

No. 799,325.

PATENTED SEPT. 12, 1905.

G. GIBBS.
CAR CONSTRUCTION.
APPLICATION FILED MAY 3, 1905.

2 SHEETS—SHEET 1.

FIG. 1.

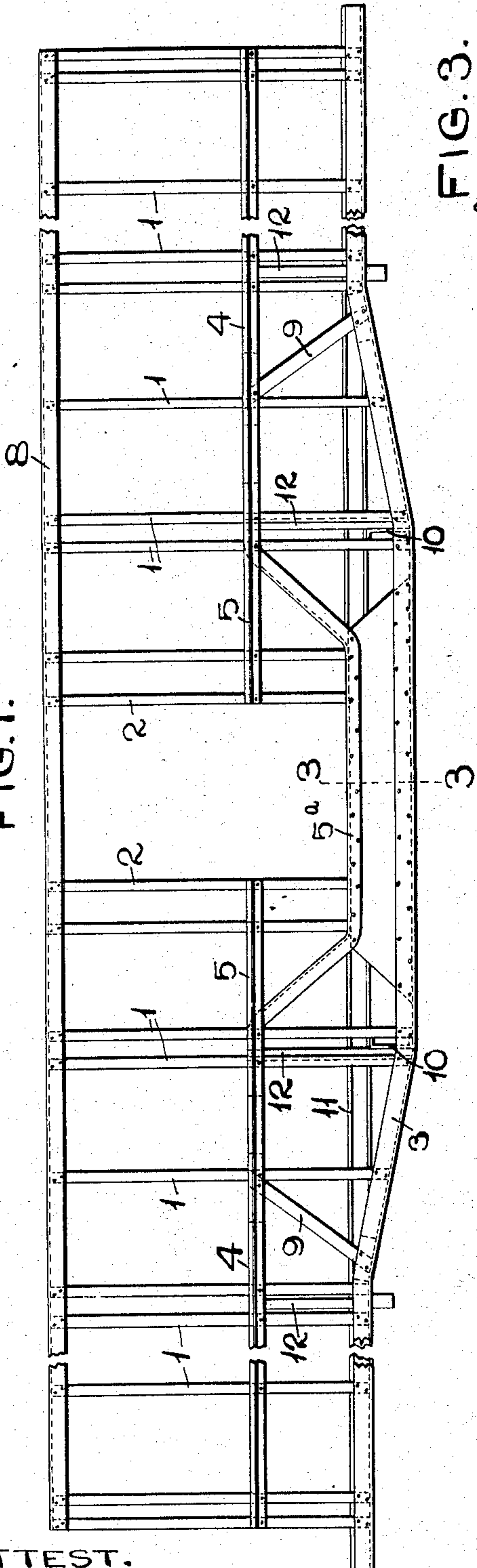


FIG. 3.

