No. 819,215. PATENTED MAY 1, 1906.

G. GIBBS

PASSENGER CAR FRAME.

APPLICATION FILED MAY 13, 1905.

6 SHEETS—SHEET 1.

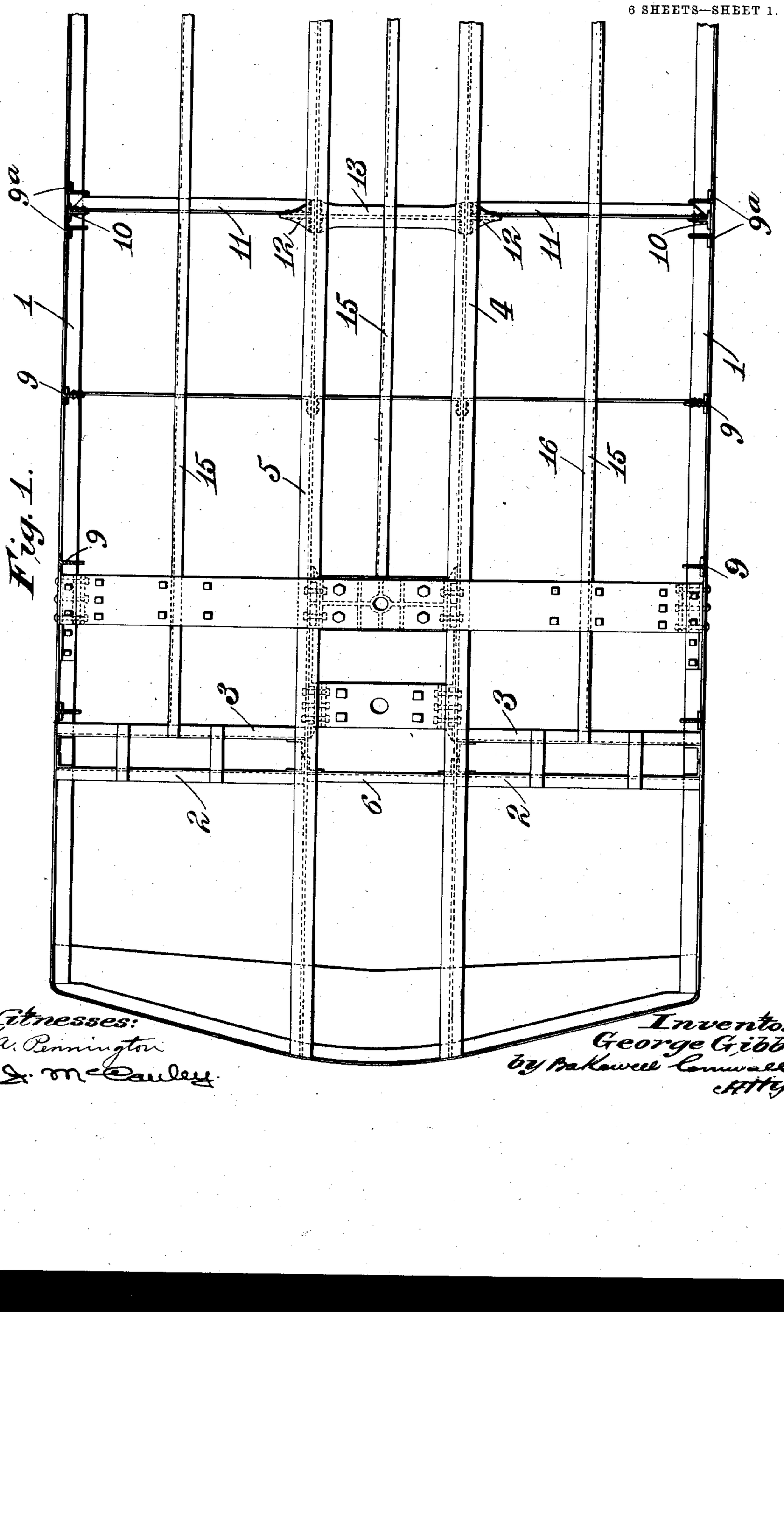

Fig. 1.

Witnesses:
C. A. Pennington
A. D. McCauley.

Inventor:
George Gibbs,
by Bakewell Conwell
Attys.

