

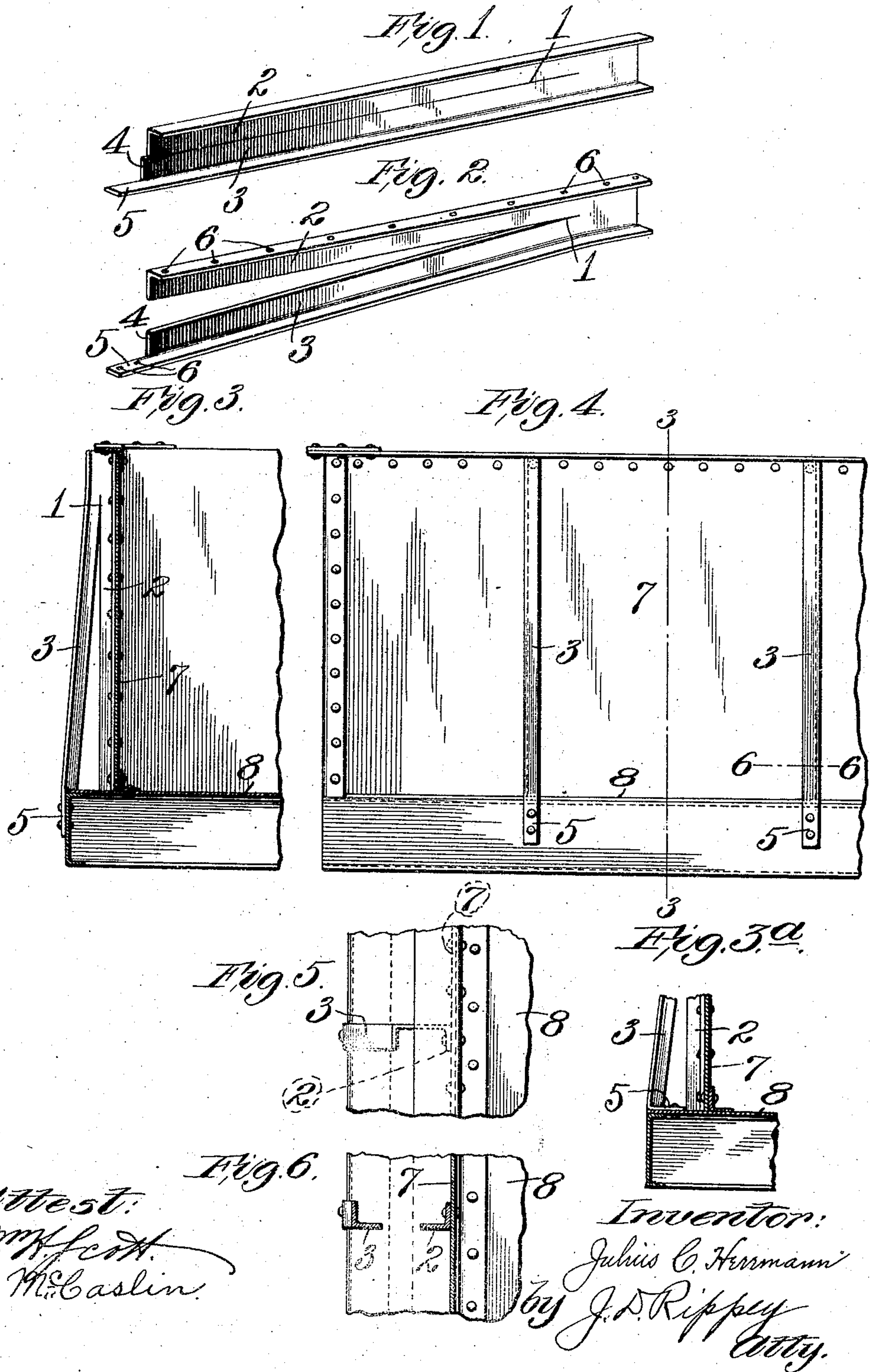
No. 827,307.

PATENTED JULY 31, 1906.

J. C. HERRMANN.  
COMBINED STAKE AND BRACE FOR CARS.

APPLICATION FILED MAR. 19, 1906.

2 SHEETS—SHEET 1.



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Fig. 7.

