R. V. SAGE.

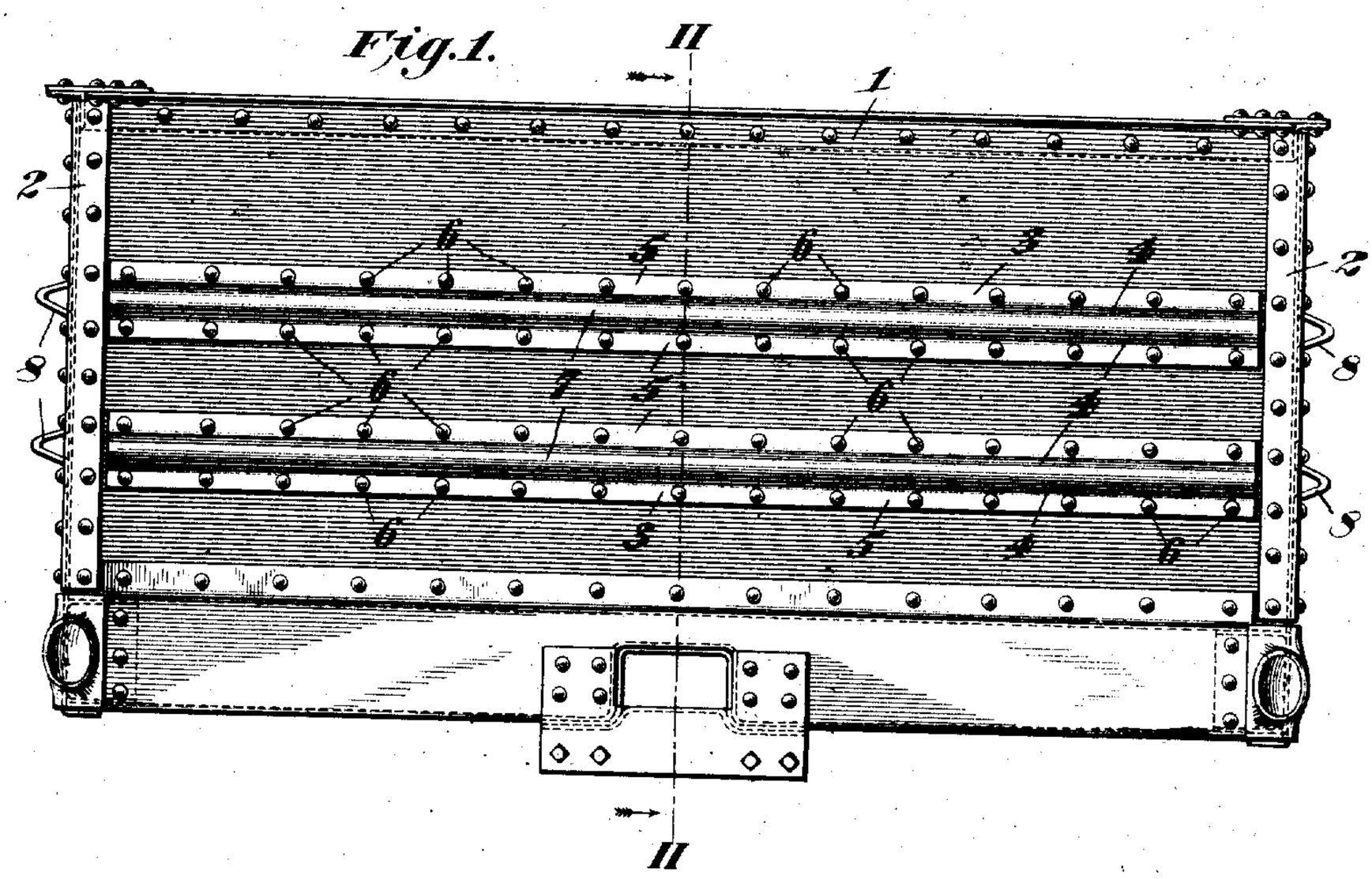
END BRACE FOR RAILWAY CARS.

APPLICATION FILED AUG. 19, 1907.

903,408.

Patented Nov. 10, 1908.

Fig. 1.



