Jan. 2, 1923. 1,440,955

S. BALKWILL.
RAILROAD CROSSING.
FILED JULY 21, 1922.

Fig. 4.

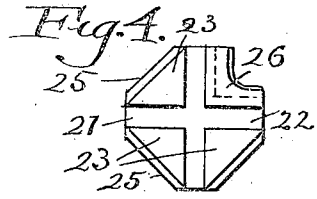


Fig. 5.

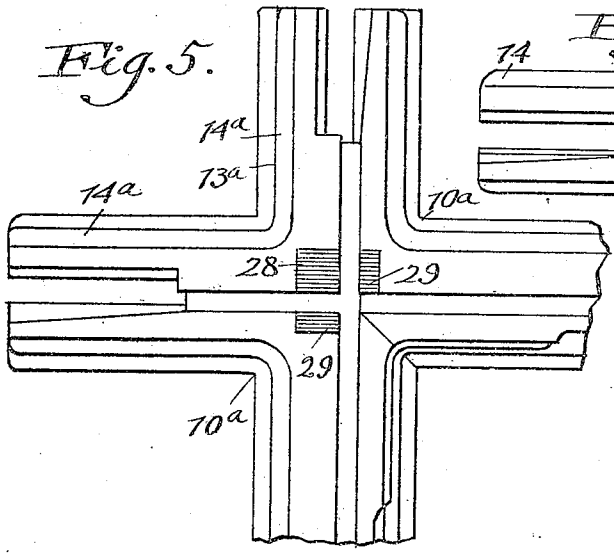
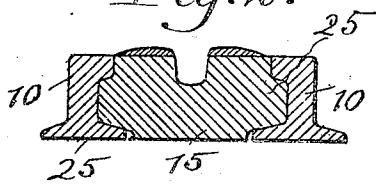


Fig. 1.

Fig. 2.



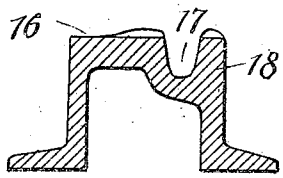


Fig. 3.

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UNITED STATES PATENT OFFICE.

STEPHEN BALKWILL, OF CLEVELAND, OHIO.

RAILROAD CROSSING.

Application filed July 21, 1922. Serial No. 576,594.

To all whom it may concern:

Be it known that I, STEPHEN BALKWILL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Railroad Crossings, of which the following is a full, clear, and exact description.

This invention relates to railroad crossings and has for its object to provide a structure capable of resisting destructive hammering action of the wheels passing thereover more effectively than structures heretofore known.

The following description and accompanying drawings set forth in detail certain means embodying the invention, the disclosed means, however, constituting but one of the various mechanical forms in which the principle of the invention may be employed.

Generally speaking, the invention may be said to comprise the elements and combinations thereof set forth in the accompanying claims.

Fig. 1 is a fragmentary top plan view of a railroad crossing structure; Fig. 2 is a section on line 2—2 of Fig. 1; Fig. 3 is a section on line 3—3 of Fig. 1; Fig. 4 is a top plan view of the center block; Fig. 5 is a fragmentary top plan view of a modified form of crossing structure.

In the accompanying drawings Figs. 1 to 3 show a crossing structure which is made up of four main members 10 of general U-shape, each of which has a track forming portion 11 and rearwardly extending arms 12, angle shaped corner members 13, having arms 14 secured to the arms 12 of the members 10 and serving to bind the members 10 together; and the center member 15 in the form of a block preferably of wear resisting steel secured between the members 10 and 13 at each of the corners. The track forming portion 11 of each of the members 10 has a wheel tread portion 16, a flangeway 17 and an inner guard 18. The guard portions 18 are mitered at the ends of the track forming portion 11 to provide a fit between the abutting corners of the main crossing members 10.

In the structure shown in the drawing the tracks cross each other at right angles and the U-shaped members 10 and also the angle members 13 are interchangeable. The angle members 13 have wheel tread portions 19 and 20 which align with the wheel tread portions 16 of the two U-shaped members 10 to which the angle member 13 is attached. The outer ends of the arms 12 and 14 are rabbeted to receive the ends of the track rails. Each of the center blocks 15 is provided with intersecting diagonal flangeways 21 and 22 which are aligned when the structure is assembled with the flangeways 17 of the angularly disposed crossing members 10 against which the block 15 abuts. On three sides of the block there are raised triangular tread forming portions 23 which fit against the corner portions of the members 10 and 13, the corners of the members 10 and 13 being undercut to receive the projecting edges 25 of the block. The side 26 of the block 15 has its upper face substantially flush with the bottoms of the flangeways 21 and 22 and fits beneath the mitered corners of the guards 18 of the members 10.