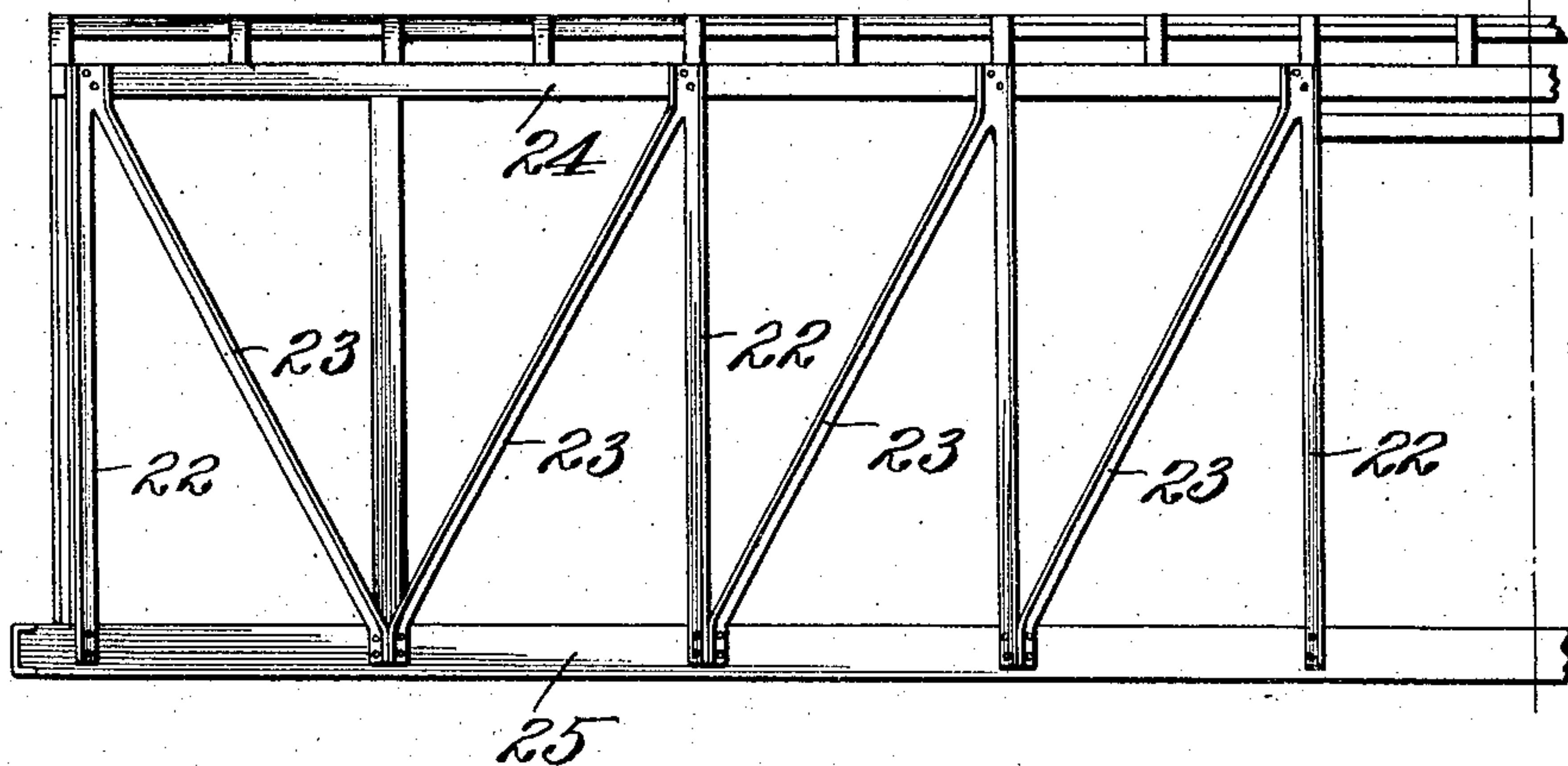


Fig. 8.