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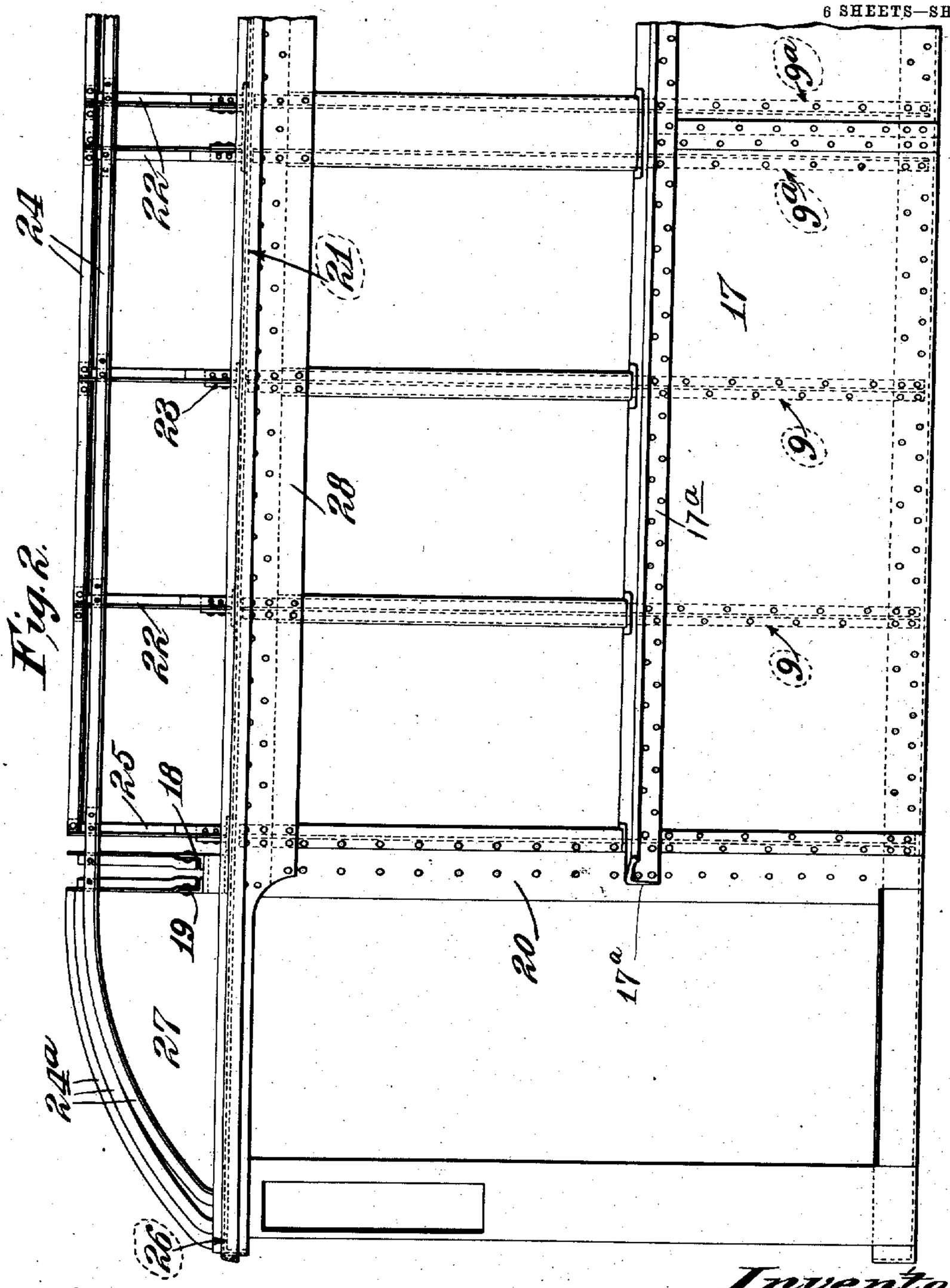
6 SHEETS—SHEET 2.



Witnesses:
E. A. Remington
A. J. McCauley.

Inventor:
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6 SHEETS—SHEET 3.