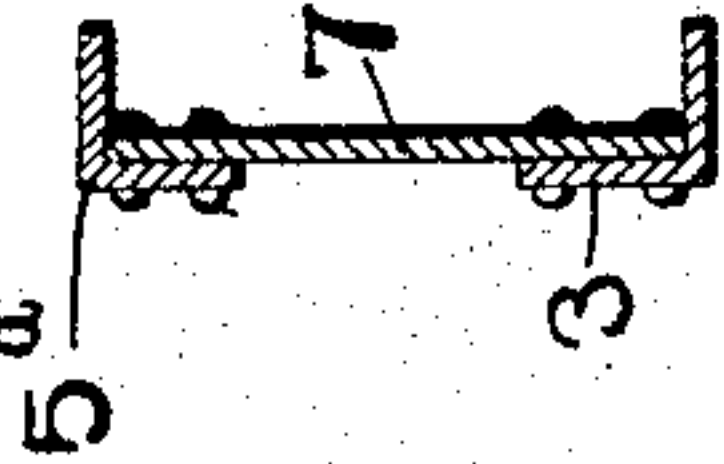
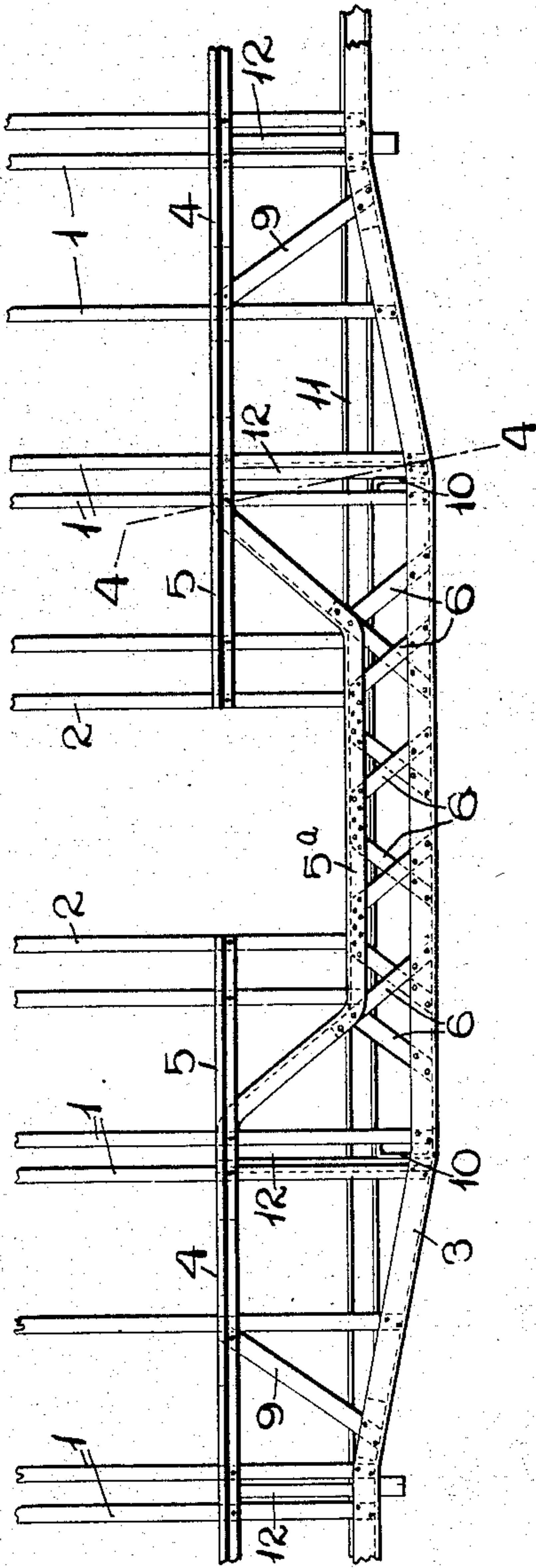


FIG. 2.



ATTEST.

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2 SHEETS—SHEET 2.

FIG. 4.

