F. A. SCHROEDER.

SPLICE BAR.

APPLICATION FILED MAR. 29, 1907.

947,581. Patented Jan. 25, 1910.

Fig. 1.

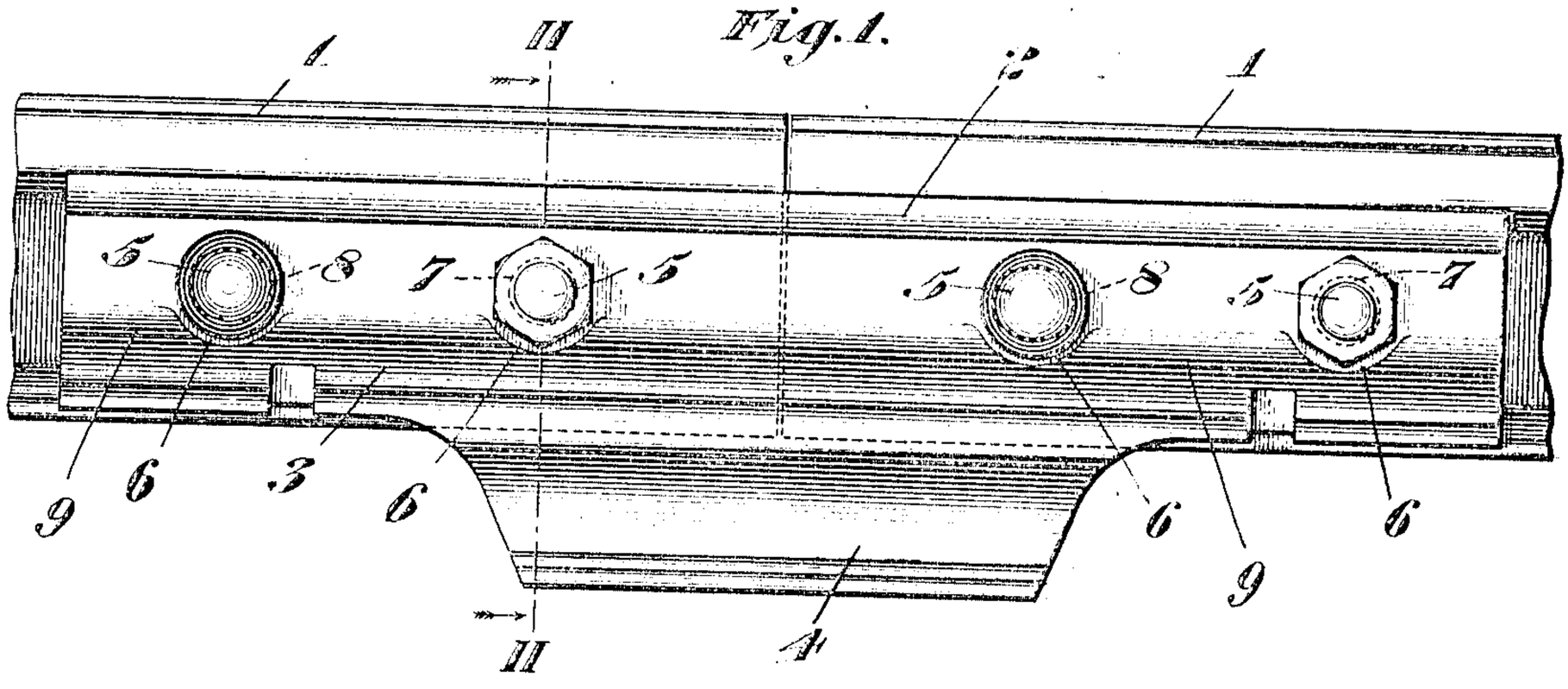



Fig. 2.