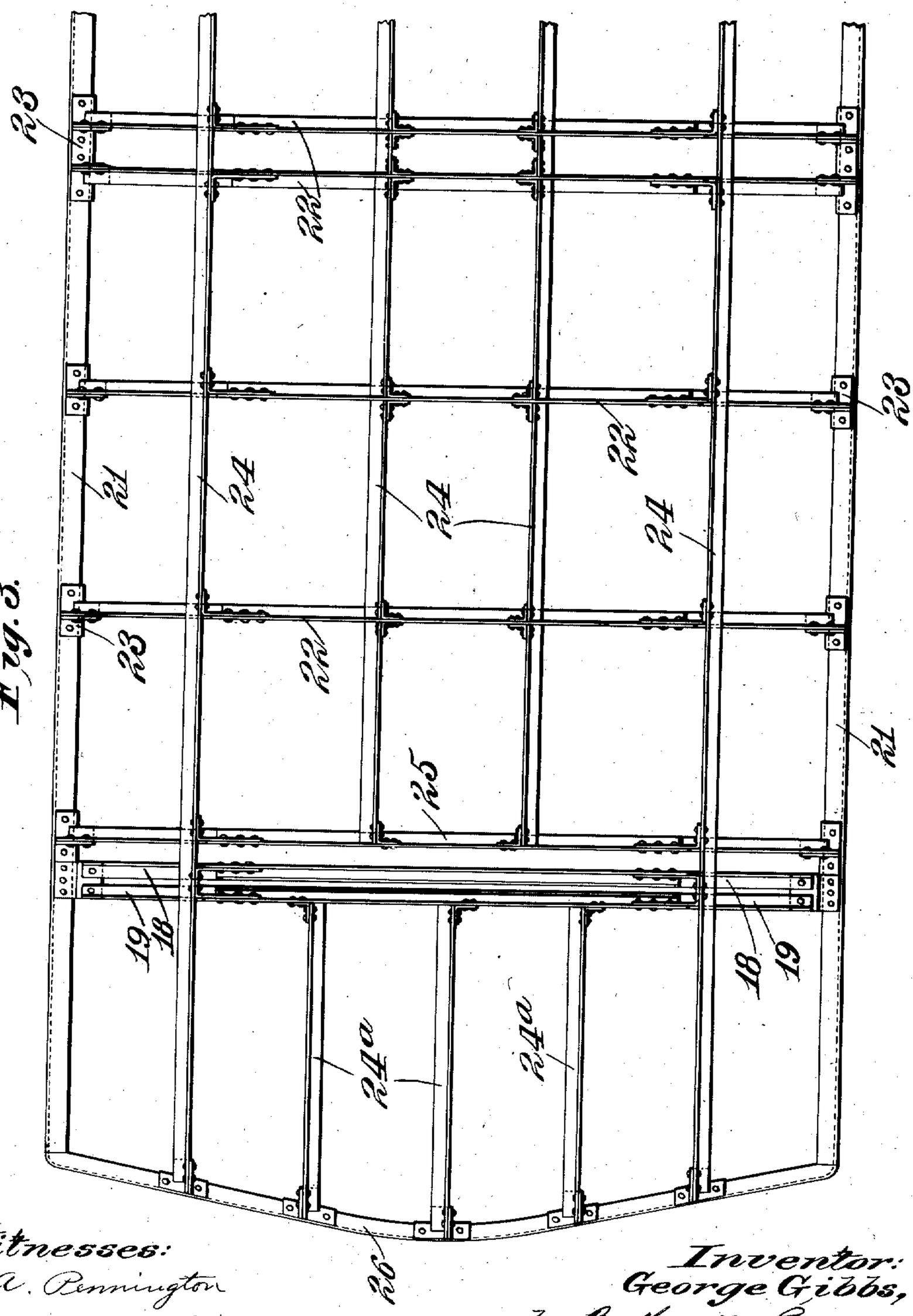

Fig. 3.

Witnesses:
G. A. Pennington
A. D. McCauley

Inventor:
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Attys.

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6 SHEETS—SHEET 4.

