

No. 847,504.

PATENTED MAR. 19, 1907.

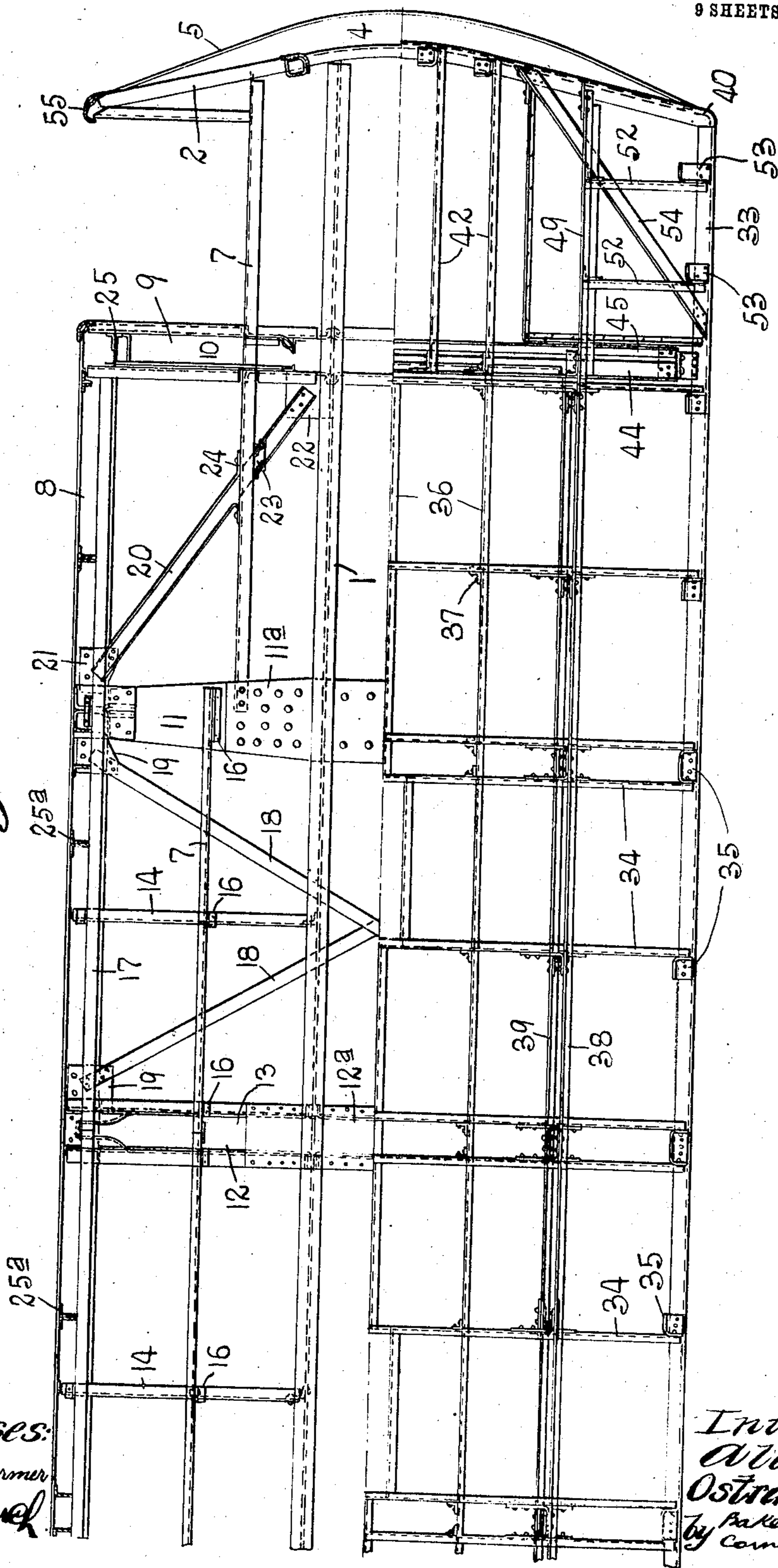
A. E. OSTRANDER.

PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 1.

*Fig. 1.*



Witnesses:  
Edgar T. Farmer  
Wells L. Church

Inventor  
Allen E. Ostrander:  
by *Parkwell & Cornwall*  
*Attys*

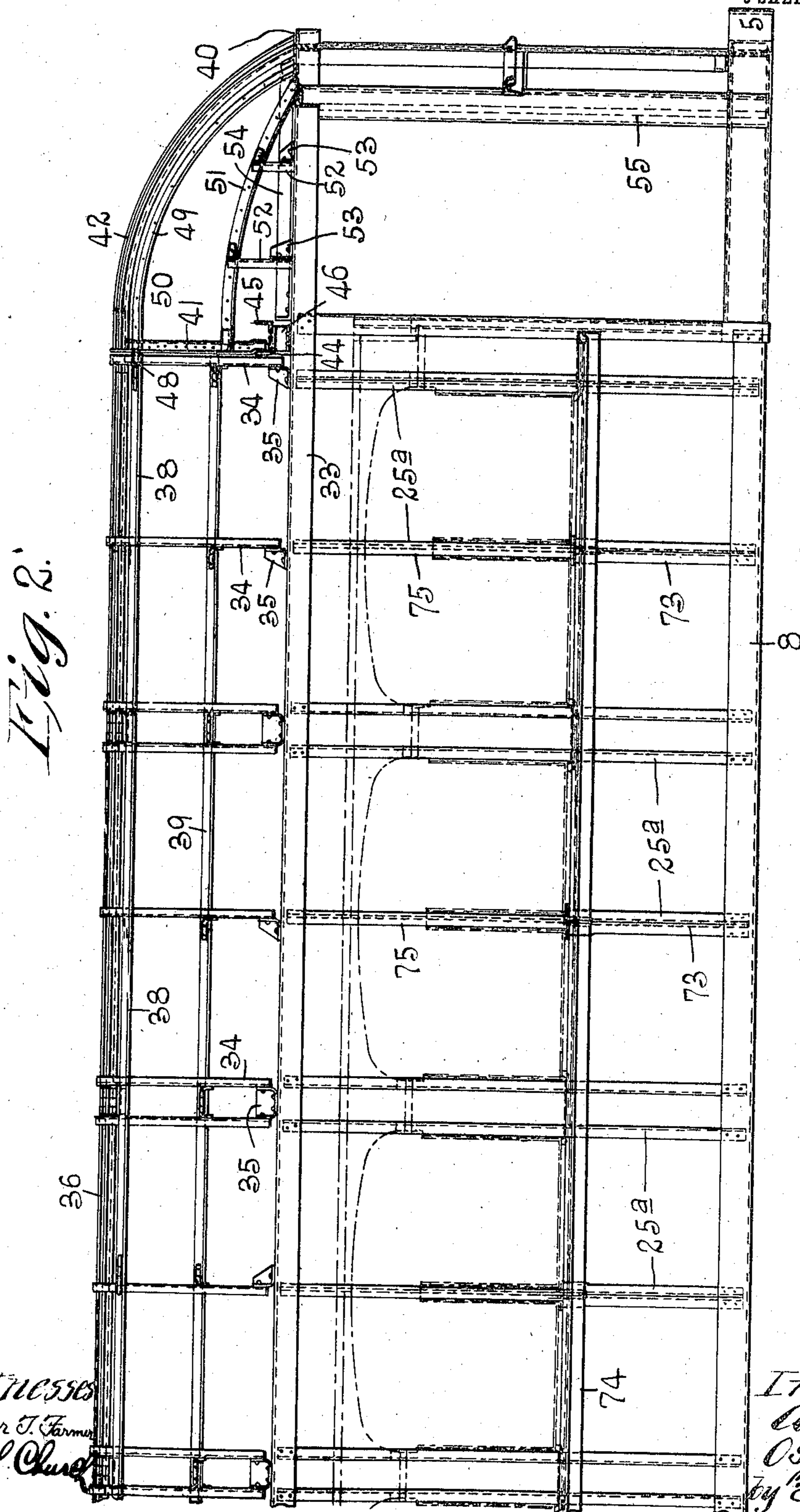
No. 847,504.

PATENTED MAR. 19, 1907.

A. E. OSTRANDER.  
PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 2.



Witnesses  
Edgar T. Farmer  
Hells Church

Inventor  
Allen E.  
Ostrander.  
Bakewell &  
Cornwall  
Atty

No. 847,504.