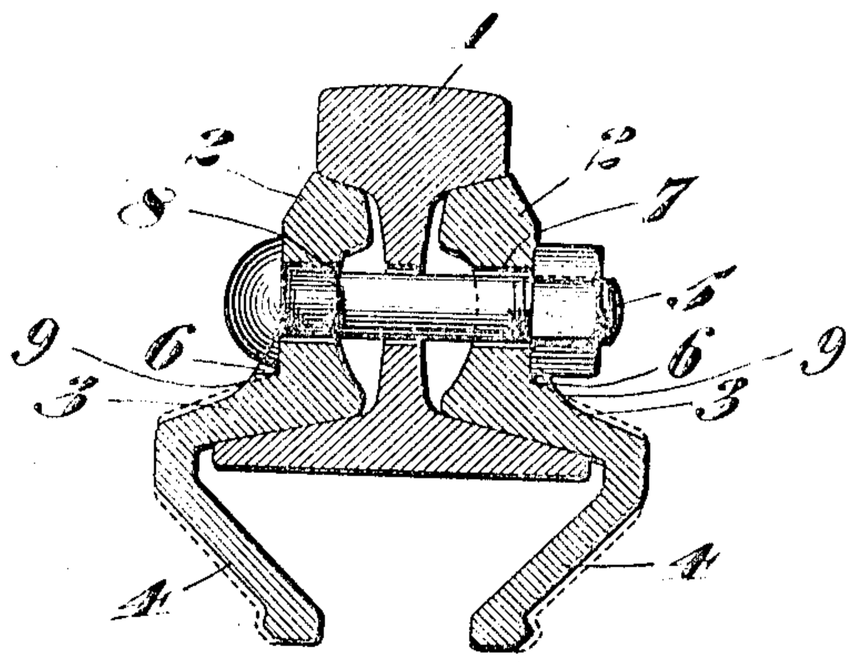
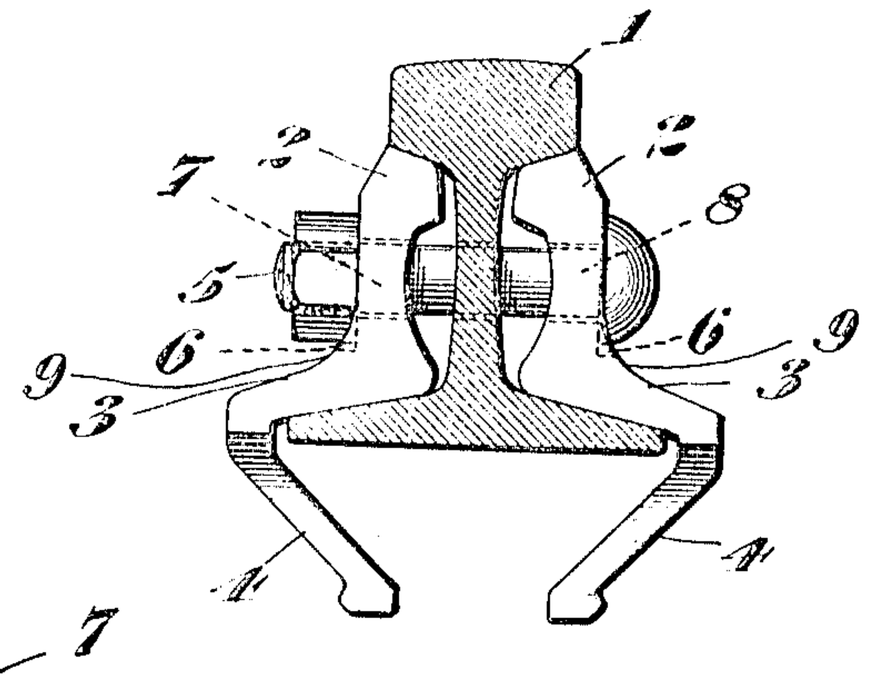



Fig. 3.



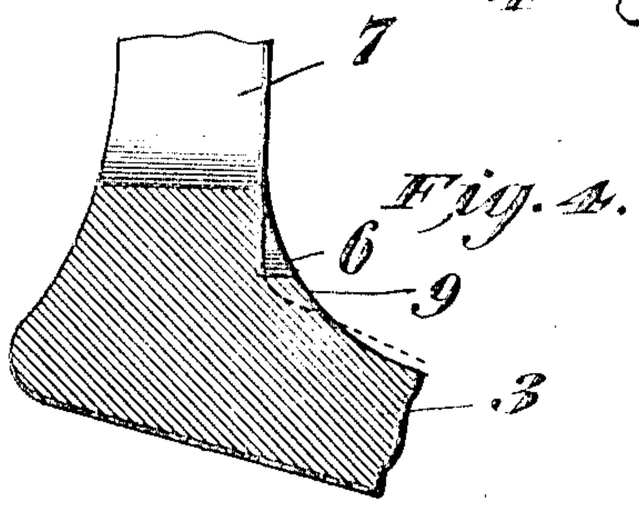




Fig. 4.

WITNESSES,

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# UNITED STATES PATENT OFFICE.

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## SPLICE-BAR.

947,581. Specification of Letters Patent. **Patented Jan. 25, 1910.**

Application filed March 29, 1907. Serial No. 365,279.

*To all whom it may concern:*

Be it known that I, FREDERICK A. SCHROEDER, 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 Splice-Bars; 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.

Under the conditions of practical use in railway track, it has been discovered that certain angle splice-bars and particularly those which have a central dependent portion projecting downwardly in an inclined direction below the base of the rail, may develop weakness at the external reëntrant angle near the junction of the approximately vertical portion of the splice-bar which fits between the head and the flange of the rail and the inclined portion of same which bears against the upper surface of the lower flange of the rail. This weakness is caused by the bending action of the material at this point, which it is my present purpose to obviate by means of my invention as hereinafter set forth.