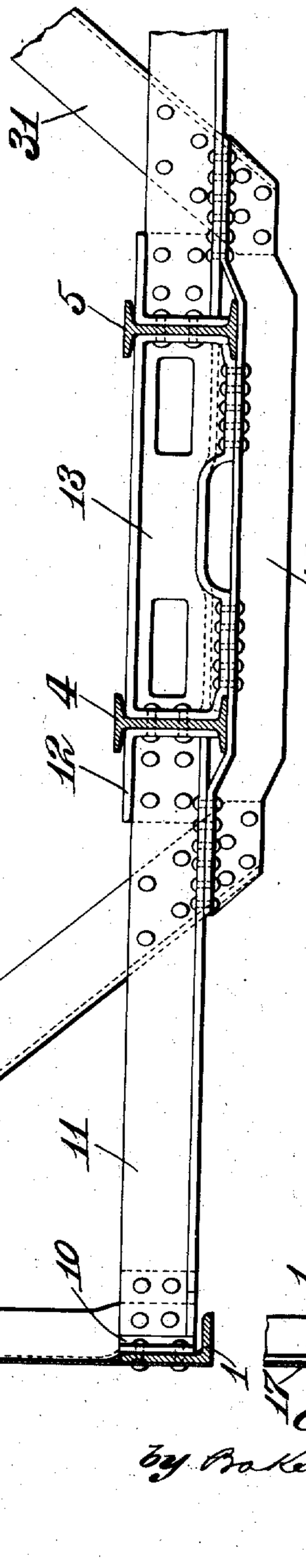

Fig. 4.

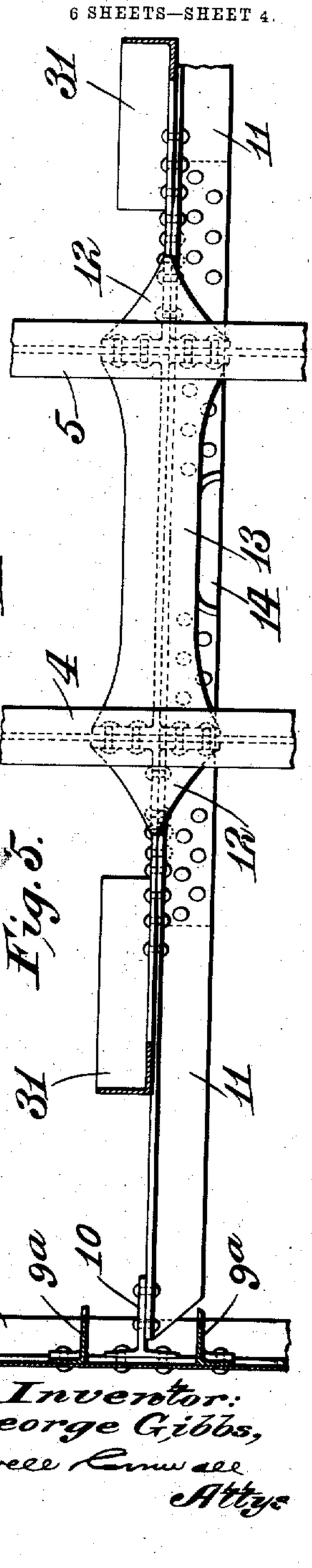

Fig. 5.

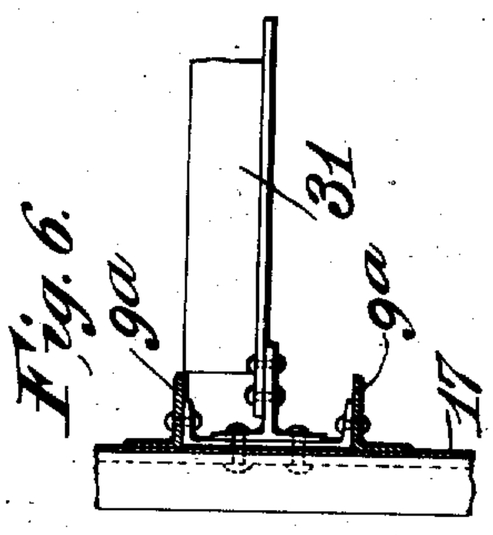

Fig. 6.

Witnesses:
G. A. Pennington
A. D. McCauley.

Inventor:
George Gibbs,
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Attys.

No. 819,215. PATENTED MAY 1, 1906.

G. GIBBS

PASSENGER CAR FRAME.

APPLICATION FILED MAY 13, 1905.

