No. 622,971. Patented Apr. 11, 1899.

R. W. OSWALD.

SILL OR STRINGER FOR CARS.

(Application filed Feb. 27, 1899.)

(No Model.) 2 Sheets—Sheet 1.

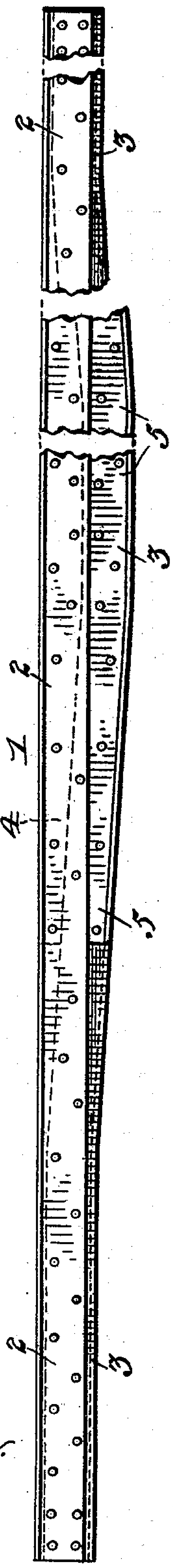

Fig. 1.

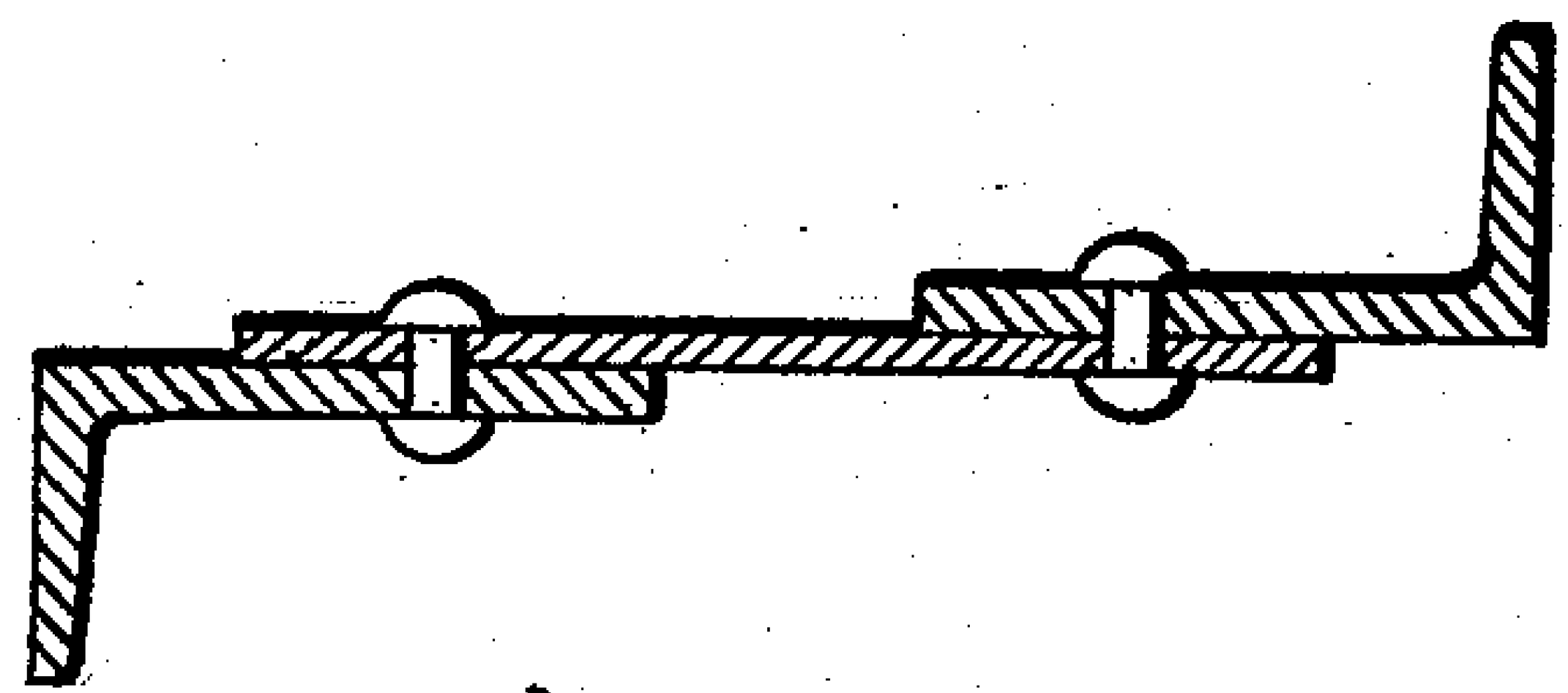

Fig. 7.