The construction so far described is substantially that of my prior Patent 1,250,126 of Dec. 18, 1917. While the present invention is shown in connection with the construction of my prior patent, it is not limited to such constructions, but may be applied to various types of crossing constructions, generally spoken of as solid cast crossings, insert crossings, rail bound crossings and rolled rail crossings.

It has been found that the tread surface at the joint in crossing structures usually hammers down from one eighth to three-sixteenths of an inch quite rapidly due to the severe hammering action of the wheels passing thereover. The metal finally reaches a state of denseness beyond which it is compressed very slowly during the remainder of the life of the crossing.

In the present invention I take advantage of this hammering action on the crossing joint by constructing the block 15 in such a manner that the tread surfaces 23 are initially formed to be slightly above the adjacent tread surfaces as shown in Fig. 2. During the early period of the use of the crossing the surfaces 23 are hammered down to substantially the level of the abutting tread surfaces and remain during the life of the crossing substantially at this level for the reason that the metal has reached a state of denseness which enables it to resist further hammering action.

In the modification shown in Fig. 5 the U-shaped members 10ª and angle members

13ª correspond substantially to the members 10 and 13 in the modification first described.

In this modification the center block is omitted and the wheel tread surfaces of the members 10ª and 13ª extend to the intersection of the flangeways of the crossing tracks. The crossing construction shown in Fig. 5 is substantially that shown in my prior Patent No. 1,233,437, granted June 15, 1917. The wheel tread surfaces on the angularly disposed arms 14ª of the member 13ª form parts of the rails of both tracks at the intersection and the corner portion of the intersection of the rails is passed over by the wheels running on the rails of both tracks. At the corner of the angle member 13ª the wheel tread portion is provided with a rectangular portion 28 which is raised slightly above the adjacent tread surfaces sufficiently to compensate for the amount it will be hammered down to surface in practice and which is adapted to be hammered down during the early period of use of the crossing to the level of the adjoining tread surfaces. The wheel tread surfaces of the main U-shaped crossing members 10ª have rectangular raised portions 29 at the ends thereof. Since the wheels of trains passing over both tracks pass over the raised portions 28 and the wheels of trains on one track only pass over the raised portions 29, the raised portion 28 is made of greater surface area so that it will be hammered down in service at approximately the same rate as the raised portions 29.

The height, surface area and contour of the raised portions at the intersections of the rails will vary in different installations as may be determined by the character of the materials employed and the character and amount of traffic over the respective tracks.

Having described my invention, I claim—

1. In a railroad crossing, track members arranged to provide wheel tread surfaces and intersecting flange receiving recesses, the tread surfaces having raised portions adjacent the intersection which are adapted to be hammered down to the level of the remainder of the tread surfaces by the passage of wheels thereover.

2. In a railroad crossing, cast steel crossing forming members providing wheel tread surfaces and intersecting flange receiving recesses, the tread surfaces of said members having raised portions adjacent the intersection adapted to be hammered down to the level of the remainder of the tread surfaces by the passage of wheels thereover.

3. In a railroad crossing, the combination with the angularly disposed track members having wheel tread surfaces, of a crossing structure providing intersecting flange receiving recesses and tread surfaces adjacent the intersection, the tread surfaces of said crossing structure adjacent the intersection being raised above the tread surfaces of said track members and adapted to be hammered down to the level of the tread surfaces of the track members by the passage of wheels thereover.

4. In a railroad crossing, the combination with the angularly disposed track forming members provided with wheel tread surfaces of a crossing structure provided with intersecting flangeways and tread forming portions adjacent the flangeways adapted to register with the tread surfaces of the track forming members, one of said tread forming portions forming a portion of both tracks, said tread forming portions having their surfaces raised adjacent the intersection of said flangeways, the raised surface of the tread forming portion which forms a part of both tracks being of greater area than the other raised surfaces.

In testimony whereof, I hereunto affix my signature.

STEPHEN BALKWILL.