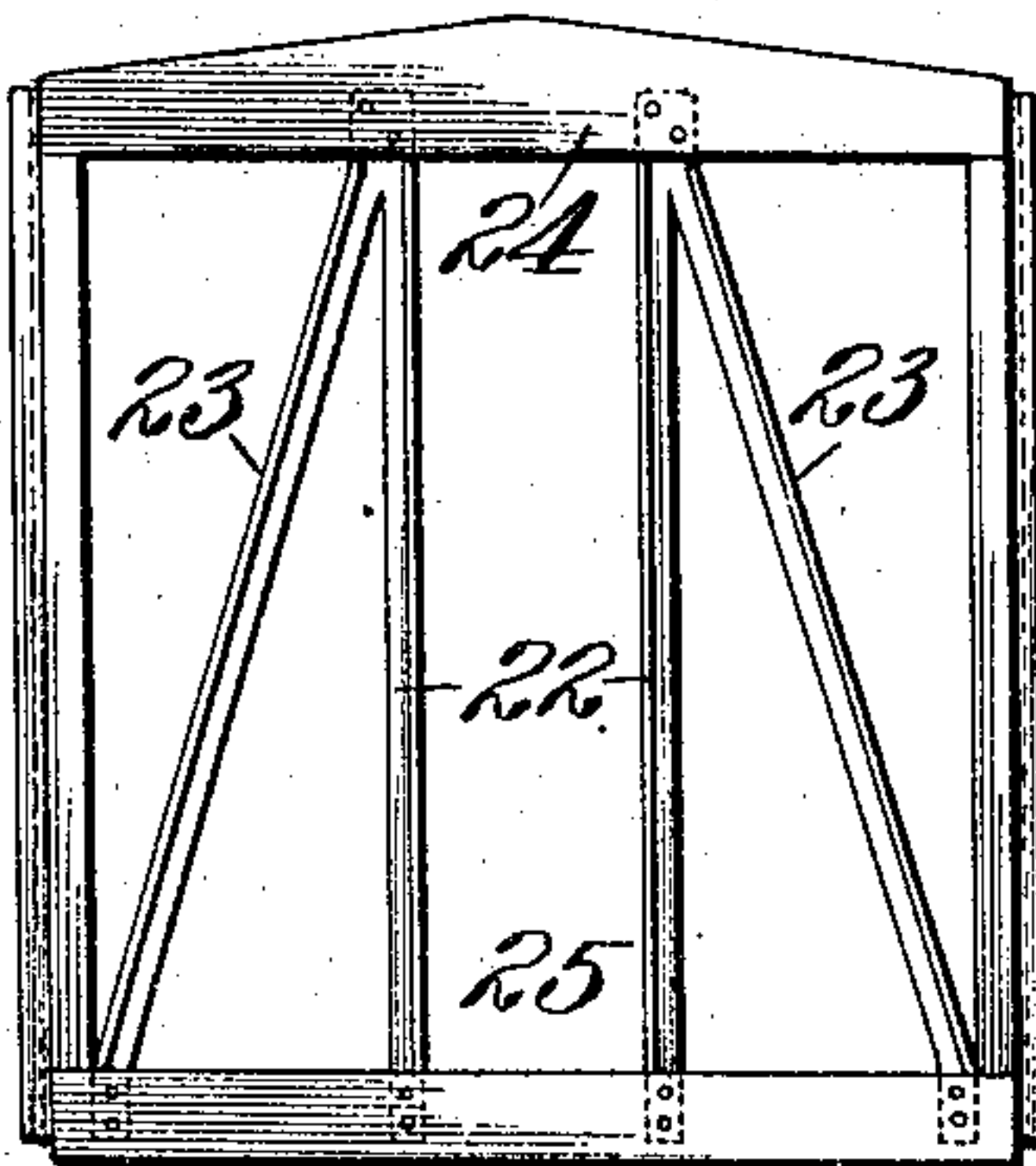
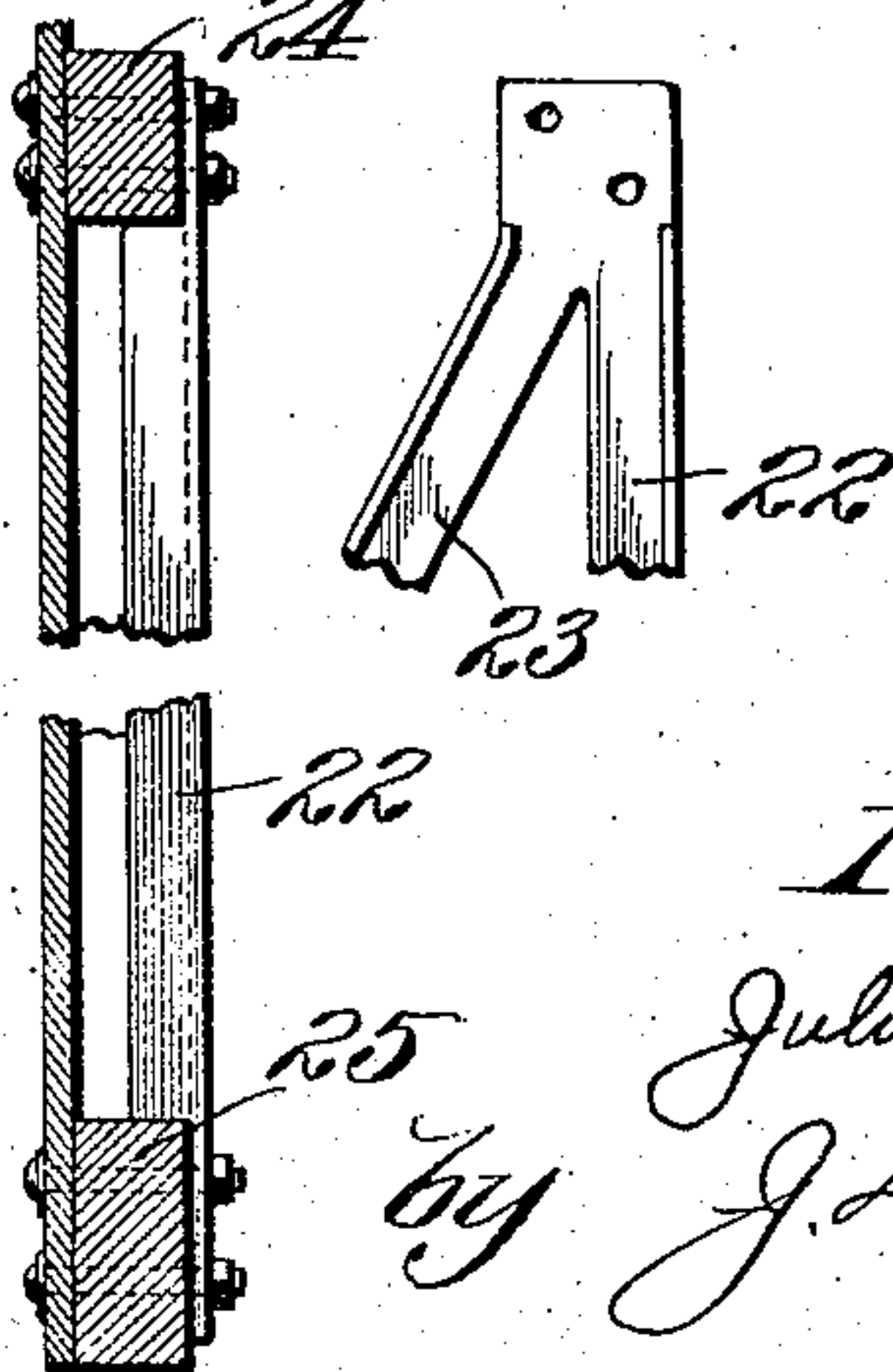