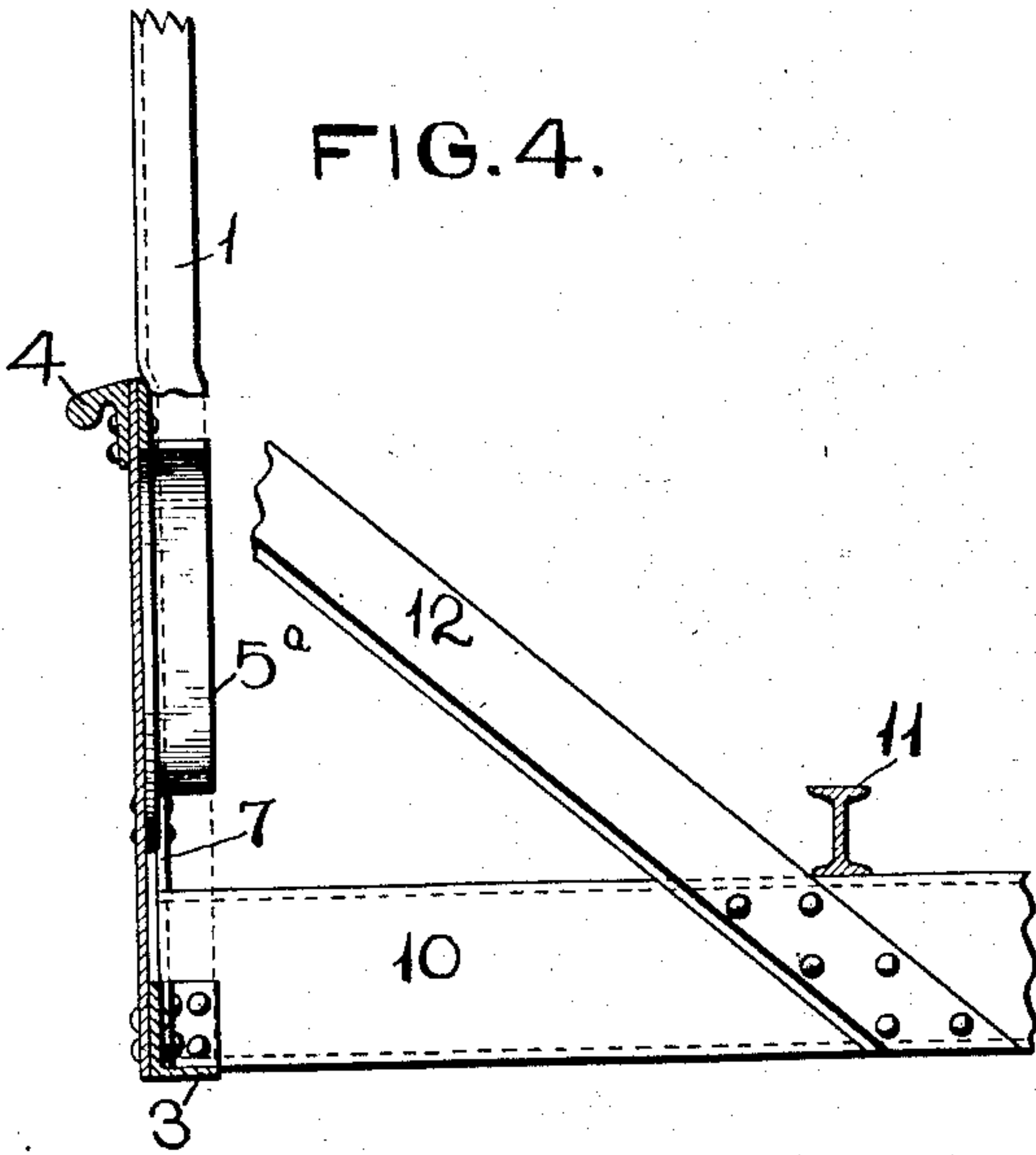


FIG. 5.