6 SHEETS—SHEET 5.

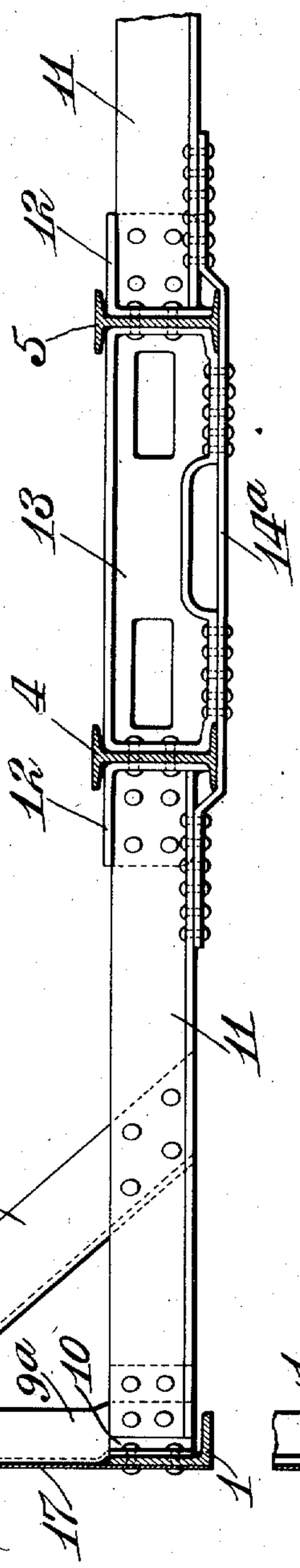

Fig. 7.

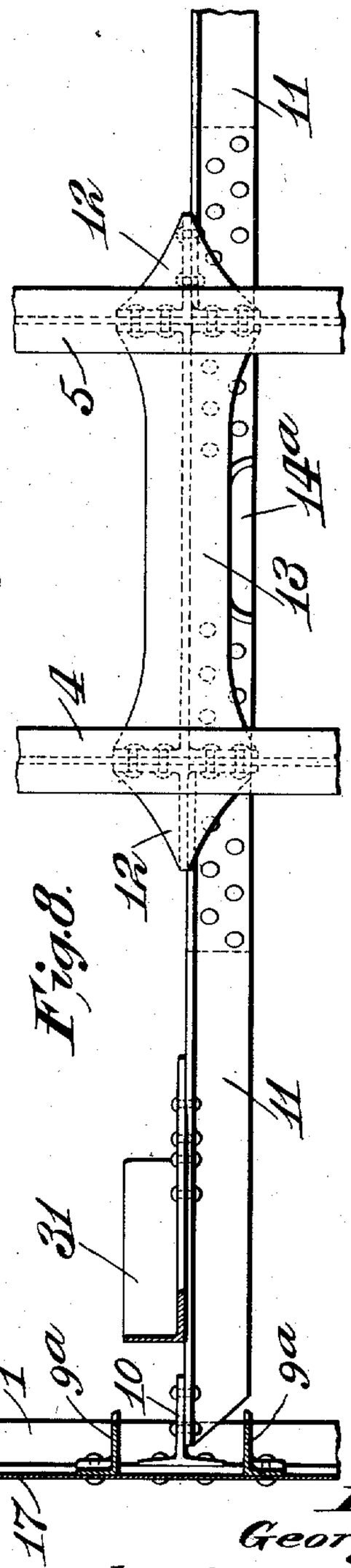

Fig. 8.

Witnesses:
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A. J. McCauley.

Inventor:
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No. 819,215. PATENTED MAY 1, 1906.

G. GIBBS

PASSENGER CAR FRAME.

APPLICATION FILED MAY 13, 1905.