PATENTED MAR. 19, 1907.

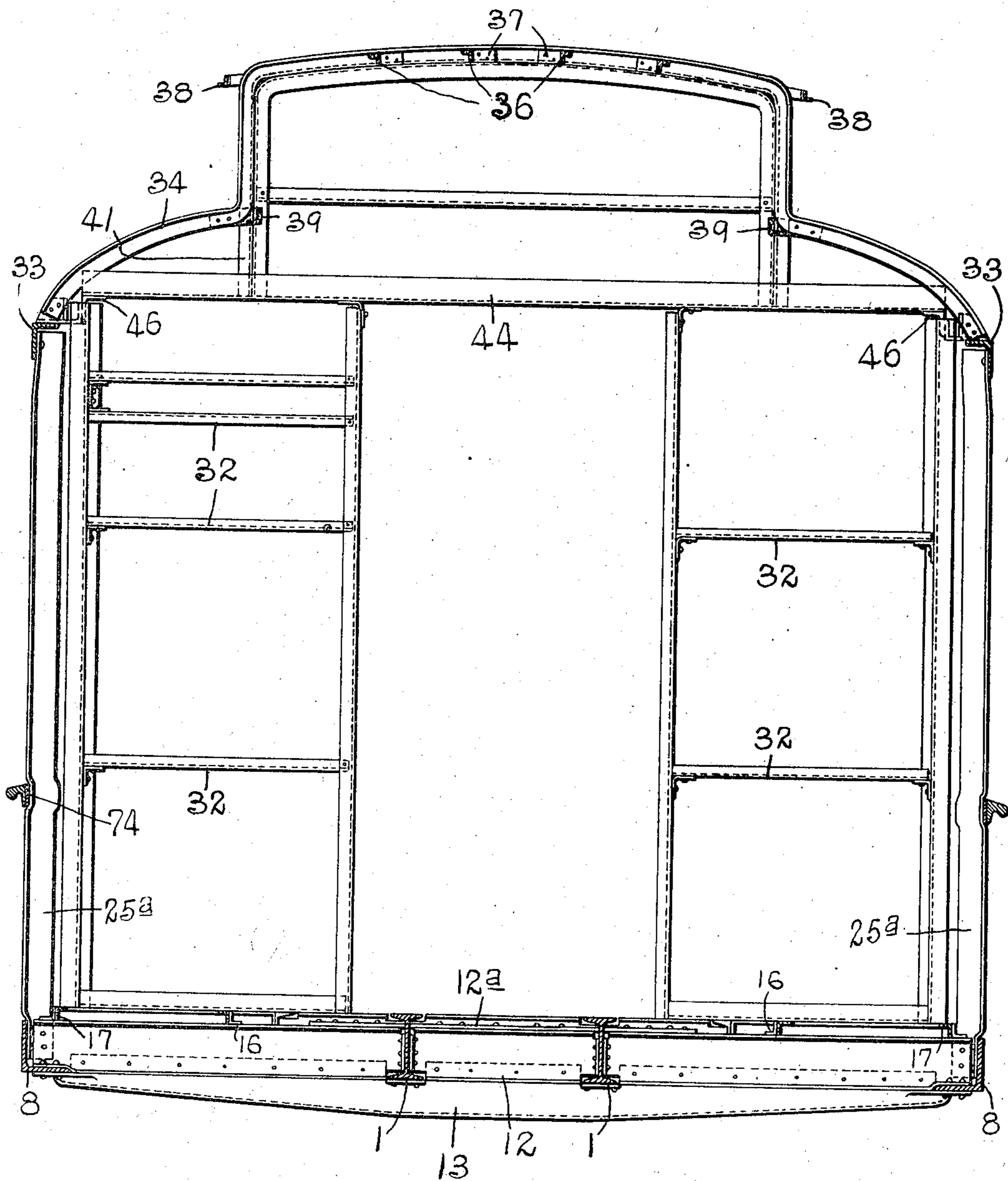
A. E. OSTRANDER.

PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 3.

*Fig. 3.*



*Witnesses:*

*Edgar T. Farmer*  
*Nells L. Church*

*Inventor:*

*Allen E. Ostrander*  
*by McKewell & Cornwall*  
*Attys.*

No. 847,504.

PATENTED MAR. 19, 1907.

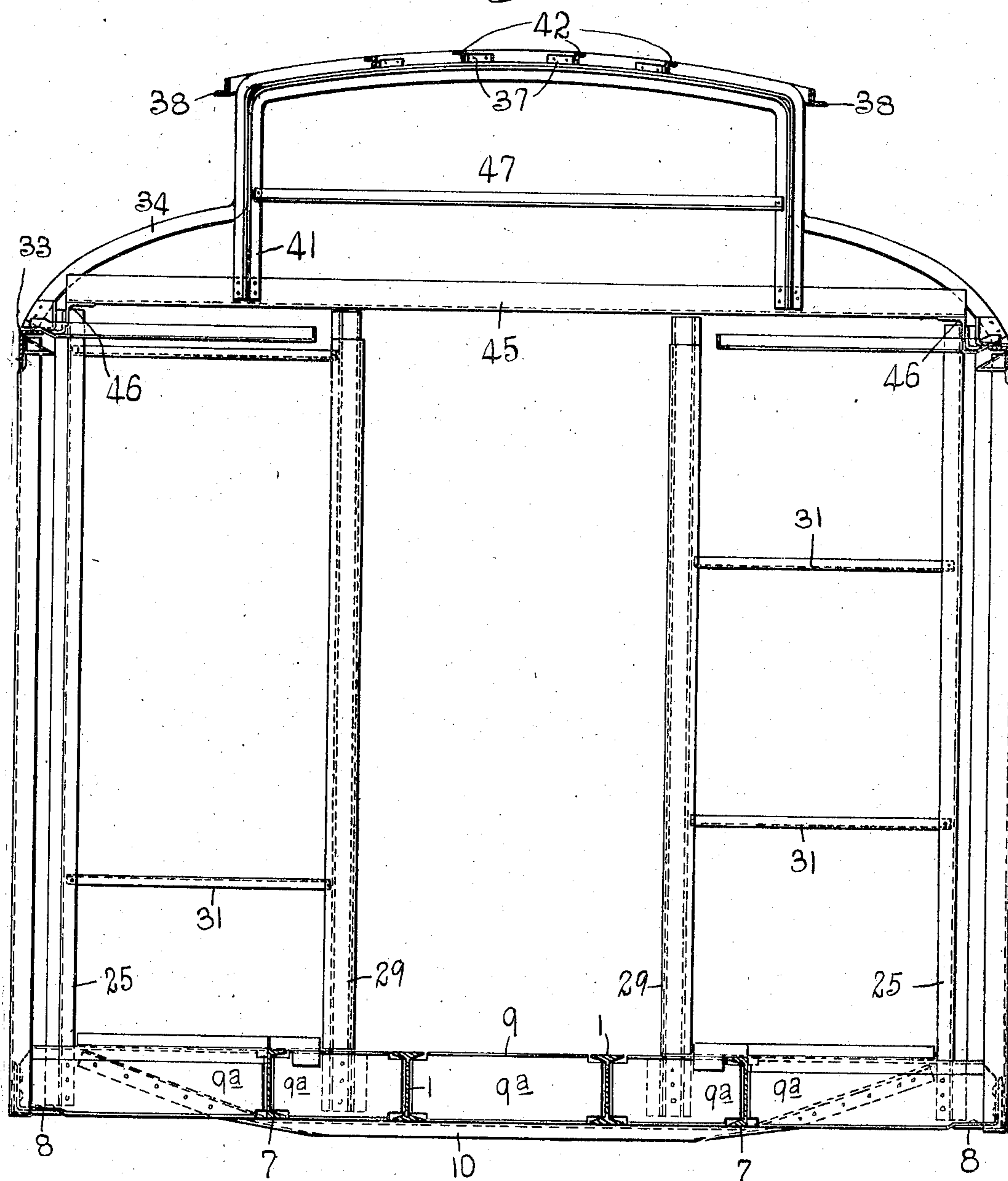
A. E. OSTRANDER.

PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 4.

