Aug. 10, 1954 R. E. MILLER 2,686,026

SWITCH HEEL BLOCK

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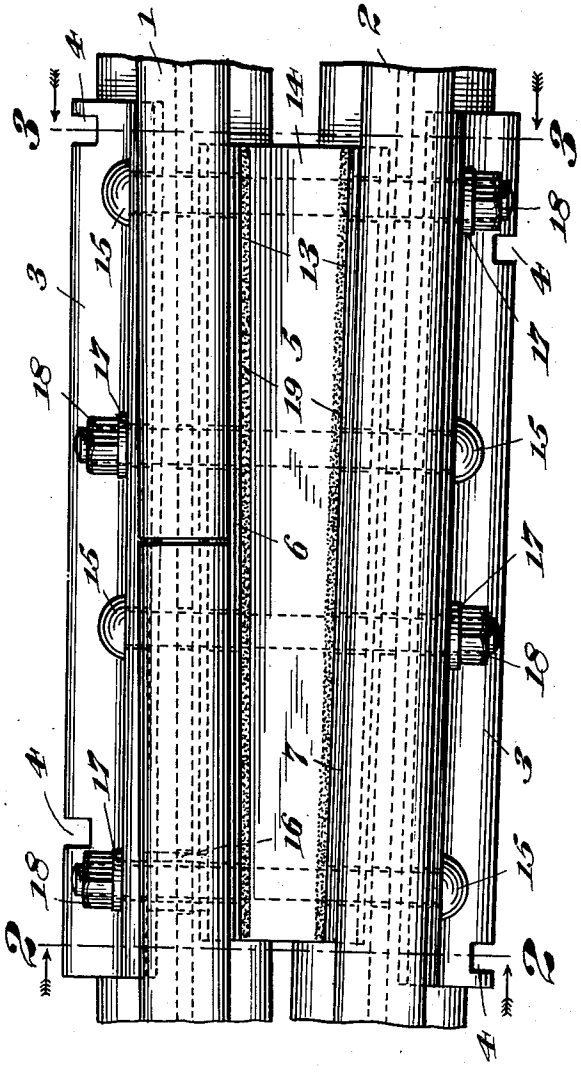

Fig. 1.

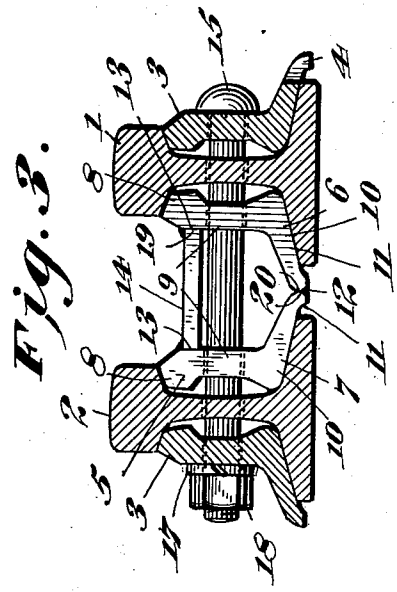

Fig. 3.

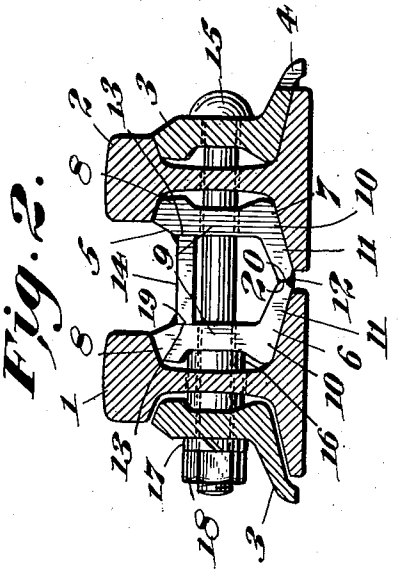

Fig. 2.

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Fig. 4.