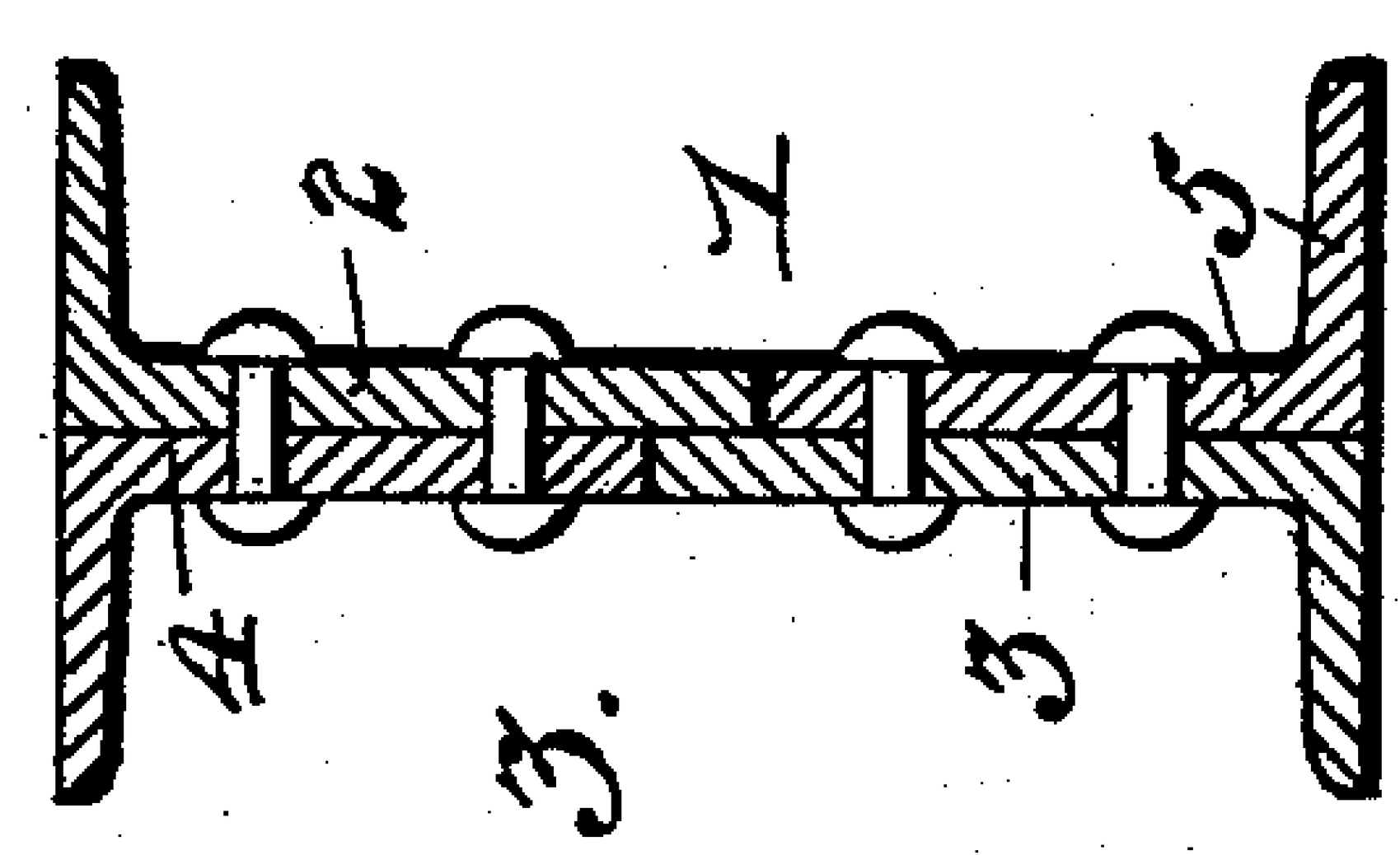

Fig. 3.