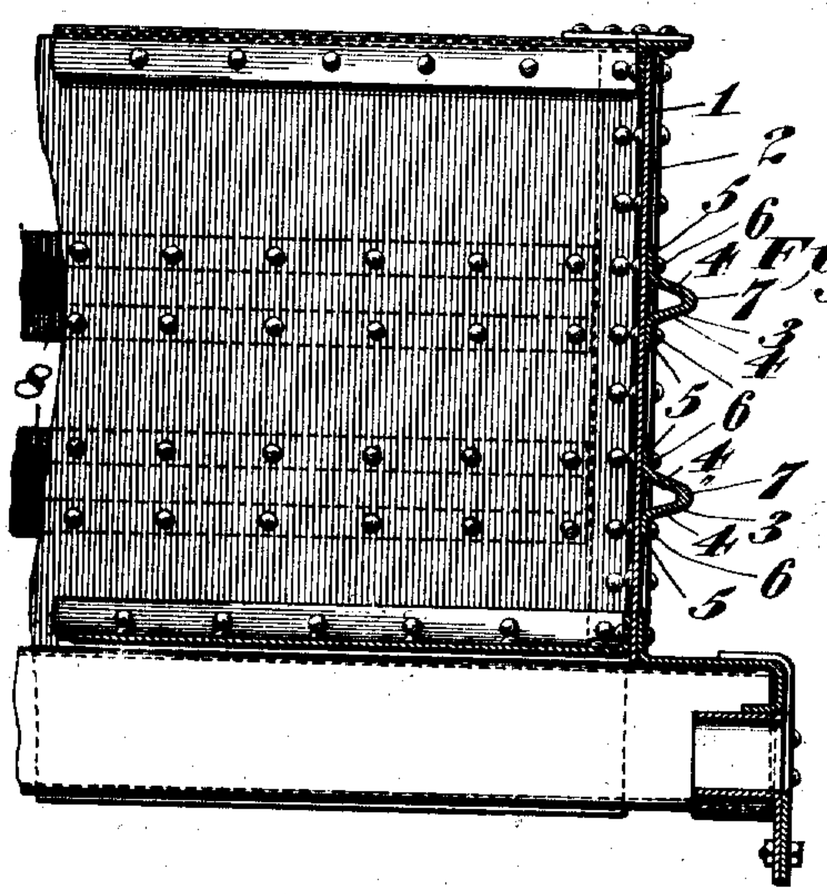


Fig. 2.

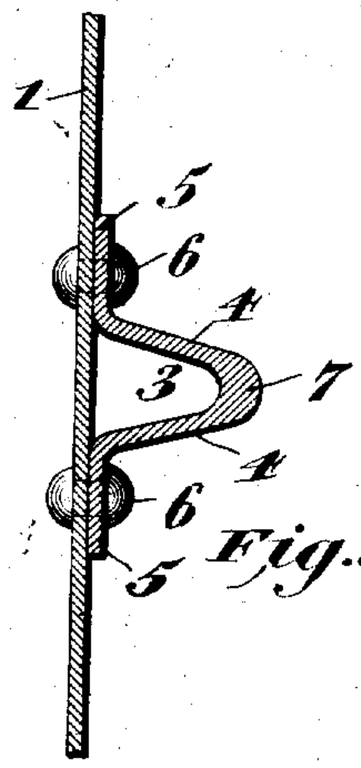


Fig. 3.

WITNESSES,

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UNITED STATES PATENT OFFICE.

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END BRACE FOR RAILWAY-CARS.

No. 903,408. Specification of Letters Patent. Patented Nov. 10, 1908.

Application filed August 19, 1907. Serial No. 389,103.

To all whom it may concern:

Be it known that I, RALPH V. SAGE, a citizen of the United States, residing in the borough of Westmont, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in End Braces for Railway-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to end-braces for railway cars, and one object is to provide a brace which is trough-shaped in cross section and provided with integral flanges projecting outwardly, securing the brace to the end wall of the car, the central section of the brace being thickened at its apex in order to increase its strength and rigidity without adding unnecessarily to its weight and cost. End-braces somewhat similar in cross section have heretofore been used, but such end-braces have not, so far as I am aware, been provided with a thickened apex and have therefore lacked strength and rigidity at the point of greatest stress. A brace of uniform thickness, although heavier, will not have the same strength, unless its weight is sufficiently great to involve useless expense, as will be readily understood by one skilled in the art to which this appertains.