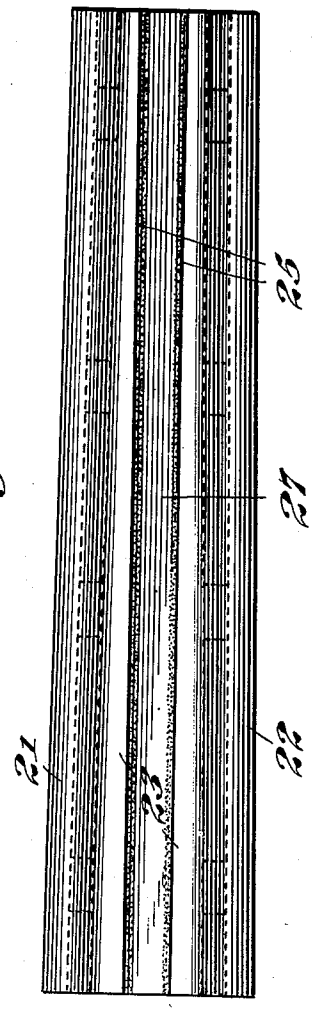


Fig. 6.

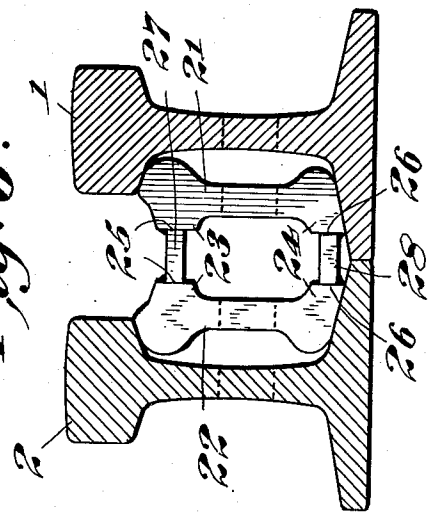
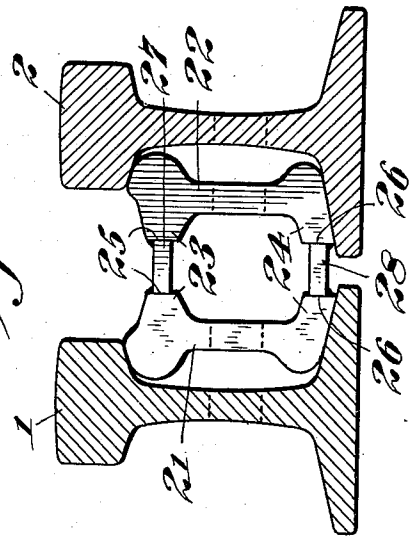


Fig. 5.



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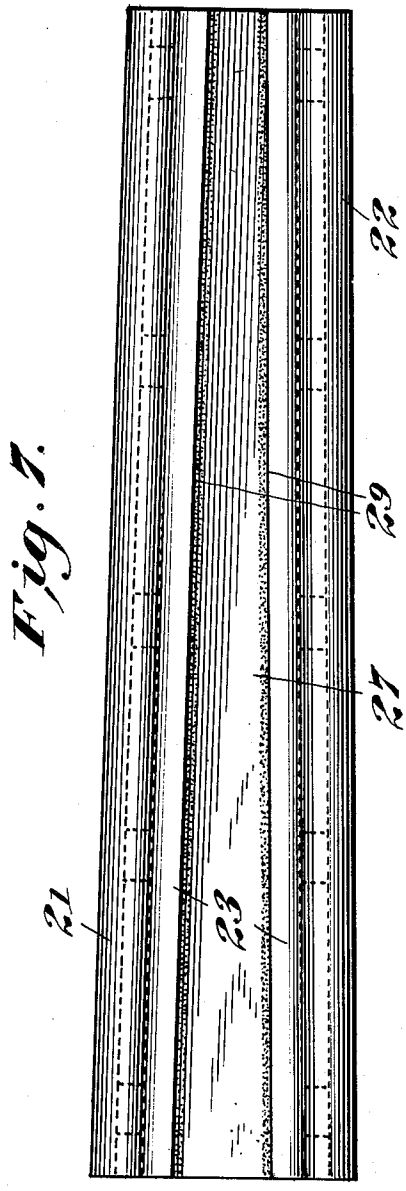

Fig. 7.