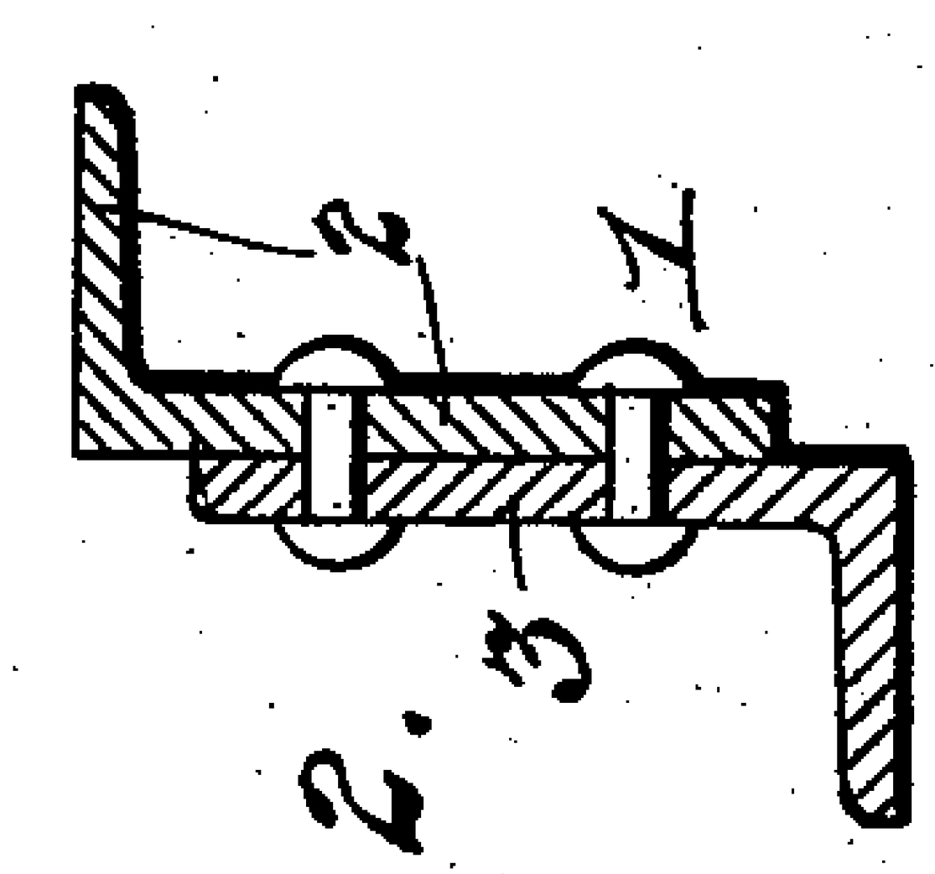

Fig. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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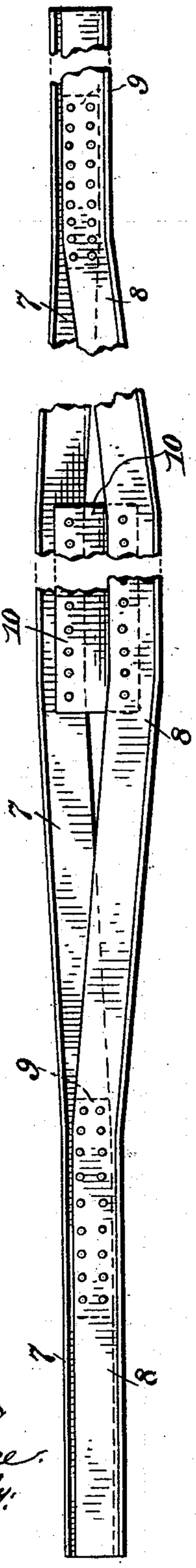

Fig. 4.