*Fig. 4.*



*Witnesses:*

*Edgar T. Farmer*  
*Wells L. Church.*

*Inventor:*

*Allen E. Ostrander*  
*By Bakewell Cornwall*  
*Attys.*

No. 847,504.

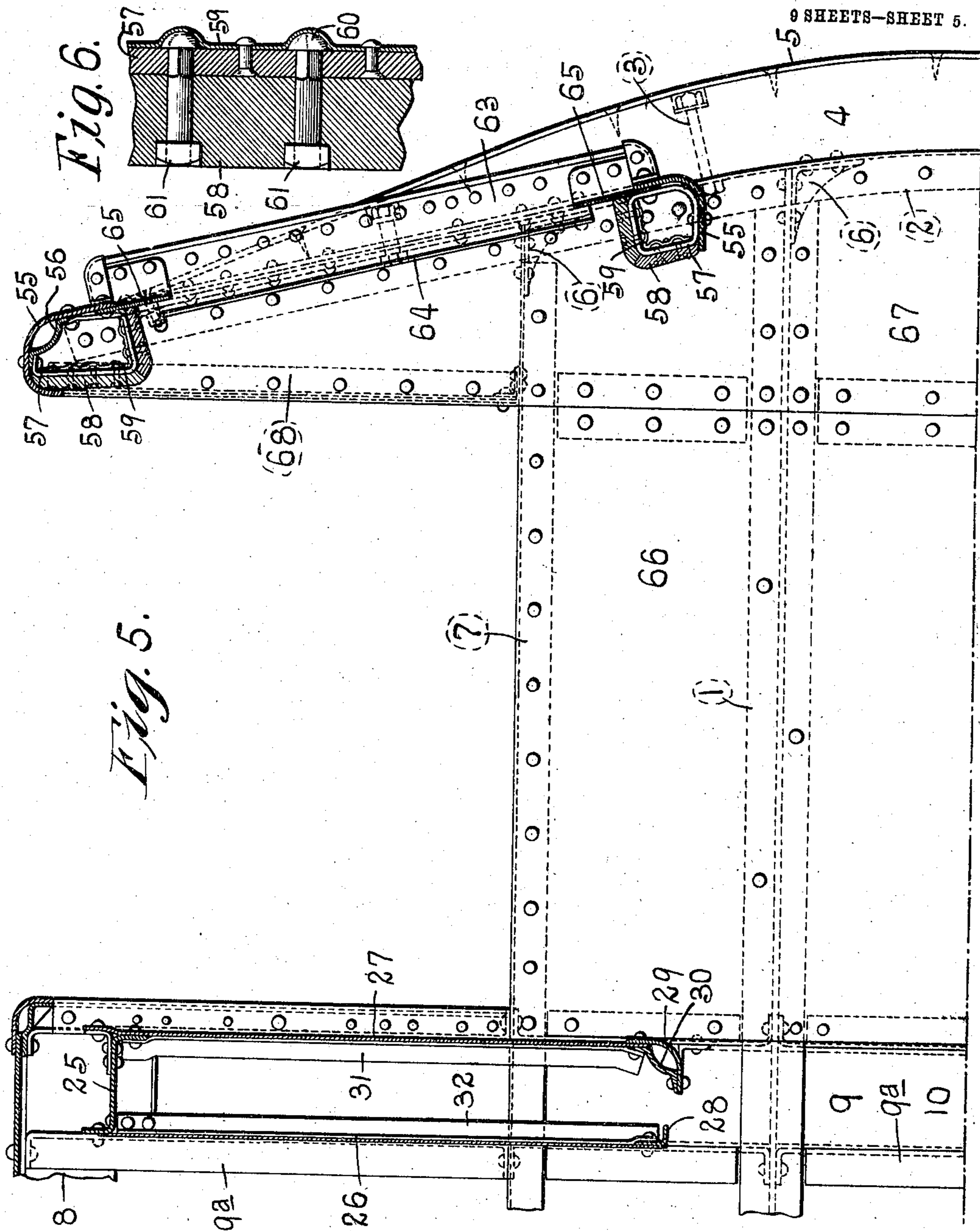
PATENTED MAR. 19, 1907.

A. E. OSTRANDER.

PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 5.



Witnesses:  
Edgar J. Farmer  
Wells L. Church.

Inventor:  
Allen E. Ostrander.  
By Brokewell Cornwall  
Attys.

No. 847,504.

PATENTED MAR. 19, 1907.

A. E. OSTRANDER.  
PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 6.

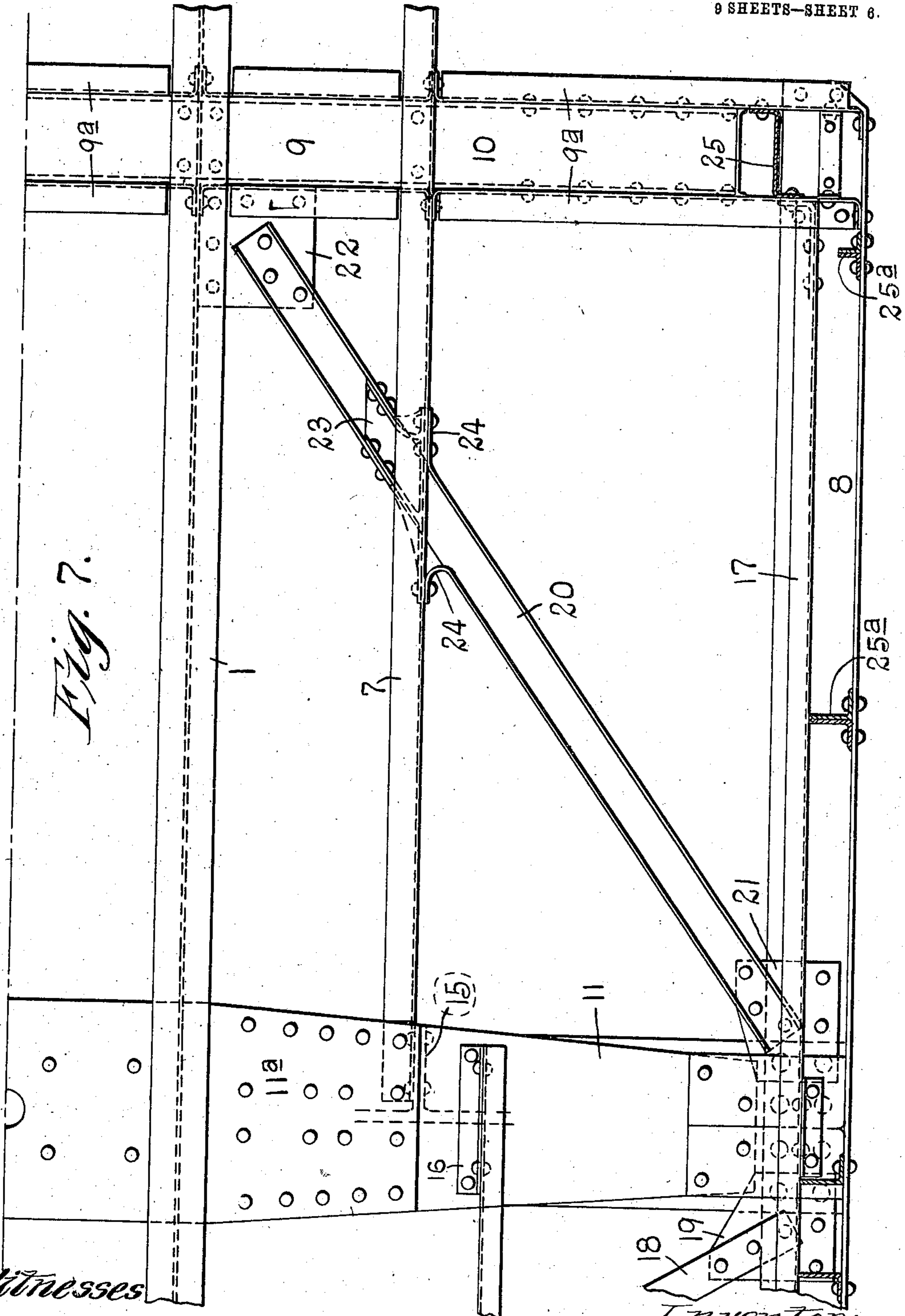


Fig. 7.

Witnesses

Edgar J. Farmer  
Nels L. Church

Inventor:

Allen E. Ostrander.  
By Makewell Cornwall Attys

No. 847,504.