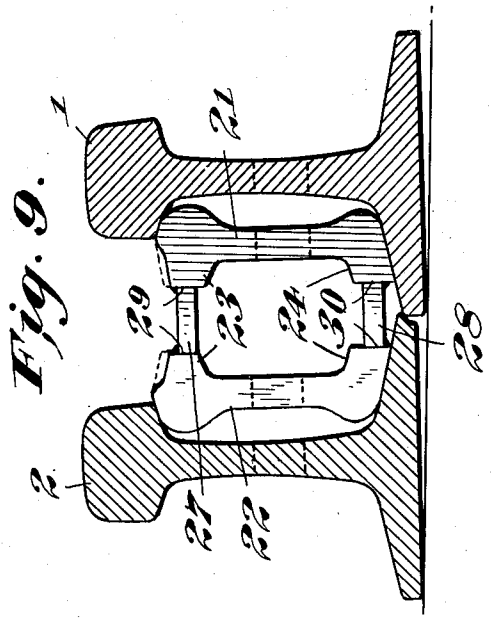

Fig. 9.

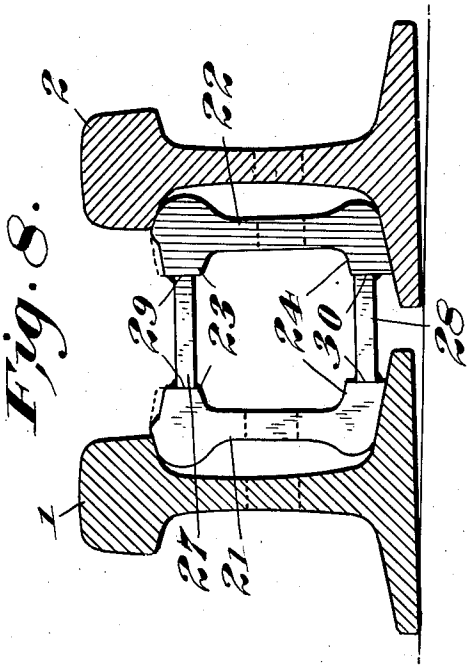

Fig. 8.

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UNITED STATES PATENT OFFICE

2,686,026

SWITCH HEEL BLOCK

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Application June 8, 1949, Serial No. 97,730

7 Claims. (Cl. 246—435)

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This invention relates in general to railway track structures, and more particularly to a welded heel block for use with standard railroad switches.

The function of the switch heel block is to effect a rigid connection between the heel of the switch and the stock rail, at the point where the switch point is connected to the main track rail or lead rail, in order to preserve proper gage and prevent spreading. The cast steel heel blocks which are ordinarily used, however, are unduly heavy and expensive to make, often fit poorly between the head and the base of the rail, and are sometimes weakened dangerously by blowholes and other hidden defects.

Standard rail joint bars or angle bars, on the other hand, while made for a different purpose, are rolled to close tolerances and give a smooth and accurate fit in the rail fishing. They also have other advantages in strength, ductility, and relatively low cost.

One object of this invention, therefore, is to provide a better fitting switch heel block by the use of standard angle bars in a fabricated assembly.

A further object is to provide a stronger and more reliable fabricated heel block.

Still another object is to reduce manufacturing costs for heel blocks.

Additional objects, purposes and advantages of the invention will appear hereinafter in the specification, in the attached three (3) sheets of drawings, and in the appended claims.

In the drawings:

Fig. 1 is a top plan view of the heel block, shown as interposed between uncanted standard rails, and fabricated from head contact angle bars of the depending flange type and a suitably cut or machined welded filler plate;

Fig. 2 is a transverse vertical section taken on the line 2—2 of Fig. 1;

Fig. 3 is also a transverse vertical section, but taken on the line 3—3 of Fig. 1;

Fig. 4 is a top plan view of a modification of the invention, shown between uncanted rails, and fabricated from suitably machined toeless angle bars and rectangular filler plates;

Fig. 5 is an end view of the modification shown in Fig. 6, at the wide end of the heel block;

Fig. 6 is also an end view, but at the narrow end of the heel block;

Fig. 7 is a top plan view of another modification of the invention, shown between rails canted for a left hand switch, and fabricated from toeless angle bars and cut or machined filler plates;

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Fig. 8 is an end view of the foregoing modification, at the wide end of the heel block; and

Fig. 9 is a narrow end view of the same.