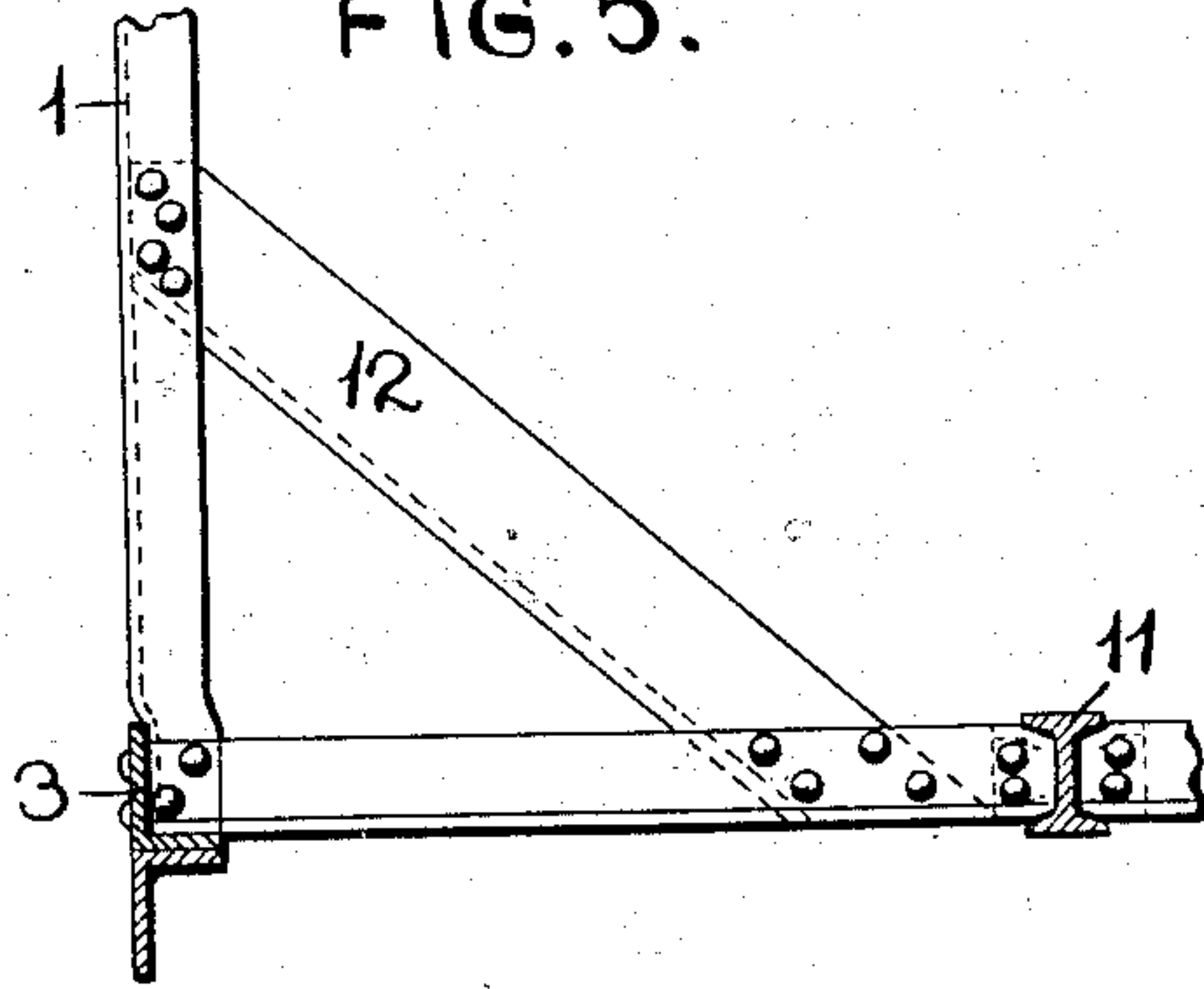


FIG. 6.