In order to accomplish my purpose of strengthening the splice-bar with resultant economy, I add some material in the external reëntrant angle above referred to, the exterior of said additional material or integral thickening being curved to a long radius and to compensate for this additional metal, I slightly reduce the thicknesses of the lower portions of the splice-bar as compared with the ordinary or prior constructions. As, however, the addition of metal in the reëntrant angle in the manner described, forms a surface such that a flat nut or bolt-head will not properly seat itself thereon, I make a counterbore on the exterior of the splice-bar approximately central with the axis of the bolt or similar fastening means, which counterbore has a flat surface against which the bolt-head or the nut of the splice bolt may properly bear to hold the parts firmly in position.

Having thus given a general description of my invention, I will now, in order to make the matter more clear, refer to the accompanying sheet of drawings, which forms part of this specification and in which like letters and characters refer to like parts.

Figure 1 is a side elevation of a rail joint showing my improved splice-bars secured in position. Fig. 2 is a cross section on the line II—II of Fig. 1 looking in the direction of the arrows. Fig. 3 is an end elevation of a pair of my improved splice-bars attached to the rail, while Fig. 4 is an enlarged sectional view of a portion of a splice-bar of the character described embodying my improvement.

Referring now to the various characters of reference on the drawings 1—1 are railroad rails shown as of the present standard T-section.

2 represents the upper portion of a splice-bar of the character described, which upper portion fits closely between the lower surface of the head and the upper surface of the flange of the rail as shown.

3 is an inclined portion of the angle splice-bar which bears on the upper surface of the rail flange, while 4 represents the lower or central depending member of the splice-bar.

The splice-bolts are indicated at 5 fitted with the usual head and nut as illustrated.

7 indicate holes of approximately circular cross section in the splice-bars through which the threaded end of the bolts 5 project, while 8 represent oval or approximately elliptical holes in which the head ends of the bolts rest, each bolt end being provided with an enlargement corresponding with the shape of the oval or elliptical hole aforesaid to prevent the bolt turning therein when the nut is screwed up after the manner customary in constructions of this kind.

The particular feature of my invention consists of the addition of the curved portion at the reëntrant angle indicated at 9 the surface of this portion being of long radius joining the upper portion 2 of the splice-bar and the adjacent inclined portion 3 as shown, and in order to provide proper bearings for the heads of the bolts and for the nuts, counterbores 6 are formed, the lateral limits of said counterbores being substantially equidistant from the center of the axis of the bolts and bolt holes, the bearing surface of each of said counterbores being approximately a plane at right angles to said bolt axis, thereby providing a suitable bearing for the head of the bolt, the nut and a nut-lock, in case the latter should be used.

In Figs. 2 and 4 of the drawings, the dotted lines indicate the old or prior form and approximate dimensions of a splice-bar, which I have reduced in thickness to that shown by the full lines, in order to compensate for the addition of the metal introduced by the large fillet 9 thereby accomplishing my purpose of strengthening the bar without increasing its total weight or cost. The form given to the splice-bar by the large fillet 9 enables it to better resist the stresses to which it is subjected in use and provides increased strength with no increase of material, as will be understood by one skilled in this art. The shape or lateral boundary of the counterbore as formed is approximately semi-circular or somewhat less than a semi-circle, as indicated more particularly in Fig. 1 of the drawings, although in making the same, I prefer to use a tool which will take a very light scraping cut throughout the entire surface of an annulus surrounding the bolt-hole.

Although I have shown and described my invention in considerable detail, I do not wish to be limited to the exact and specific construction shown and described, but may use such substitutions, modifications or equivalents thereof, as are embraced within the scope of my invention or as pointed out in the claims.

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

1. In an angular splice-bar of the class described, having an upper splice-bar portion adapted to fit between the head and flange of the rail, an inclined portion bearing against the upper surface of the flange of the rail, a centrally located downwardly depending portion, all of the aforesaid portions being integral, bolt openings in said upper splice-bar portion; a stiffening and supporting fillet of long radius at the external juncture of the splice-bar portion and the inclined portion aforesaid, counterbores substantially central with the axes of the bolt openings, said counterbores each having a flat surface substantially at right angles to the axes of the bolt openings.

2. In a splice-bar of the character described, comprising a splice-portion adapted to fit between the head and flange of the rail, and provided with holes therein for the reception of the splice-bolts, said splice-bar having also an inclined portion adapted to bear on the upper surface of the rail flange and a substantially central downwardly inclined dependent portion, all of the portions of said splice bar being integral, a thickening of the metal at the juncture of the splice-bar portion and the inclined portion, said thickening being formed by a fillet of long radius, counterbores of approximately semi-circular or segmental outline, the centers of which approximately coincide with the bolt-hole centers aforesaid, said counterbores each having a plane surface at substantially right angles to the bolt axis, thereby forming proper bearings for the bolt-heads and nuts.

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

FREDERICK A. SCHROEDER.

Witnesses:
ELMER SEAVEY,
EDITH M. DAWSON.