Referring now to the drawings generally, it will be noted that the switch heel block of my invention consists basically of two standard angle bars welded together with interposed filler bars or plates to give the dimensions required by the switch design. Such angle bars are made in the headfree type, contacting the upper web and the fillet of the rail only, or in the head contact type, which term is self-explanatory. While the drawings show only the use of the head contact type, the invention is equally applicable to the use of the headfree type of angle bars.

Referring now to Figs. 1 to 3 in particular, reference numeral 1 will designate the switch rail, 2 the stock rail, and 3 the flanged outside angle bars with spike slots 4. The heel block 5 comprises the two angle bars 6 and 7, each sawed to proper length and having a reinforced inner head portion 8, web 9, and base 10 with elongated outwardly depending flanges 11. Said depending flanges 11 are welded together as at 12, and the upper side surfaces 13 of the angle bars are joined together by a horizontal top filler plate 14 welded thereto a sufficient distance below the top to provide clearance for the passage of wheel flanges. Before welding, holes are drilled or punched as required to accommodate the through bolts 15, which with thimble 16, lock washers 17, and hex nuts 18 will retain the block in the desired position between the rails.

Since the form of the heel block is substantially that of a hollow wedge-shaped box girder, the side edges 19 of the filler plate 14 and the mating edges 20 of the depending flanges 11 are machined as shown to provide the desired degree of longitudinal taper, and are then assembled in a jig, and tack welded. Final welding is then preferably accomplished out of the jig with a high speed automatic welder.

The angle bars 21 and 22 shown in Figs. 4 to 9 inclusive as forming the side members of the heel block are of the type generally used with heavier (e. g., 140 lb. and 155 lb.) rails, and having short outwardly extending upper and lower flanges 23 and 24. As shown in Figs. 4, 5 and 6, the side edges 25 and 26 of said flanges may be machined to a proper taper, and rectangular filler plates 27 and 28, welded therebetween; or as in Figs. 7, 8 and 9, the flanges 23 and 24 may be left substantially untouched and the side edges 29 and 30 of the filler plates 27 and 28 may be machined to provide the proper taper before

welding. It will be noted that in Figs. 7, 8 and 9 the flanges **23** and **24** are in relatively offset relation to provide for a canted left hand switch; a right hand switch heel block, of course, would be of the opposite cant. As indicated by dotted lines in Figs. 8 and 9, it may be necessary to grind or machine the higher flange somewhat, to provide proper wheel flange clearance.

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

I claim:

1. A heel block for a railway track structure comprising a pair of rolled rail joint bars, and at least one filler plate welded therebetween.

2. A heel block for a railway track structure comprising a pair of co-planar rolled rail joint bars, and a pair of filler plates welded therebetween in spaced parallel relation.

3. A switch heel block for a railway track structure comprising a pair of rolled rail joint members adapted to engage the fishing surfaces of adjacent rails, and interposed horizontal plate members welded to said rolled rail joint members.

4. A switch heel block for a railway track structure comprising a pair of rolled angle splice bars having depending flanges, said flanges being machined and welded together to form a longitudinally tapered U-shaped member, and a horizontal filler plate tapered in the same direction welded to and bridging the upper sides of said latter member.

5. A switch heel block for a railway track structure comprising a pair of angularly disposed co-planar rolled rail joint bars each having a pair of parallel projecting longitudinal side flanges, and substantially wedge-shaped horizontal filler plates welded between corresponding flanges and rigidly joining the pair of rolled rail joint bars.

6. A switch heel block for a railway track structure comprising a pair of angularly disposed rolled rail joint bars each having a pair of similarly tapering longitudinal side flanges, and substantially rectangular filler plates horizontally disposed and welded between opposite flanges of the pair of rolled rail joint bars.

7. A switch heel block for a canted rail switch structure, comprising a pair of upright rolled rail joint bars in relatively offset relation, and horizontal filler plates welded between said rolled rail joint bars.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,322,233	Disbrow	Nov. 18, 1919
1,721,460	Mariman	July 16, 1929
1,788,622	Gillispie	Jan. 13, 1931
1,873,915	Aid	Aug. 23, 1932
2,063,706	Soderberg	Dec. 8, 1936
2,139,288	Shipley	Dec. 6, 1938
2,231,888	Couch	Feb. 18, 1941

FOREIGN PATENTS

Number	Country	Date
493,589	Germany	Feb. 27, 1930