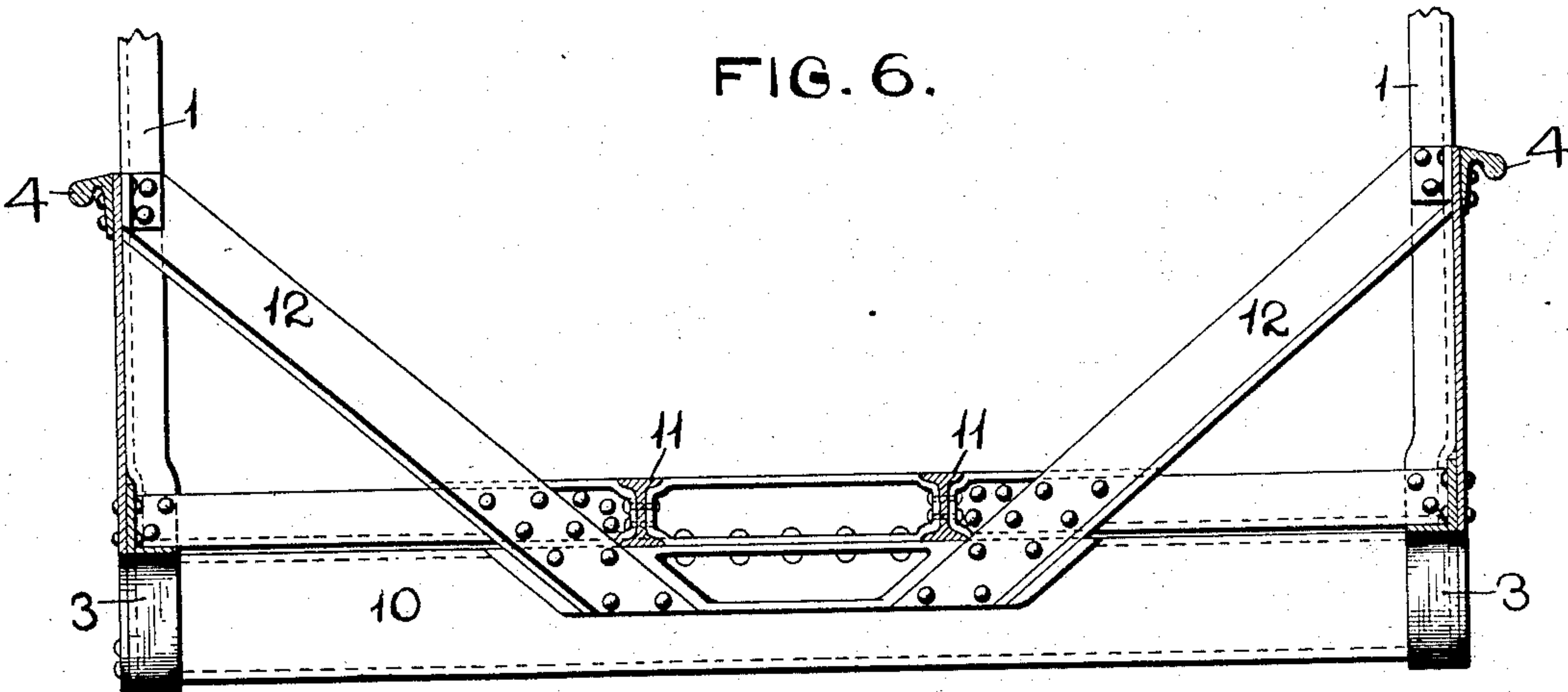
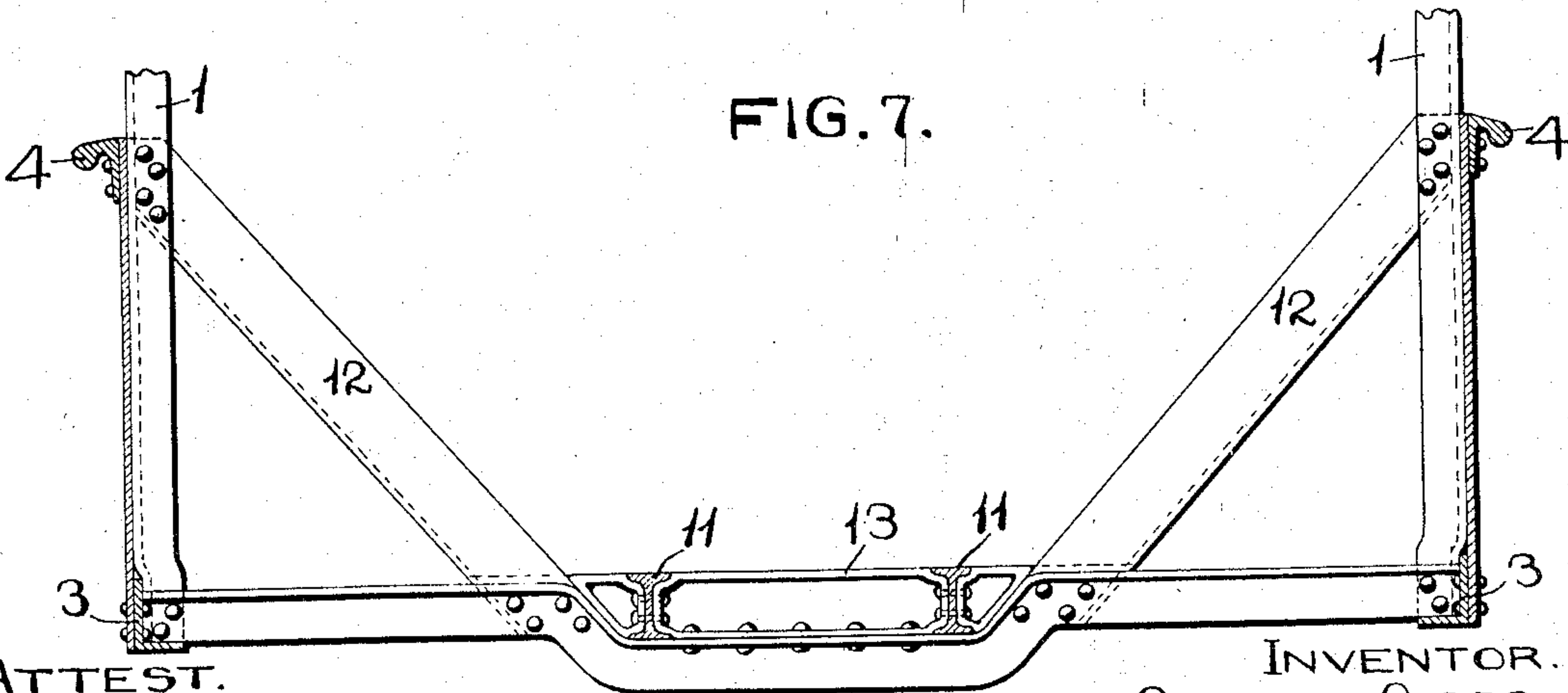