PATENTED MAR. 19, 1907.

A. E. OSTRANDER.

PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 7.

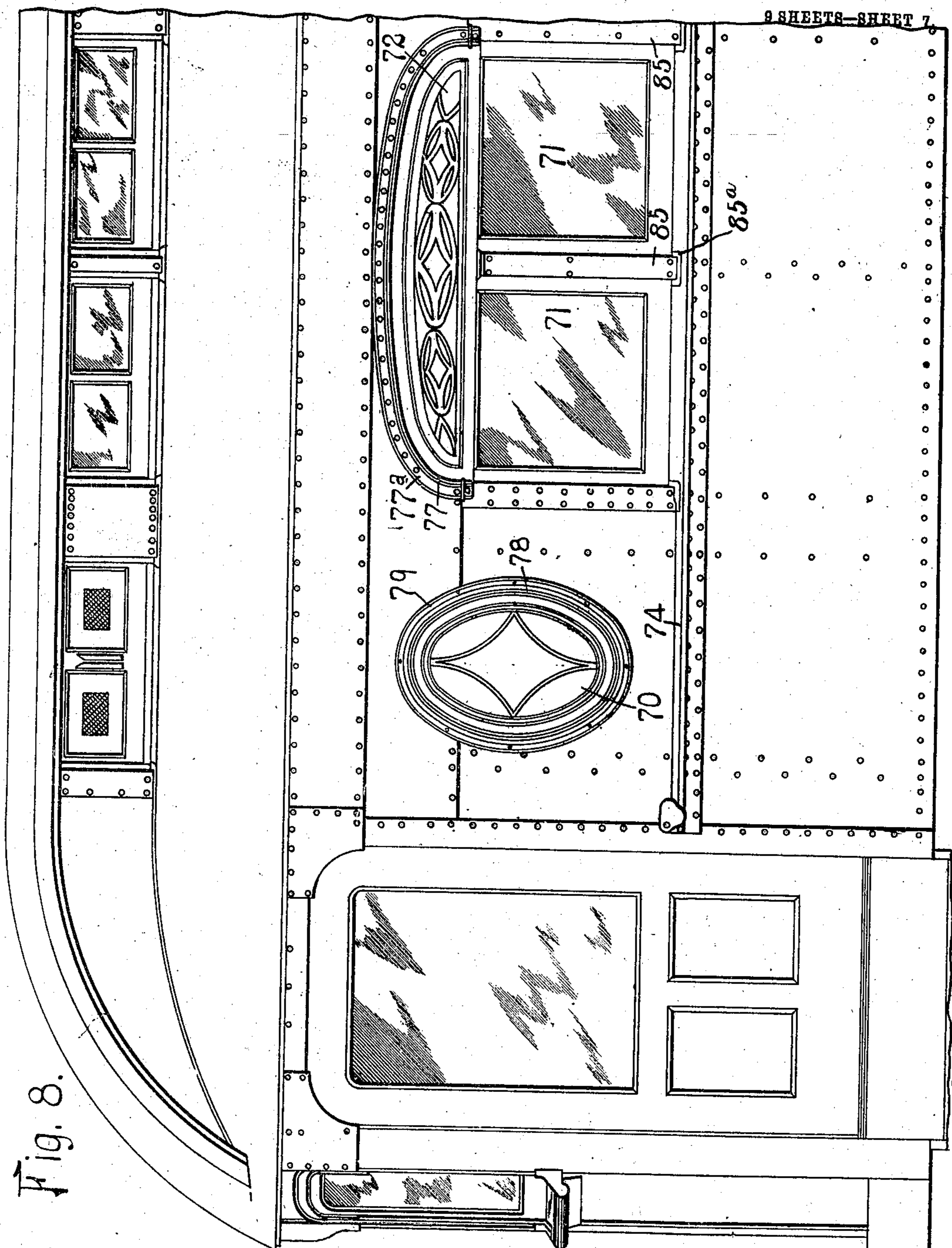


Fig. 8.

Witnesses

Edgar T. Farmer

Nels L. Church

Inventor:

Allen E. Ostrander

by Nathaniel Cornwall

Atty's.

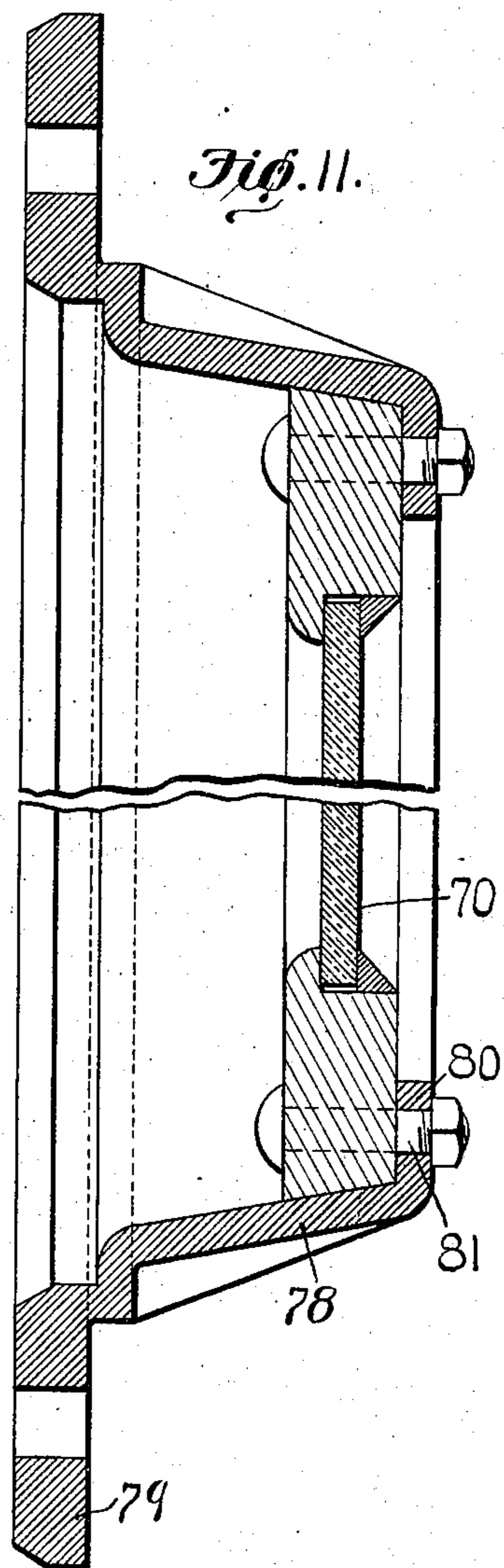
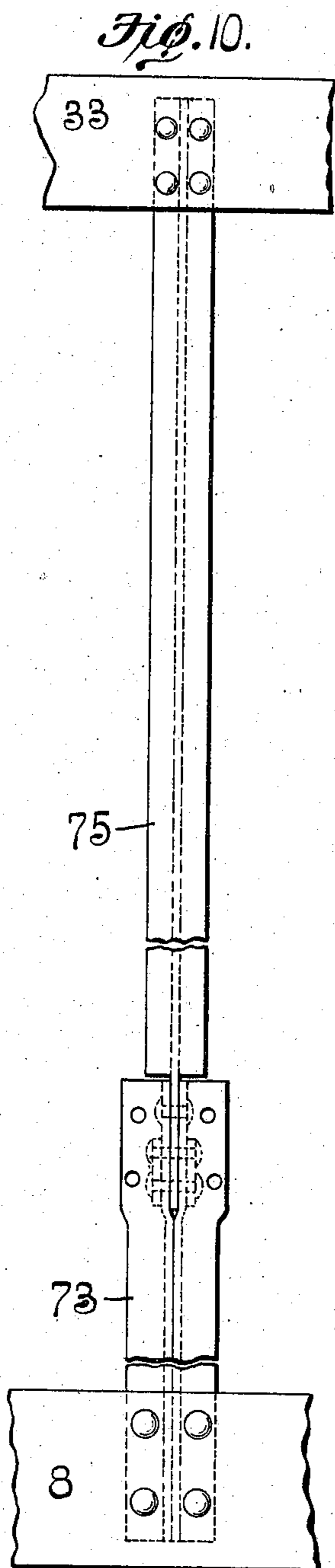
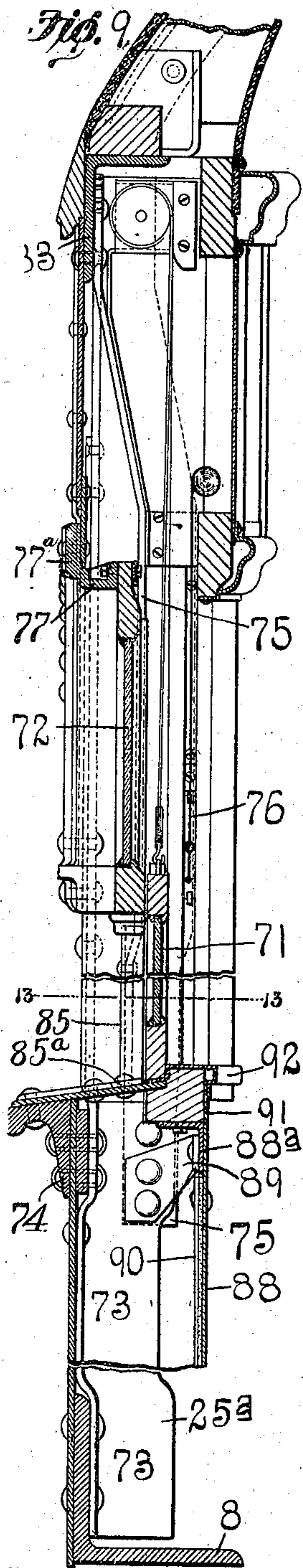
No. 847,504.

