Jan. 8, 1924. 1,480,370

C. BURTON

RAILWAY TRACK STRUCTURE

Filed Sept. 13, 1923 2 Sheets-Sheet 1

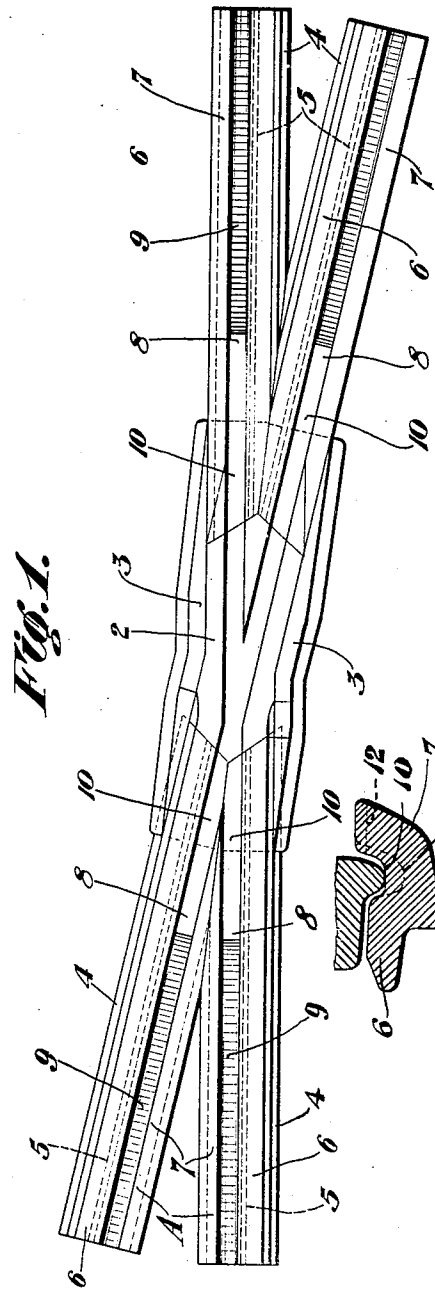


Fig. 1.

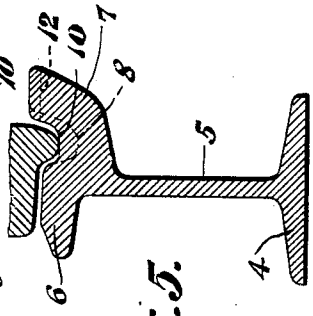


Fig. 5.

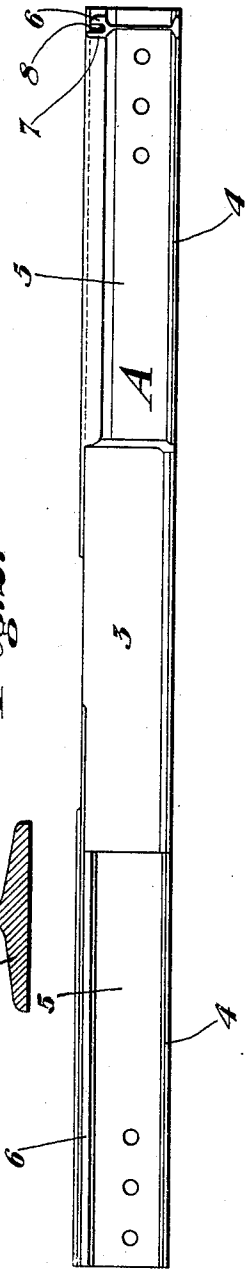


Fig. 2.

Witnesses:
Edwin Trueb

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Fig. 3.