With these objects in view, the invention consists in an end-brace adapted to be secured in a horizontal position to the end wall of a railway car, said brace being trough-shaped in cross section with projecting flanges, and having a rounded enlargement or thickened portion at the apex where the greatest stress due to the pressure on said wall, is exerted.

A horizontal brace of the character described, that is, one having a thickened apex portion, is of particular value on the end or side walls of a car, as the material in such a brace is particularly well disposed and arranged to withstand the bending stresses to which it is subjected when serving as a beam to resist the thrusts or pressures of the lading, acting in substantially horizontal or inclined directions transversely to the wall of the car, the action of said brace being similar to that of a beam supported at its ends.

My improved end-brace is different in construction, location and action from an ordinary car-stake, as this latter is set vertically and serves as a cantaliver fixed at its lower end, thereby bracing the sides or ends of a car. On the other hand my improved brace, when secured to the end of the car, is fastened at or near the extremities of said car end in the neighborhood of the car side and acts as a beam supported at the ends to withstand the transverse pressures brought upon it by the car lading. My end-brace also serves to stiffen and strengthen the superstructure of a car, as it stiffens the end of the car and enables it to better resist the racking tendency exerted upon it laterally when swinging around curves, or from other causes.

In the accompanying drawings forming part of this specification and in which similar characters indicate corresponding parts throughout the several views—Figure 1 is a view in elevation of the end wall of a railway car with my improved brace secured thereto. Fig. 2 is a vertical section through the end wall of the car with the brace attached, showing a portion of one side of the car in elevation. Fig. 3 is a detail figure in section showing more clearly the thickened portion of the brace.

Referring to the drawings by numbers, 1 represents the end wall of a railway car, 2 the angle bars at the sides of the wall, and 3 my improved end brace extending horizontally across the said wall. Two braces are usually employed as shown in the drawings, although any number desired may of course be used. The brace consists of a trough-shaped body portion having inclined sides 4 and flanges 5 extending from the base thereof, said flanges being secured to the end wall of the car by means of rivets 6. The apex 7, or that portion connecting the inclined sides, is thickened, as shown more clearly in Fig. 3, in order to provide sufficient material and strength at the point of maximum stress, the thickened portion being rounded on its outer surface. Similar braces 8 may be used to strengthen the side walls of the car, and they may be placed in the same horizontal plane as the end-braces, if desired.

I do not wish to limit myself to the exact details of the construction herein shown and described, as I may form my end-brace with a plurality of convolutions instead of one, or

may make such other substitutions, alterations or modifications as come within the scope of the invention set forth in the claims.

What I claim as new and desire to secure by Letters Patent is:

1. An end-brace for railway cars, trough-shaped in cross section, provided with an integrally thickened apex portion.

2. An end-brace for railway cars, trough-shaped in cross section, provided with an integrally thickened and rounded apex portion.

3. An end-brace for railway cars, trough-shaped in cross section, having flanged sides and an integrally thickened apex portion.

4. An end-brace for railway cars, trough-shaped in cross section, having flanged sides and an integrally thickened and rounded apex portion.

5. An end-brace for railway cars, trough-shaped in cross section, having sides flanged outwardly, and an integral thickening at its apex portion.

6. An end-brace for the walls of railway cars, trough-shaped in cross section and provided with an integrally thickened apex portion extending in the direction of the length of the wall.

7. In an end for a railway car, a wall, a horizontal brace secured thereto, said brace being trough-like in cross section and provided with an integrally thickened apex portion, whereby an extra degree of strength is provided transversely of the length of the wall.

8. In an end for a railway car, a wall, a brace secured thereto, said brace being trough-shaped in cross section and provided with an integrally thickened apex portion extending in the direction of the length of the wall, said brace having inclined sides and outwardly extending flanges secured to the said wall.

9. In a railway car, a wall, an end-brace secured thereto, said brace being trough-shaped in cross section and provided with an integrally thickened apex portion extending in the direction of the length of the wall, said brace having inclined sides and outwardly extending flanges secured to said wall, and braces secured to the ends of the wall and located at right angles to said end-brace.

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

RALPH V. SAGE.

Witnesses:

WM. J. FITZMAURICE, JR.,

CYRUS E. BROWN.