PATENTED MAR. 19, 1907.

A. E. OSTRANDER.  
PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 8.



Witnesses:  
G. R. Ladson.  
Wells L. Church.

Inventor,  
Allen E. Ostrander.  
By Bakerwell & Cornwall  
Attorneys.

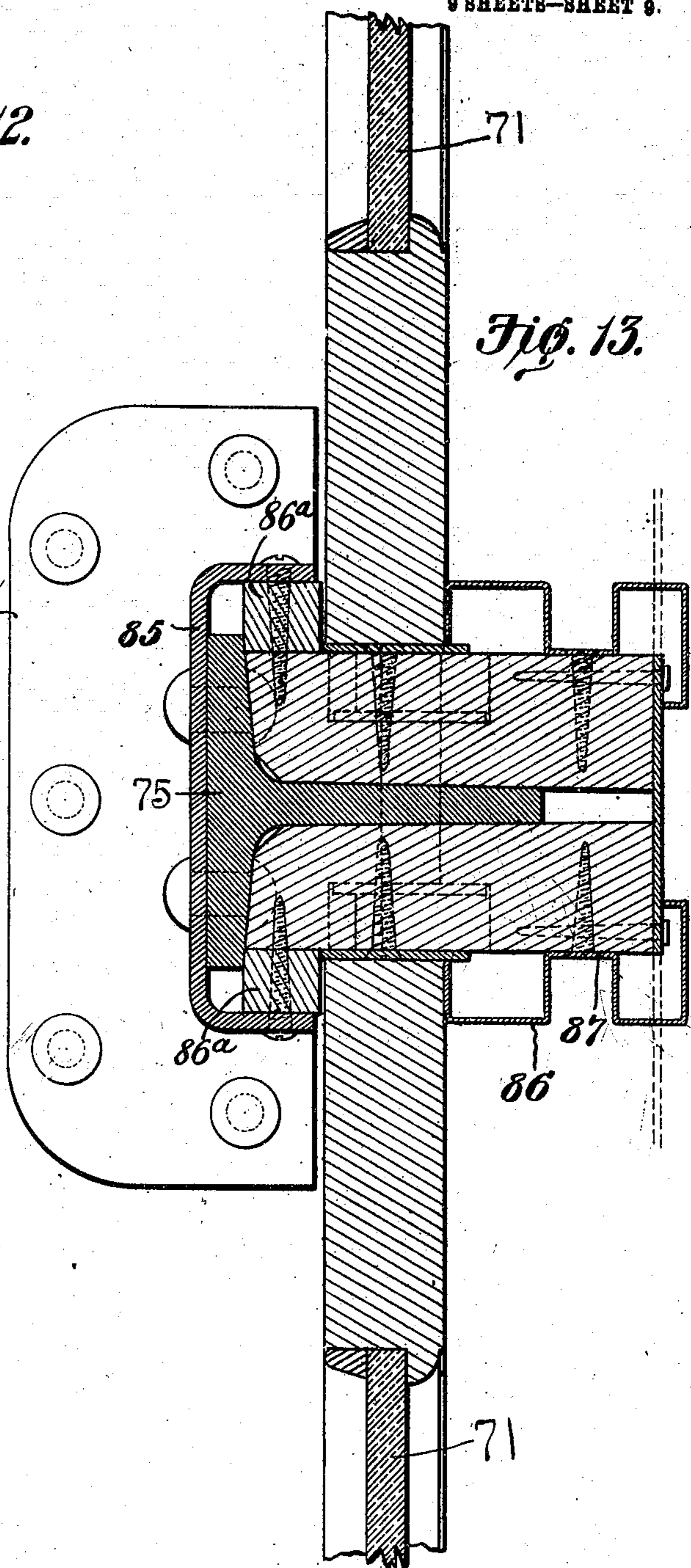
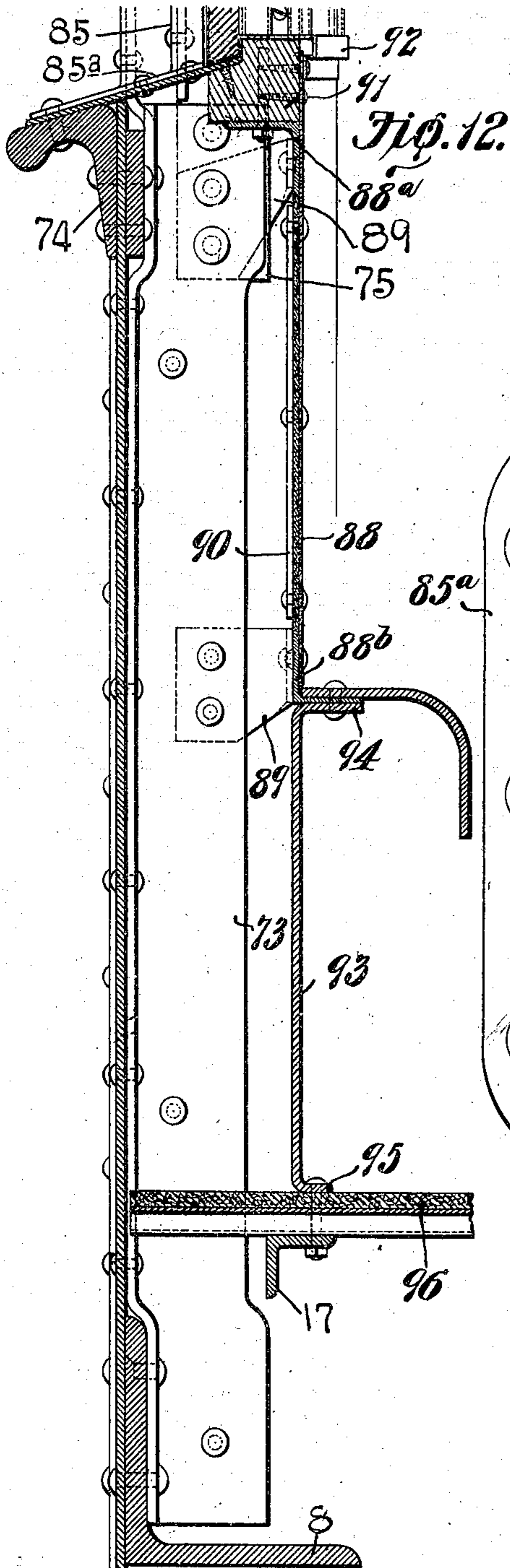
No. 847,504.

PATENTED MAR. 19, 1907.

A. E. OSTRANDER.  
PASSENGER CAR.

APPLICATION FILED JUNE 21, 1906.

9 SHEETS—SHEET 9.



Witnesses:  
G. R. Laddow.  
Nells L. Church.

Inventor,  
Allen E. Ostrander.  
By Bakewell Cornwall  
Attorneys.