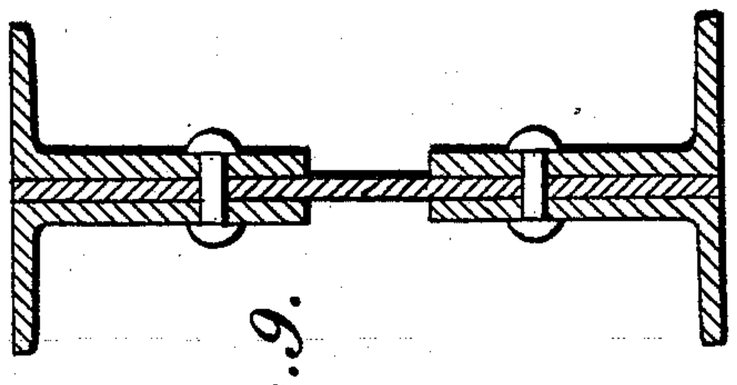

Fig. 9.

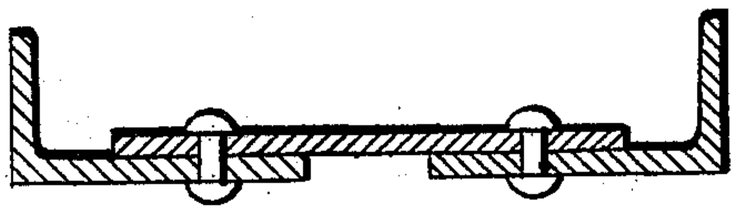

Fig. 8.

Fig. 6.

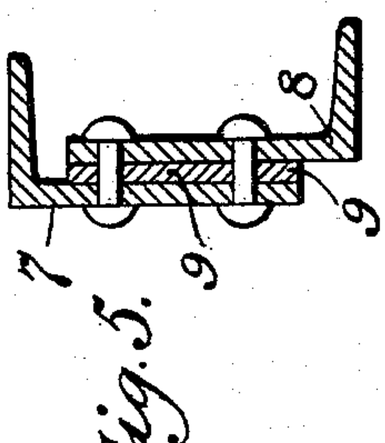

Fig. 5.

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UNITED STATES PATENT OFFICE.

RICHARD W. OSWALD, OF BLOOMSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO EDWARD B. TUSTIN, OF SAME PLACE.

SILL OR STRINGER FOR CARS.

SPECIFICATION forming part of Letters Patent No. 622,971, dated April 11, 1899.

Application filed February 27, 1899. Serial No. 706,979. (No model.)

To all whom it may concern:

Be it known that I, RICHARD W. OSWALD, a citizen of the United States, residing at Bloomsburg, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Sills or Stringers for 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 improvements in stringers or sills for cars, and particularly to those which are made of metal beams or beams and plates suitably secured together.

It consists in angle beams or irons suitably arranged with respect to each other and bolted together to form a car sill or stringer and brace-plates also bolted to said angle beams or irons to strengthen the said sill.

It also consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a side elevation of a sill constructed in accordance with my invention. Fig. 2 represents a cross-section through the same near one end thereof. Fig. 3 represents a cross-section of the same near its central portion. Fig. 4 represents a side elevation of a sill in which the upper angle-bar is elevated at the center. Fig. 5 represents a sectional view of the same near the end thereof. Fig. 6 represents a central cross-section of the said sill, and Figs. 7, 8, and 9 represent detail cross-sections showing slightly different arrangements in the arranging of the angle beams or irons with relation to each other.

In producing a strong and durable sill for cars it is desirable to use merchantable material therefor—that is, material which is easily obtained in the market, such as angle-beams and straight plates which are rolled and kept in stock for various uses. My invention contemplates the use particularly of angle irons or beams together with strengthening-plates, the construction being such that it is not necessary to manipulate the parts to any great extent.