Fig. 9. Fig. 10.



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att'y



# UNITED STATES PATENT OFFICE.

JULIUS C. HERRMANN, OF ST. LOUIS, MISSOURI.

## COMBINED STAKE AND BRACE FOR CARS.

No. 827,307.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed March 19, 1906. Serial No. 306,734.

*To all whom it may concern:*

Be it known that I, JULIUS C. HERRMANN, a citizen of the United States, residing at St. Louis, Missouri, have invented a new and useful Combined Stake and Brace for Cars, of which the following is a specification:

This invention relates to combined stakes and braces such as are used in cars of different types, and has for its object to provide a combined stake and brace from a section or piece of commercial rolled or pressed metal, which shall consist of two legs having integral connection at one end and diverging toward the other end. In shaping the device it is preferred that one leg be drawn or bent away from the other to form the compression portion, leaving the second leg in a straight line.

In the construction of a device of this character commercial rolled or pressed metal, as preferred, may be used, it being necessary only that the legs or at least one of them shall be angular in cross-section. This provides for use of any of the commercial shapes—such, for instance, as angles, channels, Z shapes, or I shapes—just as individual preferences may determine. For convenience and as affording a disclosure such as would enable those skilled in the art to employ any preferred shape I have illustrated the device formed from rolled or pressed metal in the form of channels.

In the drawings, wherein I have illustrated my invention in various positions and uses, Figure 1 is a view of the channel metal sheared or split, but before the legs have been spread apart. Fig. 2 shows the finished stake and brace as constructed and intended for use in a gondola car or the like. Fig. 3 shows the combined stake and brace attached in use on a gondola car, this view being a sectional view taken substantially along the line 3 3 of Fig. 4. Fig. 3<sup>a</sup> shows a different or modified shape of lower end of the compression-leg which is attached to the car-sill. Fig. 4 is an end view of a portion of a car, showing the combined stakes and braces thereon. Fig. 5 is a top view of one of the combined stakes and braces in use on a gondola car. Fig. 6 is a sectional view approximately on the line 6 6 of Fig. 4 looking downwardly. Fig. 7 is a side elevation of a box-car frame, showing my invention embodied therein. Fig. 8 is an end view of the box-car. Fig. 9 is a view showing a modified or slightly-different method of attaching the combined stakes and braces to the car-frame. Fig. 10 is a de-

tail view of one end of the stake and brace when it is to be attached in the manner shown in Fig. 9.