# UNITED STATES PATENT OFFICE.

ALLEN E. OSTRANDER, OF PATERSON, NEW JERSEY, ASSIGNOR TO AMERICAN-CAR & FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

## PASSENGER-CAR.

No. 847,504.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed June 21, 1906. Serial No. 322,740.

*To all whom it may concern:*

Be it known that I, ALLEN E. OSTRANDER, a citizen of the United States, residing at Paterson, Passaic county, New Jersey, have invented a certain new and useful Improvement in Passenger-Cars, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a plan view of a portion of a passenger-car frame embodying the features of my invention; the upper half of this view showing the floor-framing and the lower half showing the roof-framing. Fig. 2 is a side elevation of the car-frame shown in Fig. 1. Fig. 3 is a transverse sectional view taken at a point adjacent one of the cross-bearers and looking toward the end of the car. Fig. 4 is a transverse section taken through the vestibule and shows the framing for the end wall of the car. Fig. 5 is an enlarged plan view showing a portion of the framing at one end of the car and also the framing for the front wall of the vestibule. Fig. 6 is an enlarged detail sectional view showing the novel means that I have devised for fastening a furring-strip. Fig. 7 is an enlarged plan view of the framing intermediate the body-bolster and end sill. Fig. 8 is a side elevation of one end of a passenger-car embodying the features of my invention. Fig. 9 is a sectional view taken through the side of the car. Fig. 10 is a detail view of the side post which extends between the twin windows. Fig. 11 is a cross-sectional view taken through the oval window and the frame in which it is mounted. Fig. 12 is an enlarged sectional view through the side wall of the car, showing the construction of same below the belt-rail; and Fig. 13 is an enlarged sectional view taken on the line 13 13 of Fig. 9.

This invention relates to passenger cars; and the main object of my invention is to provide a steel passenger-car of novel construction which can be manufactured cheaply and which will possess maximum strength with minimum weight.

Referring to the drawings, which represent the preferred form of my invention, 1

designates the center sills of the car, which are preferably I-beams that extend from the platform end sill at one end of the car to the platform end sill at the other end of the car. As shown in Fig. 5, each platform end sill consists of a channel 2, bent to the desired shape with its legs projecting inwardly, and secured to the web of said channel by means of bolts 3 is a timber 4, which is provided on its outer face with a metal wear-strip 5. I have herein shown and described the framing of only one-half of the car, the other half being of practically the same construction.

The center sills are connected to the platform end sill by brackets 6, which are fastened to the webs of the center sills and to the web of the platform end sill, as shown in dotted lines in Fig. 5, the longitudinally-extending intermediate sills or platform-beams 7, hereinafter described, also being connected to the platform end sill by brackets 6. The side sills of the car consist of angles 8, that extend from end sill to end sill of the car, the horizontal legs of said angles extending inwardly. The end sills 9 of the car are made up of a number of flanged diaphragms 9<sup>a</sup>, as shown in Figs. 4 and 7, these diaphragms being interposed between the center sills longitudinally-extending intermediate sills 7, and the side sills to which they are connected by rivets, each end sill also comprising a truss member 10, that extends beneath the center sills and intermediate sills, as shown in Fig. 4, and being riveted to the diaphragms between the side sills and intermediate sills.

As shown in Fig. 1 of the drawings, the end sill is located approximately midway the platform end sill and bolster of the car, and as the truss member 10 of the end sill passes beneath the platform-beams 7 said beams are supported at approximately their centers by the truss member 10. The body-bolsters 11 consist of castings provided with central recesses to receive the center sills and having continuous tension-plates 11<sup>a</sup>, that extend through slots formed in the webs of the I-beam center sills, the top flanges of said center sills extending above the top faces of the bolsters and having the floor of the car connected thereto.

The cross-bearers 12 are similar in construction to the end sills in that they are

made up of a number of flanged diaphragms, which are interposed between the center sills and between the center sills and the side sills, to which they are connected by rivets or other fastening devices. Each cross-bearer also comprises a continuous compression-plate 12<sup>a</sup>, that extends through slots formed in the webs of the center sills and a trough-shaped tension member 13, extending underneath the center sills, as shown in Fig. 3, and being connected to the side sills, center sills, and diaphragms.

Intermediate cross-bearers 14, consisting of angles, are connected to the center sills and to the side sills 8, as shown in Fig. 1. The longitudinally-extending intermediate sills 7 are preferably composed of a number of separate angles, those at the ends of the car being connected to the platform end sill and to lugs 15 on the body-bolster, as shown in dotted lines in Fig. 7, and those which extend from bolster to bolster being connected to angle-brackets 16, fastened to the top faces of the body-bolster, cross-bearer, and intermediate cross-bearers 14, the horizontal legs of the angles which constitute the intermediate sills 7 being located in the same horizontal plane as the top flanges of the I-beam center sills and forming a support for the floor of the car.

Adjacent the side sills are longitudinally-extending angles 17, which extend from end sill to end sill and are connected to the top faces of the body-bolsters and cross-bearers in the same manner that the intermediate sills are connected to these members, the horizontal legs of said angles 17 also forming supports for the floor of the car. Intermediate the body-bolsters and the cross-bearers are crossed braces 18, which are connected at their opposite ends to the side sills of the car by means of connecting-plates 19, as shown in Figs. 1 and 7. Diagonally-extending braces are also provided intermediate the body-bolsters 11 and end sills 9, which braces consist of pressed channel shapes 20, that are connected at one end to the side sills by connecting-plates 21 and at their other ends to the center sills and end sills by means of connecting-plates 22, as shown in Fig. 7. The diagonal braces 20 are arranged in approximately the same horizontal plane as the intermediate sills or platform-beams 7, and where said members intersect the flanges of the channel which constitutes said brace are severed, as shown in Fig. 7, to permit the vertical leg of the angle which constitutes said intermediate sill or platform-beam 7 to pass therethrough, the web of channel 20 being unbroken and passing underneath platform-beam 7. A casting 23 is arranged between the flanges of the channel 20 and is connected thereto by rivets, and portions of the vertical legs or flanges of said channel are bent laterally at 24, as shown in Fig. 7, and

are connected to the vertical leg of the intermediate sill 7 and to the casting 23 by means of rivets.

While I have herein shown the intermediate sill or platform-beam 7 as being unbroken and the flanges of the brace 20 as being severed to receive the vertical leg of said beam, it should be understood that this construction could be reversed without departing from the spirit of my invention—that is to say, the vertical leg of the angle which constitutes the platform-beam could be severed and the flanges of the channel-shaped brace 20 left unbroken.

The vertical posts 25<sup>a</sup>, to which the sides of the car are connected, consist of angles, which are fastened at their lower ends to the angles 8, that form the side sills of the car. The corner-posts 25 of the car preferably consist of pressed Z-bars, which extend down between the diaphragms, forming the end sill 9, and are connected to said diaphragms. The door-pocket in the end wall of the car is formed by plates 26 and 27, which are connected to one of the Z-shaped end posts, as shown in Fig. 5. The plate 26 is connected at its other edge to a vertical angle 28 and the other plate 27, which forms the outside sheathing of the end wall of the car, is connected to the door-post, which is made up of an outside corner-plate 29 and a strengthening member 30, arranged inside of the corner-plate, as shown in Fig. 5. This strengthening member can be formed by bending a commercially-rolled channel into the shape shown. The other door-post is of substantially the same construction, and angle-braces 31, to which the outside sheathing-plates 27 are connected, extend from these door-posts to the corner-posts 25 of the car, as shown in Fig. 4. Braces 32 also extend from the vertical angles 28 to the corner-posts, as shown in Fig. 3, to carry the inside sheathing or door-pocket plate 26. The side plates or upper sills of the car consist of angles 33, which are connected to the upper ends of the vertical side posts 25<sup>a</sup> and the continuous angle-carlines 34 are connected to the horizontal legs of said angles 33 by means of brackets 35, the carlines being preferably arranged in alinement with the side posts, so as to form continuations of same, as shown in Fig. 2, this feature, however, not being essential. The purlins 36 preferably consist of short angles, which are connected to the carlines by brackets 37. The eaves-angle 38 extends the full length of the car and is connected to the carlines, the angles 39, which form the lower sills of the side deck, being also connected to the carlines.