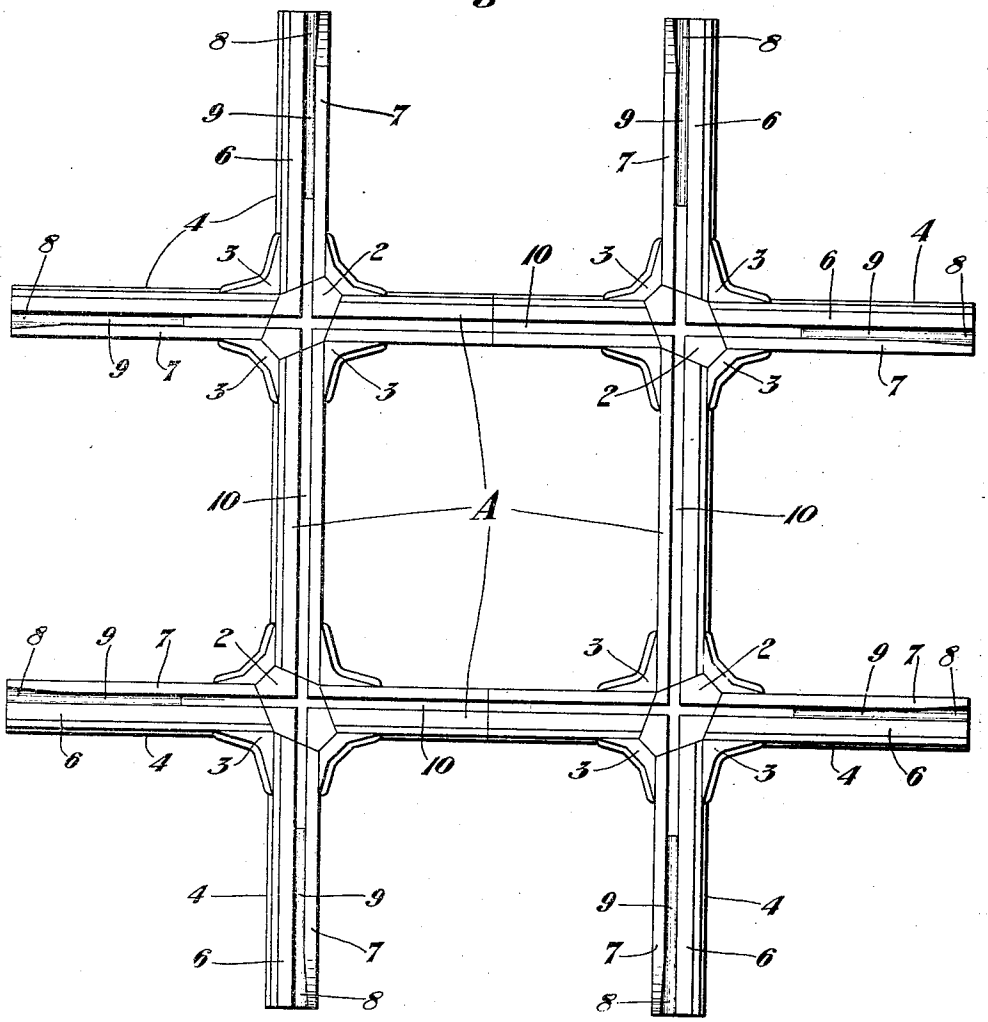
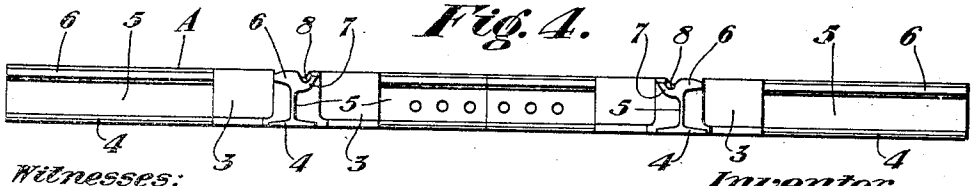


Fig. 4.



Witnesses:
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Patented Jan. 8, 1924. 1,480,370

UNITED STATES PATENT OFFICE.

CARROLL BURTON, OF JOHNSTOWN, PENNSYLVANIA.

RAILWAY-TRACK STRUCTURE.

Application filed September 13, 1923. Serial No. 662,524.

To all whom it may concern:

Be it known that I, CARROLL BURTON, a citizen of the United States, and resident of Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Track Structures, of which the following is a specification.

This invention relates to railway track structures and more particularly to frogs and crossings constructed of a plurality of rail ends or sections of the grooved rail type united by a body of cast metal and having a center or wear plate of hardened steel or steel alloy other than manganese steel secured in position at the intersection of the rail sections.

One object of the present invention is to provide a track structure of the above type composed of rolled grooved rails having their inner ends connected by a body of cast ferrous metal and a hardened steel wear plate secured in position between the inner ends of the rails to complete the structure, said wear plate being composed of a suitable steel composition capable of being successfully built up by welding by the deposit electrode or other suitable welding process, when the wearing parts become worn under the action of wheel traffic.

Another object of the present invention is to provide a track structure of the above type composed of rolled grooved rails and hardened wear plates of other than manganese steel, in which the wheel flange grooves or flangeways have their floors tapered down towards the extreme ends to the normal depth of the groove in the connecting rail so as to provide a floor elevation through the intersection which will engage the flange of a wheel passing through the intersection and raise the tread portion of the wheel above and free of the rail head, thereby preventing the shock due to the treads of the wheels passing over the interrupted head surfaces, and the double wear thereon due to the passage of trains in two directions over the ends of the rails.