6 SHEETS—SHEET 6.

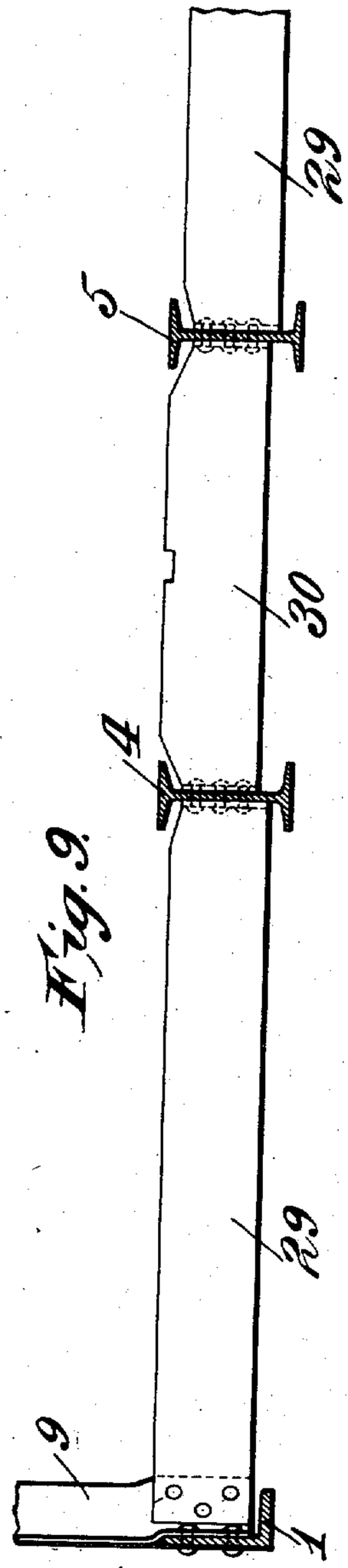

Fig. 9.

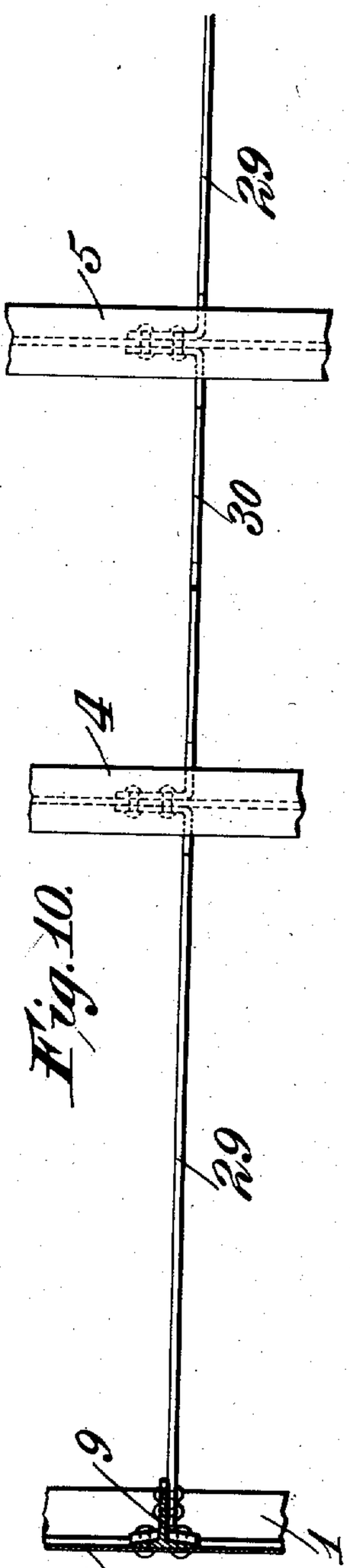

Fig. 10.

Witnesses:
G. A. Pennington
J. F. McCauley

Inventor:
George Gibbs,
by Bakewell & Cornwall
Attys.

UNITED STATES PATENT OFFICE.

GEORGE GIBBS, OF NEW YORK, N. Y.

PASSENGER-CAR FRAME.

No. 819,215. Specification of Letters Patent. Patented May 1, 1906.

Application filed May 13, 1905. Serial No. 260,281.

To all whom it may concern:

Be it known that I, GEORGE GIBBS, a citizen of the United States, residing in the city, county, and State of New York, have invented a certain new and useful Improvement in Passenger-Car Frames, 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 the underframing of the car. Fig. 2 is a side elevational view of the car. Fig. 3 is a top plan view of the arrangement of carlines and purlins for the roof and hood framing secured thereto. Fig. 4 is a cross-sectional view through the side sills and center sills, one of the cross-bearers being shown in elevation. Fig. 5 is a top plan view of one of the cross-bearers. Fig. 6 is a fragmentary top plan view of the tension member for the cross-bearing truss and the connection to the car side. Fig. 7 is a view in elevation of a slightly-modified form of cross-bearer. Fig. 8 is a top plan view of the same. Fig. 9 is a side elevational view of one of the intermediate cross-bearers, and Fig. 10 is a top plan view of the same.