The end bow 40 of the hood consists of an angle which is connected to the side-plate angles and the vertical posts that form part of the front wall of the vestibule are connected at their upper ends to the end bow 40 and at

their lower ends to the platform end sill 2. The hood is made up of carlines, purlins, and stiffening-plates, which are connected together to form a separate section from the roof proper of the car, so that the hood can be removed without disturbing the roof proper of the car.

Extending transversely of the car at the inner end of the hood are two angles 44 and 45, which are secured to the side-plate angles 33 of the car by Z-shaped connecting devices 46, the plates 27, which form the end wall of the car, being connected to the angle 45, and the plate 26, which coöperates with said end-wall plates to form the door-pocket, being connected to the angle 44. The hood-carline 41, which consists of two angles placed back to back to form a T, is connected to the angle 44, and a strengthening-angle 47 extends transversely of the hood and is connected to this T-shaped carline. The hood-purlins 42 are connected at their inner ends to the T-shaped carline 41 and at their outer ends to the end bow 40, and the eaves-angles 38 are connected by straps 48 to angles 49, which form continuations of same and are connected at their outer ends to the hood-bow. Strengthening-plates 50 are riveted to the angles 49, and secured to the lower edges of said plates are angles 51, which are fastened at their inner ends to the T-shaped hood-carline 41 and at their outer ends to the hood-end bow. The side deck-carlines 52 of the hood are connected to the angles 51 and to the side-plate angles 33 by brackets 53, as shown in Fig. 2; and diagonally-extending braces 54 are provided, which are connected at one end to said side-plate angles and at their other ends to the hood-end bow 40. (See Fig. 1.)

Referring to Fig. 5, it will be seen that the corner-posts which form part of the front wall of the vestibule are composite structures consisting of corner-plates 55, which extend from the end bow of the hood to the platform end sill. The vestibule-end door-posts are of practically the same construction, except that the corner-posts are provided with strengthening members 56, which may be formed from commercially-rolled channels. At suitable points throughout the length of the corner-plate of each post bands 57 are connected thereto, and fastened to these bands are wooden furring-strips 58, which preferably are incased by a metal sheathing. In Fig. 6 I have shown the manner of connecting these furring-strips to the bands 57, this being one of the novel features of my invention, as it enables furring-strips to be put in place quickly and also produces a neat and ornamental finish.

As shown in Figs. 5 and 6, the bands 57 have riveted to the inner faces thereof metal clips 59, which engage the heads of the bolts 60, that project outwardly from the bands

through the wooden furring-strips, which are held in place by the nuts 61 countersunk therein. The bolts 60, which are preferably carriage-bolts, so as to prevent turning when the nuts are being applied, are first placed in the bands 57, and then the clips 59 are riveted in place to prevent the bolts from being displaced when the furring-strips are being forced onto the ends thereof. Preferably the members 57, which are used at the lower ends of the post, are dished members, having a bottom and an upwardly-extending continuous flange that forms the band, said members being connected to the platform end sill by rivets extending through the bottoms of said members, thus securely connecting the posts to the end sill. While I have herein shown this construction as being employed for securing furring-strips in place, it should be understood that practically the same construction could be employed for fastening two steel members together. The sill of the window in the end wall of the vestibule is formed by a plate 63, provided with a flange 64, that engages the inner face of the bottom rail of the window-sash, the side rails of said sash being engaged on their outer faces by plates 65, that are connected to the corner-plates 55, as shown clearly in Fig. 5.

The floor of the vestibule is formed by a plate 66, which is riveted to the flanges of the center sills and intermediate sills, and also a plate 67, riveted to these same members and to the platform end sill 2, angles 68 being connected to the underneath sides of these plates at the step-openings, as shown in Fig. 5, the inner ends of said angles 68 being connected to the intermediate sills 7 by brackets.

As shown in Fig. 8, the side wall of the car is provided at one end of the car with an oval window 70, and adjacent said window are twin windows 71, over which a semi-elliptical cathedral-glass window 72 is arranged. The side post, which extends between the twin windows 71, is of different construction from the other posts of the side wall and is shown clearly in Figs. 9 and 10. Said post consists of a cripple-post 73, made up of two angles arranged in the form of a T and connected to the lower side sill 8 and to the belt-rail 74 having the outside sheathing of the car connected thereto. A vertically-arranged T-post 75 is connected to the upper end of the cripple-post 73 and extends upwardly between the twin windows, said T-post being offset inwardly, so as to extend back of the semi-elliptical window 72 and then being bent outwardly and connected to the side plate or upper sill 33 of the car by rivets, as shown in Figs. 9 and 10. The connection between the T-post 75 and the cripple-post 73 is formed by removing a portion of the head of the T and allowing the web thereof to extend down between the two angles which form the cripple-post, said angles being bent slightly, as

shown in Fig. 10, to provide a space for the web of the T 75.

As the semi-elliptical window 72 is of cathedral-glass, the portion of the T-post 75 which extends back of said window will not be seen from the outside of the car and is also hidden from view on the inside of the car by a curtain 76. By this construction I am able to use a semi-elliptical window, so as to obtain a twin-window effect and still have an intermediate post, which extends from the side sill to the upper side plate of the car. The sash of the semi-elliptical window 72 is secured to a finishing-batten or window-frame 77, that is connected to the subletter-board forming part of the side wall of the car. This frame 77 may be either a pressed-metal member or a casting, as herein shown, and is provided with a flange 77<sup>a</sup>, which receives the fastening devices that secure the frame in position, said frame being also provided at its inner side with a flange, which is engaged by the sash of the semi-elliptical window. The oval window 70 is set in a frame 78, provided with a flange 79, which is secured to the side wall of the car, the sash of said window engaging an inwardly-extending flange 80 on said frame and preferably connected thereto by bolts 81, as shown in Fig. 11. This frame 78 also may be either a casting or a pressed-metal member, and both frames are so arranged that their flanges which receive the fastening devices that hold the frames in place are arranged on the outside of the car-wall, as shown in Fig. 8.

The pressed-metal covers 85, which are connected to the vertical posts between the windows to form the piers, are provided at their lower ends with flanges 85<sup>a</sup>, which receive rivets or other suitable fastening devices. The form of these pier-covers 85 is shown clearly in Fig. 13, and referring to said figure it will be seen that they embrace or cover wooden stop-strips 86<sup>a</sup>, connected to wooden fillers 87, that are fastened to the T-posts 75, pressed-metal window-stops 86 being also secured to the fillers 87. The inside lining of the car between the floor and the window-sill is shown in Fig. 12, and referring to said figure it will be seen that said lining consists of a metal plate 88, fastened to angles 88<sup>a</sup> and 88<sup>b</sup>, which are carried by brackets 89, that are fastened to the cripple-post 73. A sheet of ceillinite or other fireproof substance is connected to the inner face of the plate 88 by rivets which extend through a strip 90, arranged at the back of the ceillinite, and mounted on the angle 88<sup>a</sup> is a wood filler 91, to which the pressed-metal inside window-sill 92 is connected.

The seat-plank is preferably formed by a pressed member 93, provided with inwardly-extending flanges 94 and 95, fastening devices connecting the flange 95 to the floor 96 of the car and the flange 94 to an inwardly-

projecting flange at the lower edge of the sheathing-plate 88. If desired, however, this seat-plank can be a built-up member consisting of a web and upper and lower angles connected thereto.

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

1. In a passenger-car frame, continuous center sills extending from end to end of the car, and platform end sills connected to the center sills and consisting of a channel having a timber connected to the vertical web thereof, said timber being provided with a metal wear-strip; substantially as described.

2. In a passenger-car frame, center sills extending from end to end of the car, a platform end sill connected to the center sills and having a timber connected thereto which is provided with a metal wear-strip, side sills, an end sill, a body-bolster, an intermediate sill secured to the platform end sill and body-bolster, and a diagonally-extending brace connected to the side sill and center sill and intersecting the intermediate sill; substantially as described.

3. In a car-frame, an end sill, a body-bolster, a center sill and a side sill to which said members are connected, a diagonally-extending brace connected to the center sill and side sill, an intermediate sill arranged between the center sill and side sill, and means for connecting said intermediate sill to said diagonal brace; substantially as described.

4. In a car-frame, a channel having its legs severed and bent laterally to provide an opening to receive the vertical leg of a sill member which extends at an angle to the channel, and a casting arranged inside of said channel and having said sill member connected thereto; substantially as described.