A further object is to provide a railway track structure composed of the novel construction, design and combination of parts hereinafter described, and illustrated in the accompanying drawings.

In the drawings, Figure 1 is a plan of a switch frog constructed in accordance with this invention.

Figure 2 is a side elevation thereof.

Figure 3 is a plan of a crossing structure constructed in accordance with this invention.

Figure 4 is a side elevation thereof.

Figure 5 is an enlarged section through one of the rails, forming the crossing of Figures 3 and 4, showing the position of a car wheel passing thereover.

Referring more particularly to the drawings, the letter A designates the several rail sections which are joined to make the track structures by center or wear plates 2 and cast metal connecting portions 3. The rails A are of the rolled grooved rail type and comprise a base flange 4, web 5, head 6 and a guard flange 7. The head 6 and guard flange 7 are separated from each other by a groove or flangeway 8, in which the flange of a car wheel is adapted to travel.

In either the frog or crossing track structure, the groove 8 is provided with an elevated floor at the points of intersection. In the present embodiment of the invention the floors of the grooves 8 are shown tapered down gradually towards the extreme ends of the normal depth of the groove of the connecting rail.

It will be readily understood that, as clearly illustrated in Figure 5, a car wheel when approaching and passing through an intersection in a track structure constructed in accordance with this invention, will have its tread elevated above the face of the head of the rail, due to the elevated floor 10 of the groove 8. With the tread of the wheel thus elevated the shock and wear, due to the wheel tread passing over the interrupted rail heads at the intersections, is entirely eliminated, and consequently the life of the track and wheel are greatly lengthened.

In the straight crossings illustrated in Figures 3 and 4 the guard flange 7 has its top face on the same plane with the top face of the head so as to form a smooth crossing and prevent unnecessary shock to traffic passing thereover. The dotted line 12, in Figure 5, indicates the top of the guard flange in straight crossings.

The wear plates 2 are preferably made of alloy steel hardened by heat treatment, such for example as chrome steel or nickel steel or other known alloy steels which can be hardened by heat treatment and which are capable of being built up, when worn, by welding or electric deposition of metal to

their worn surfaces without removal from the track structure. Wear plates in frogs and crossings have been built of manganese steel, which is more durable than the ordinary rail steel. But manganese steel cannot be successfully built up on its worn surfaces while in place in the track structure by welding or electric deposition of metal on the worn surfaces. Consequently such wear plates have generally been bolted or otherwise detachably mounted in the structure.

With an alloy steel such as I have described, the wear plates can be permanently mounted in place, either by the use of a body of cast metal 3 or by bolts or other fastening means.

While I have shown only two embodiments of my invention, it will be understood that various other embodiments may be made within the scope of the appended claims.

I claim:—

1. A railway track structure comprising, in combination, intersecting rails of the grooved rail type, and a hardened steel center wear plate secured at the intersection of said rails, said rails and said plate being provided with wheel flange grooves, said grooves having elevated floors tapered down towards the extreme ends to the normal depth of the groove in the connecting rail so as to provide a floor elevation through the intersection, which will engage the flange of a wheel passing through the intersection and raise the tread portion of the wheel above the rail head while passing over the intersection, thus preventing the shock due to the treads of the wheels passing over the interrupted head surfaces, and a ferrous metal base cast around said rails at their intersection after they are assembled to secure said rails together.

2. A railway track structure comprising, in combination, intersecting rolled steel rails of the grooved rail type, having a flangeway for the reception of a wheel flange, said rails being arranged with their inner ends spaced an appreciable distance apart, a body of ferrous metal cast around the inner ends of said rails to secure them together, an alloy steel center wear plate secured in position in said cast metal portion and connecting said rails, said plate being provided with flangeways connecting with the flangeways of said rails and being characterized by being composed of an alloy capable of being successfully built up by welding by the deposit electrode or other suitable welding process when the wearing parts become worn under the action of wheel traffic, and said flangeways having their floors tapered down towards the extreme ends to the normal depth of the groove in the connecting rail so as to provide a floor elevation through the intersection which will engage the flange of a wheel passing through the intersection and raise the tread portion of the wheel above the heads of the structure while passing over the intersection.

In testimony whereof, I have hereunto set my hand.

CARROLL BURTON