FIG. 7.



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CAR CONSTRUCTION.

No. 799,325.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed May 3, 1905. Serial No. 258,610.

To all whom it may concern:

Be it known that I, GEORGE GIBBS, a citizen of the United States, residing at New York, State of New York, have invented a certain new and useful Improvement in Car Construction, 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 side elevational view of the skeleton side frame of a railway-car constructed in accordance with my invention. Fig. 2 is a fragmentary side elevational view of a slightly-modified form of skeleton side frame. Fig. 3 is a cross-sectional view on the line 3 3 of Fig. 1. Fig. 4 is a fragmentary cross-sectional view through the car on the line 4 4 of Fig. 2. Fig. 5 is a cross-sectional view through a modified form of side frame, the bracing being shown in elevation. Fig. 6 is a sectional view through a further modified form of bracing, and Fig. 7 is a further modified form of bracing.

This invention relates to the general class of railway rolling-stock, but particularly to a framing for steel cars.

One of the objects of the invention is to provide a steel car possessing a maximum strength combined with a minimum weight; and, broadly stated, the invention includes side trusses arranged under the window-sills, which span the space between the body-bolsters, so as to transfer the weight and strain thereto.

It is also the object of this invention to provide a side door intermediate the body-bolsters, and preferably at the middle of the car. In order to provide such a structure with the door intermediate the body-bolsters, it is necessary that the side trusses shall be below the floor-level adjacent to the door; but the trusses may extend above the floor-level on either or both sides of the door. In an ordinary construction of car it will be necessary to practically cut the trusses in two and leave only the underframing to carry the loads. With a construction similar to the one illustrated in this application the load is carried by the side trusses and transmitted to the body-bolsters.

In the construction shown I prefer to use a bent truss arranged to be carried underneath the middle door, which truss is preferably of less depth under the door-sill than at other portions. Thus the bent truss will provide rigidity, and the carrying strength of the side

sills and their stiffening against all forms of strain may be provided for by properly proportioning the truss. In this construction of passenger-car framing lightness and strength are secured by a system of deep side trusses, with cross-bearing trusses to stiffen against lateral deformation, and the carrying of the major portion of the floor-load is insured. This arrangement has great advantage over supporting the weight at the middle of the car by truss-rods, as the bent truss makes a car which is laterally and vertically stiff and which will effectually resist buffing strains.

Referring now to the drawings, 1 indicates the side posts, and 2 indicates the metal side posts, which also constitute the door-posts, which frame in the sides of the door-opening, preferably at about the middle of the car.

3 indicates one of the lower side sills, which also forms the floor-support of the lower member of the truss and is continuous from end to end. The upper member of the truss, which also constitutes the belt-rail under the windows, is designated at 4. This upper member is illustrated as being continuous from the ends to the center door-posts 2, so as to form a finish under the side windows.

5^a designates a downwardly bent or deflected truss member which passes under the door-sill and is secured at its end to the upper chord of the truss. Thus the upper chord of the truss is made practically continuous, in effect, from one end of the car to the other. The upper and lower chords of the truss member are stiffened by diagonals 6, the upper chord being the compression member of the truss and the lower chord member being the tension member of the truss.