5. In a car-frame, a channel having its legs severed and bent laterally to provide an opening to receive the vertical leg of a sill member which extends at an angle to the channel, a member arranged between and secured to the legs of said channel, fastening devices connecting the vertical leg of the sill to said member, and means for connecting the laterally-bent portions of the legs of the channel to the vertical leg of the sill member, substantially as described.

6. In a car-frame, a center sill, a side sill, a body-bolster and an end sill to which the side sill and center sill are connected, a plate secured to the center sill and end sill where they intersect, a diagonally-extending brace fastened to said plate and to the side sill and body-bolster, and a longitudinal beam intersecting said brace; substantially as described.

7. In a car-frame, center sills, side sills, an end sill, a body-bolster, a cross-bearer, diagonal braces arranged between the body-bolster and end sill, connecting-plates for

fastening the inner ends of said braces to the end sill and center sills, and cross-braces connected to the side sills between the cross-bearer and body-bolster; substantially as described.

8. In a car-frame, a Z-shaped corner-post, a vertical angle arranged at the door-opening, braces connected to said post and angle, a door-post consisting of a corner-plate provided with a strengthening member, and braces connected to the corner-post and to said door-post; substantially as described.

9. In a car-frame, a post consisting of a curved corner-plate, and an interior strengthening member connected to said plate and consisting of a commercially-rolled channel bent to the desired shape and having its legs riveted to said plate; substantially as described.

10. In a car-frame, a post consisting of a curved corner-plate, bands connected to the inner face of said plate, and wooden furring-strips connected to said band and extending longitudinally of the corner-plate; substantially as described.

11. In a car-frame, a post consisting of a curved corner-plate provided with an interior strengthening member, a box-shaped band connected to the interior of said corner-plate, and furring-strips connected to said band and cooperating with the corner-plate to form a hollow post; substantially as described.

12. In a car construction, means for holding a furring-strip in place, consisting of a member having bolts projecting therefrom, said bolts extending through the furring-strip, and devices connected to the inner face of said member and engaging the heads of said bolts; substantially as described.

13. In a car construction, means for securing a furring-strip consisting of a member provided with non-circular-shaped openings to receive correspondingly-shaped portions on bolts which project therefrom, said bolts being adapted to project through the furring-strip, and a device connected to the inner face of said member and engaging the heads of said bolts; substantially as described.

14. In a car construction, posts spaced away from each other, a plate connected to said posts to form the sill of a window and provided with an upwardly-projecting flange that engages the bottom rail of the window-sash, and plates connected to said posts and engaging the outer faces of the side rails of said window-sash; substantially as described.

15. In a car-frame, an end sill, a platform end sill, longitudinal sills connected to said sills, a floor-plate connected to the end sill and to the longitudinal sills, a cooperating floor-plate connected to the longitudinal sills and to the platform end sill, and an angle connected to the underneath side of said

last-named plate and to one of the longitudinal sills; substantially as described.

16. In a car-frame, end posts and side posts having side plates connected to their upper ends, two transversely-extending angles connected to the side plates and located at the ends of the car, and vertical posts forming part of the end wall and connected to said angles; substantially as described.

17. In a car-frame, a platform end sill, a bolster, platform-beams connected to said bolster and platform end sill, an end sill located approximately midway the platform end sill and bolster and comprising a truss member which extends beneath the platform beams and supports the same, and diagonally-extending braces intersecting said platform-beams and connected to the bolster and end sill; substantially as described.

18. In a passenger-car frame, a longitudinal sill connected to the end sill and to the bolster of the car, and a brace extending diagonally between the end sill and bolster and intersecting the longitudinal sill to which it is connected; substantially as described.

19. In a passenger-car frame, an end sill, a bolster, a longitudinal sill connected to said end sill and bolster, and a diagonally-extending brace arranged in approximately the same horizontal plane as the longitudinal sill and connected to the bolster and end sill, said brace intersecting the longitudinal sill and being connected thereto; substantially as described.

20. In a car-frame, a sill, a brace extending at an angle to said sill and located in approximately the same horizontal plane, one of said members being constructed to permit the other member to intersect the same, and a casting connected to both of said members at the point of intersection; substantially as described.

21. In a car construction, an angle constituting a sill, a channel-shaped brace extending at an angle to said sill, and a connecting device arranged between the flanges of the brace for fastening said members together, one of said members having its flanges severed to permit the other member to intersect same; substantially as described.

22. In a car-frame, an end sill comprising diaphragms arranged back to back and spaced away from each other, and a corner-post extending between said diaphragms and being connected thereto; substantially as described.

23. In a car-frame, a hollow post, a dished member arranged inside of the lower end of said post and connected to the support on which the post is erected; substantially as described.

24. In a car-frame, a hollow post, a dished

member arranged inside of the post and connected to a support, bolts carried by the flange of said member and extending through the walls of the post, and a device connected to the inside of the flange of said member for preventing the bolts from being displaced when nuts are being applied thereto; substantially as described.

25. In a car construction, a member through which bolts project, and a metal clip connected to the inner face of said member and extending over the heads of the bolts to prevent them from being displaced when nuts are being applied thereto; substantially as described.

26. In a car construction, a member provided with a non-circular opening to receive a correspondingly-shaped portion on a bolt that projects through said member, and a metal clip connected to the inner face of said member and extending over the head of the bolt to prevent it from being displaced when a nut is being applied thereto; substantially as described.

27. A passenger-car provided with twin windows, a semi-elliptical window arranged over said windows, and a vertical post extending between said windows and offset inwardly to extend back of the semi-elliptical window; substantially as described.

28. A passenger-car provided with twin windows, a window arranged over said twin windows, and a post arranged between said twin windows and extending from the lower side sill to the upper side sill of the car, and being bent inwardly to extend behind the window that is arranged over the twin windows; substantially as described.

29. A passenger-car having twin windows, a cripple-post connected to the lower side sill and the belt-rail of the car, and a vertical post arranged between said windows and connected to the cripple-post and upper side sill of the car; substantially as described.

30. A passenger-car having twin windows and a single window arranged above said twin windows, a cripple-post extending between the lower side sill and the belt-rail of the car, and a vertical post extending between the twin windows and offset inwardly to extend behind the single window, said vertical post being connected to the cripple-post and to the upper side sill of the car; substantially as described.

31. A passenger-car provided with twin windows and a single window arranged above the twin windows, and a post arranged between the twin windows and extending from the lower side sill to the upper side sill of the car; substantially as described.

32. In a passenger-car, a cripple-post extending between the lower side sill and belt-rail of the car and comprising two angles arranged in the form of a T, and a vertical post having a portion thereof extending between the angles which form the cripple-post and being connected thereto; substantially as described.

33. A passenger-car comprising a side wall, a floor, a seat-plank arranged on the inside of the car-wall adjacent the floor, and inwardly-projecting flanges at the upper and lower edges of said plank; substantially as described.

34. A passenger-car comprising a side wall, a floor, and a pressed-metal member arranged on the inside of the car-wall and being provided at its upper and lower edges with inwardly-extending flanges; substantially as described.

35. A car comprising a side wall, an inside sheathing-plate, an inwardly-projecting flange at the lower edge of said plate, a seat-plank and an inwardly-projecting flange at the upper edge of said seat-plank which is secured to the flange at the lower edge of the inside sheathing-plate; substantially as described.

36. A car provided with an inside sheathing-plate, a sheet of fireproof material arranged on said plate, a strip of metal arranged on the other side of said fireproof material, and fastening devices extending through all of said members; substantially as described.

37. A car comprising a side wall, a sheathing-plate arranged inside of said wall, and a seat-plank located underneath said plate and provided at its upper and lower edges with angles; substantially as described.

38. A car comprising side posts, longitudinally-extending angles connected to said posts, an inside sheathing-plate connected at its upper and lower edges to said angles, a wooden filler connected to the upper angle, and a pressed-metal window-sill fastened to said filler; substantially as described.

39. A car comprising side posts, angles connected to said posts, an inside sheathing-plate secured to said angles, and a seat-plank fastened to one of said angles and to the floor of the car; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 5th day of June, 1906.

ALLEN E. OSTRANDER.

Witnesses:

ROBT. G. JEFFERY,  
FRED. E. PERRY.