. ELLA HAPPERSETT.