7 is a plate which is connected to the upper and lower chords of the truss and is illustrated as being below the door-sill. This plate 7 will serve as a girder, so that the side, in effect, will be a combination girder and truss. The upper ends of the posts 1 and 2 are connected to an angle side plate, which will assist in stiffening the sides of the car and relieve some of the strain on the truss.

The reference-numeral 9 designates diagonal braces secured to the upper and lower truss members, so as to assist in preventing buckling of the lower truss member.

10 designates cross-bearers below the floor of the car, which cross-bearers are shown as comprising channels the webs of which are vertical. These cross-bearers are arranged below the center sills 11, and they are secured

at their ends to the trussed sides to prevent the side trusses from buckling at the lower portions. While I prefer to construct these cross-bearers 10 of channel form, I reserve the right to utilize other shapes or castings, if desirable. The cross-bearer 10 is combined with a diagonal truss 12, so as to comprise a cross-bearing truss to communicate the weight of the floor to the side trusses. Similar cross-bearers are arranged at suitable points along the car and are preferably arranged to aline with the backs of the car-seats, of which they may form a part.

In Fig. 6 I have illustrated the diagonals 12 as being secured to castings under the center sills, while in Fig. 7 they are shown as being secured to the cross-bearers, having end portions substantially flush with the top of the center sills and intermediate portions below the center sills, to which they are secured by suitable castings 13. This construction may be provided by bending the cross-bearers intermediate their ends, so that they will pass down beneath the center sills, the portions between the center sills and sides being substantially flush with the tops of said center sills.

It is to be understood, of course, that the trussed sides will be provided with plates to constitute the outside finish of the car, and these plates may be so arranged with respect to the upper and lower chords of the truss as to constitute the webs of a plate-girder, so that throughout the car I may have the advantage in strength of a plate-girder side combined with a truss.

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

1. In a railway-car, trussed sides, the upper chords of which serve as belt-rails under the windows, said upper chords being deflected to form the sill of a door-opening; substantially as described.

2. A railway passenger-car, having side trusses provided with a continuous upper chord member above the floor of the car, said upper chord member being deflected to pass below a door-opening intermediate the ends of the car; substantially as described.

3. A railway passenger-car, the sides of which consist of trussed members of less depth below a side door-opening than below the windows; substantially as described.

4. In a railway passenger-car, the combination with body-bolsters, of sides carried by

the bolsters and comprising trussed structures, the upper chords of which form belt-rails adjacent to the windows, part of said trusses being bent intermediate their ends so that the upper chords thereof rest below a door-opening in said car side; substantially as described.

5. A railway passenger-car having trussed sides, parts of the upper chords of which are deflected downwardly to frame in the bottom of a door-opening; substantially as described.

6. A railway passenger-car having truss sides provided with upper and lower chords, parts of said upper chords of which are deflected downwardly to frame in the bottom of the door-opening, at which points said truss is relatively shallow, diagonals connecting the upper and lower chords of the relatively shallow portion of said truss, and plates connected to the upper and lower chords of said truss at the relatively shallow portion; substantially as described.

7. A railway passenger-car having trussed sides provided with upper and lower chords, diagonals connecting said upper and lower chords, web-plates connected to the upper and lower chords of said truss, said trusses being of less widths at their intermediate portions than at their ends; substantially as described.

8. A truss side for railway passenger-cars, the upper and lower chords of which are of uniform distances apart above the bottom of the car, and closer together at the middle portion of the car; substantially as described.

9. In a railway passenger-car, trussed sides, the upper chords of which constitute the belt-rail, said belt-rails being deflected intermediate their ends to frame in the bottom of a door-opening, and plates secured to the upper and lower chords of said trussed sides; substantially as described.

10. In a railway passenger-car, trussed sides, the upper chords of which form a belt-rail, posts secured to said sides and extending above the same, an angle side plate secured to the upper ends of the posts, and web-plates secured to the upper and lower chords of the trussed sides; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 27th day of April, 1905.

GEORGE GIBBS.

Witnesses:

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