This invention relates to railway-cars, but particularly to passenger-cars; and one of the objects is to provide a car possessing a minimum weight and affording a maximum strength and seating capacity.

Other objects and advantages, as well as the novel details of construction, will be more specifically referred to hereinafter, it being understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

The car shown in the accompanying drawings is shown as being provided with side sills 1 1, extending beyond the end sills of the car, which end sills are formed of channels 2 and 3, arranged back to back and having their flanges disposed in opposite directions. These end-sill channels do not extend from side sill to side sill, but are cut and arranged in pairs to permit of the center sills being made continuous from the end of one platform to the end of the other and to afford strength. They are connected at their respective ends to the side sills and to the webs of the I-beam center sills 4 and 5 in any suitable manner. The space between the I-beam center sills is provided with one or more fillers 6, and the I-beam center-sill members, like the side sills, extend beyond the end sills of the car and constitute supports for the platform, serving as a vestibule of the car. The bolsters may be of any well-known construction and are secured to the side sills to carry the weight from the side trusses to the center plate and to add strength and rigidity to the finished structure. At suitable points along the sides of the car are upstanding posts 9, which posts extend to the roof-deck and are of flanged shapes. These posts are illustrated as being T-shaped in cross-section. However, other commercially-flanged shapes may be substituted therefor. The double posts 9^a are shown as angles. Between the posts 9^a are vertically-arranged T-irons 10, whose central flanges project inwardly and each supports one end of an angle floor-sill 11, which angle floor-sill is arranged so that its flange is in a horizontal plane below the plane of the floor. The floor-sills 11 are secured to the webs of the I-beam center sills by angle-plates 12.

Between the I-beam center sills are filler-castings 13. Straps 14 are secured to the lower flanges of the floor-sills 11 and also to the filler-castings 13, as illustrated in Fig. 4. Floor-supporting strips 15 extend longitudinally of the car-body from end sill to end sill, and these floor-supporting strips are preferably in the form of angles either cut away along their flanges, so that the head flanges 16 may be secured to the top of the floor-sills, or arranged so that their flanges will rest in recesses in the floor-sills in an obvious manner. These floor-supporting strips preferably lie in the same plane as the planes of the tops of the center sills, so that a floor-sheet may be readily secured upon the underframing and, if desired, receive a covering of plastic material, such as is commonly employed in connection with passenger-cars.

17 indicates plate-girder sides, of which the side-sill angles 1 form the tension members and the bulb angles 17^a the compression members, the latter serving also as a belt-rail, the bulb-leg of the angle extending outwardly. The plates constituting the webs of the plate-girder sides are stiffened to resist buckling strains by the posts 9 and 9^a.

Projecting in an upward direction from the end sills of the car are angles 18 and 19, having inturned flanges connected by a cover-plate 20, so that the structure thus formed

is in the form of a channel. These two angles are arranged one on each inner flange of the end-sill members 2 and 3, and each channel is spaced a sufficient distance from the overlapping edge of the end of the plate-girder to form a slot through which a sliding door may operate.

The roof is illustrated as comprising side angles 21, supported by and secured to the upper ends of the posts 9 and 9ª, and secured to the horizontal flanges of these angles 21 are angle-carlines 22, which are fastened to the side angles by fastening devices 23. The purlins 24 are illustrated as comprising sections arranged in longitudinal alinement and are secured to the respective carlines. A transverse hood-bow 25 is arranged at each end of the car and comprises an angle secured to the purlins 24 and to the side angles 21.

26 designates an end bow connected to the side angles 21 at the ends of the car, and to this bow are secured the purlins 24ª. The purlins 24ª are bent at their ends, so as to engage the end bow 26.

The hood is reinforced by vertically-arranged plates 27, which are secured to the purlins in any well-known manner. The vertical flanges of the side angles 21, which are secured to the vertical posts 9 and 9ª, have the facia-plates 28, riveted to the outer faces thereof, said facia-plates overlapping the lower edges of said vertical flanges and being connected to the vertical posts, as shown in Fig. 2.

In Figs. 7 and 8 I have illustrated a modified form of floor-support connection in which the strap 14ª consists of a strip of metal bent to the desired form, whereas in the form illustrated in Fig. 5 I have shown this strap as comprising an angle member.