As seen in Fig. 1 of the drawings, the sill may be composed of an upper member 2 and a lower member 3, which are preferably angle-iron bars or beams and, as seen in Fig. 2, are preferably provided with deeper vertical flanges than horizontal ones. The vertical flanges are placed together, the horizontal flanges being turned in opposite directions from each other. At each end of the beams the vertical flanges are bolted together, as seen in the drawings, while the central portion of the lower beam or member 3 is preferably depressed or bent downwardly, so as to separate the members to some extent at this point. In order to bind the members 2 and 3 at this point and brace them with respect to each other, I apply in the central portion of the sill strengthening angle irons or plates, as 4 and 5. As seen in Fig. 1, the angle-iron 4 is made to lie flush with the upper surface of the upper member 2, its vertical flange being cut to fit the upper edge of the vertical flange of the lower member 3. The strengthening-iron 4 is then securely bolted to the upper member 2. Upon the other side of the sill a similar plate 5 is applied, which is bent to correspond with the shape of the lower member 3 and has its vertical flange cut to fit the lower edge of the upper member 2. This brace-iron 5 is then bolted securely to the lower member 3. The construction just described is clearly illustrated in Fig. 3 of the drawings, in which the relative positions of the parts can be clearly seen.

While the angle-beams forming the upper and lower members of the sill may be applied directly to each other, as above described, yet it will be apparent that I may interpose brace-plates between the two angle-irons to hold the structure together.

As seen in Fig. 4 of the drawings, the sill may be composed of upper and lower members 7 and 8, made of angle-iron, as previously described with respect to Fig. 1. These angle-irons may be arranged with their flanges in opposite directions from each other, as seen in cross-section in Fig. 7, or their horizontal flanges may extend in the same direction, as seen in Figs. 5 and 6. In constructing a sill in this manner I preferably arch the upper member 7 in the center and depress the lower member 8, as clearly seen in Fig. 4. The

ends of the sill are brought together, and a brace-plate, preferably of flat metal, as 9, is interposed between the vertical flanges of the members 7 and 8 and the parts securely bolted or riveted together. A brace-plate, as 10, is also applied in the central portion of the sill and interposed between the upper and lower members thereof, the said brace-plate 10 being securely riveted or bolted to the upper and lower members to brace them with respect to each other.

It will be apparent that the angle-irons could be arranged in several different positions with respect to each other and with respect to the intervening brace-plates, the angle-irons being upon opposite sides of the brace-plate, as in Fig. 7, their flanges extending in opposite directions from each other, or they may be arranged upon the same side of the brace-plates, as seen in Fig. 8, their flanges extending in the same direction. The angle-irons might also be arranged as shown in Fig. 9, in which they are applied to both sides of the said plates at the top and bottom, the horizontal flanges of course extending in opposite directions from each other, all within the spirit of my invention.

It will be evident from the above description that I am enabled to combine angle-irons and brace-plates in such a manner as to form a simple yet strong and inexpensive sill and beam for cars or other purposes and one that can be produced from material which is commonly found in the markets.

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

1. A sill for cars comprising angle-irons having their vertical flanges riveted together and brace-plates cut to fit the members of the sill and riveted so as to brace them with respect to each other, substantially as described.

2. A sill for cars comprising upper and lower members formed of angle-irons, the vertical flanges of said irons being bolted together at their ends, the lower member being depressed centrally, and brace irons or plates cut to fit the upper and lower edges of the members of the sill and riveted thereto so as to thoroughly brace and strengthen the structure, substantially as described.

3. A sill for cars comprising upper and lower members formed of angle-irons, the vertical flanges of the said irons being bolted together at their ends, the central portions of the said irons being separated, brace angle-irons cut to fit upon the upper edge of the lower member and the lower edge of the upper member, the said brace angle-irons being securely riveted in place to brace the structure, substantially as described.

4. In a sill for cars, the combination of upper and lower members comprising angle-irons having their vertical flanges riveted together at their ends, brace-plates interposed between the said vertical flanges, said upper and lower members being separated centrally, and a brace-plate interposed between them and bolted to the vertical flanges of each for strengthening the parts, substantially as described.

5. A sill for cars comprising upper and lower members formed of angle-beams, brace-plates interposed between the vertical flanges of the said beams at their ends, the parts being riveted together, the upper member of the said sill being arched upwardly while the lower member is depressed, a brace-plate connecting the vertical flanges of the upper and lower members at their central portions, being bolted to the upper angle-iron upon one side of its vertical flange, while it is bolted to the lower member upon the other side of its vertical flange, substantially as described.

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

RICHARD W. OSWALD.

Witnesses:
R. L. ORANGE,
S. F. PEACOCK.