In Fig. 1 there is shown a section of commercial rolled or pressed metal, either to be used, as preferred, sheared or split, as indicated at 1, thereby forming two legs 2 3. In the primary arrangement of the section of metal an offset is formed, as indicated at 4, Fig. 1, so that when sheared the leg 3 will contain the offset and be that much longer than the leg 2. Likewise the flange of the leg 3 projects beyond the offset 4, the projecting part being indicated by 5. Rivet or bolt holes 6 are formed at intervals in the flange of the leg 2 and in the projecting portion 5 of the flange of the leg 3. After being so prepared the leg 3 is bent away from the leg 2, forming a fork of any desired degree of divergence, and the flange of the leg 2 is riveted or bolted against the wall 7 of the car, the leg 3 extending obliquely downward and outward and bearing upon the projecting portion of the floor 8, the two legs in connection with each other thereby subserving all the functions of stake and brace. Moreover, the integral connection between the two legs increases their strength. The projecting portion 5 of the flange of the leg 3 may be fastened to the side of the sill, as shown in Fig. 3, or it may be bent inwardly to form a foot and fastened to the floor, as shown in Fig. 3<sup>a</sup>. The wall of the car is greatly strengthened and reinforced by this device, which is of economical construction and of great strength and rigidity in use.

The device similarly constructed and arranged may be used with equal advantage in box-car or other car construction. Its application to this use is shown in Figs. 7 to 10, inclusive, of the drawings. In Fig. 7 several of the devices are shown in a box-car frame, there being in each device a straight leg 22 and a divergent leg 23, having one end integral with said leg 22. In such use the legs 22 serve instead of and displace the usual uprights or posts, and the inclined or divergent legs 23 take the place of the usual braces. The integral upper portions of the legs are attached to the top 24 of the car-frame, and the lower ends of said legs are fastened to the sills 25 in any suitable manner, such as by rivets or bolts. The rigidity and strength of the entire car-frame are increased by the integral construction of the posts and braces, which may be used also in the end of the car to



strengthen the end wall and take the place of the usual posts and braces there. Fig. 8 illustrates the devices so used, the straight or upright legs being indicated, as in Fig. 7, by 22 and the divergent legs by 23. In this instance the devices are shown attached to the inner side of the upper and lower sills, whereas in Fig. 7 they are attached to the outer side.

Figs. 9 and 10 illustrate the modified construction and attachment of the devices when fastened to the inner side of the car-frame. The flanges in all instances should project outward, and to permit attachment to the frame of the web portions of the legs the flanges are cut away at the upper and lower extremities of the legs, so that the webs bear against the frame, as shown in Fig. 9. Bolts or rivets may be used as fastening devices in all instances.

I have shown and described my invention in its preferred construction and in a few of its uses. I am aware, however, that there may be variations from the described construction within equivalent limits and do not restrict myself to exact or unnecessary features of construction nor to the specific uses named.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a car-wall, a combined stake and brace comprising, a leg, and a second leg having one end integral with the first-named leg and projecting therefrom at an angle.
2. In a car-wall, a combined stake and brace comprising, two legs integral with each other at one end and of different lengths.
3. In a car-wall, a combined stake and brace comprising, two flanged legs integral with each other at one end and diverging from each other toward their other ends.
4. In a car-wall, a combined stake and brace comprising, a section of commercial

rolled, or pressed, metal, split to form two legs which are integral with each at one end. 4

5. In a car-wall, a combined stake and brace comprising a section of commercial rolled, or pressed, metal, sheared to form two legs which are integral with each other at one end, and which diverge toward their opposite ends. 50

6. In a car-wall, a combined stake and brace comprising, a section of commercial rolled, or pressed, metal, sheared to form two legs which are integral with each other at one end, and one of said legs being bent outwardly from the other, substantially as specified. 55

7. In a car-wall, a combined stake and brace comprising, two integral divergent legs, and a flange integral with each of said legs, substantially as described. 60

8. In a car-wall, a combined stake and brace, comprising a bifurcated member, and a flange integral with each leg of said member. 65

9. In a car-wall, a combined stake and brace comprising, two legs of different lengths integral with each other at one end, and a flange integral with the shorter of said legs. 70

10. In a car-wall, a combined stake and brace, comprising two legs of different lengths, and a flange integral with the shorter of said legs. 75

11. In a car, a combined stake and brace comprising, a leg 2 and a leg 3 integral with each other at one end, and a projecting portion 5 integral with said leg 3.

In testimony whereof I hereto affix my signature in the presence of two witnesses. 80

JULIUS C. HERRMANN. [L. S.]

Witnesses:

J. D. RIPPEY,

F. J. McCASLIN.