In Figs. 9 and 10 I have shown cross-bearers consisting of straps of metal, designated by the reference-numeral 29, which are secured to the side and center sills, respectively, the fillers 30 being interposed between the center-sill members. The floor-sills 11 are reinforced by inclined tension members 31, each of which are secured at one end thereto and at the opposite end to one of the vertical posts 9 or 9ª. In this form the element 31 being a tension member the compression member will be the floor-sill 11; but as this construction is similar to the construction of a truss forming the subject-matter of a patent granted to me September 12, 1905, being No. 799,325, I do not deem it necessary to specifically refer to it in this description. These trusses, however, communicate the weight, or at least a large portion thereof, to the sides of the car.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a passenger-car, the combination with plate-girder sides, posts riveted to and carried by said sides, a roof having side angles with flanges overlapping the posts, fastenings for securing said angles to said posts, and a facia-plate riveted to the side angles; substantially as described.

2. In a passenger-car, the combination with plate-girder sides, posts riveted to and carried by said sides, an angle carried by the upper ends of said posts and connected thereto, and a facia-plate riveted to said angle and overlapping the lower edge of the same; substantially as described.

3. In a passenger-car, the combination with plate-girder sides, of posts riveted to and carried by said sides, flanged side plates riveted to the upper ends of said posts, and facia-plates secured to the flanged side plates; substantially as described.

4. In a passenger-car, the combination with the sides thereof having vertical posts connected thereto, of flanged side plates connected directly to said posts at the upper edges of the sides, facia-plates along the upper edges of each side and secured to the flanged side plates thereof, and carlines riveted to the said flanged side plates; substantially as described.

5. In a passenger-car, the combination of vertical posts, side angles carried by the upper ends of said posts and connected thereto, and a facia-plate carried by the upper ends of said posts and overlapping the edges of the side angles; substantially as described.

6. In a passenger-car, the combination with plate-girder sides, posts riveted thereto, a flanged side plate overlapping the upper ends of said posts, a facia-plate riveted to the posts, and carlines riveted to the side plate; substantially as described.

7. In a passenger-car, the combination of plate-girder sides, posts riveted thereto, a side plate riveted to said posts, and vertically-disposed sheets at the ends of the car having their ends spaced away from the sides to provide door-entering slots; substantially as described.

8. In a passenger-car, the combination with plate-girder sides, metallic sheets at the ends of the car, vertical channels connected to the metallic sheets, said channels being spaced away from the sides of the car to provide door-entering slots; substantially as described.

9. In a passenger-car, the combination of a plate-girder side whose tension-flange is inwardly disposed, a compression member having an outwardly-disposed flange and comprising the bell-rail for the plate-girder sides, and an angle side plate at the upper edge of the car; substantially as described.

10. In a passenger-car, the combination with plate-girder sides and center sills, of a truss comprising cross-bearers secured to the sides and center sills, straps connecting the cross-bearer members on either side of the

center sills, and tension members connected to the sides and to the cross-bearer members; substantially as described.

11. In a passenger-car, the combination with plate-girder sides and center sills, of a truss comprising cross-bearers secured to the sides and center sills, straps connecting the cross-bearer members on either side of the center sills, and tension members connected to the cross-bearer members and to the straps; substantially as described.

12. In a passenger-car, the combination with plate-girder sides and center sills, compression members connected to the plate-girder sides and center sills, devices connecting the compression members and extending below the center sills, and tension members connected to the sides, to the compression members and to the connecting devices; substantially as described.

13. In a railway passenger-car, the combination with plate-girder sides and center sills, compression members connected to the sides and center sills, a commercially-shaped beam connecting the compression members on both sides of the center sills, and tension members connected to the compression members, to the commercially-shaped beam and to the sides; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 8th day of May, 1905.

GEORGE GIBBS.

Witnesses:
W. L. MURRAY,
H. S. JOHNSON.

Correction in Letters Patent No. 819,215.

It is hereby certified that in Letters Patent No. 819,215, granted May 1, 1906, upon the application of George Gibbs, of New York, N. Y., for an improvement in "Passenger-Car Frames," an error appears in the printed specification requiring correction as follows: In line 123, page 2, the compound word "bell-rail" should read *belt-rail;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 28th day of May, A. D., 1907.

[SEAL.]

E. B. MOORE,
Acting Commissioner of Patents.

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