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P. E. GERHARD

FLANGEWAY AND RAILWAY RAIL GUARD STRUCTURE

Filed Dec. 23, 1927

Fig. 1.

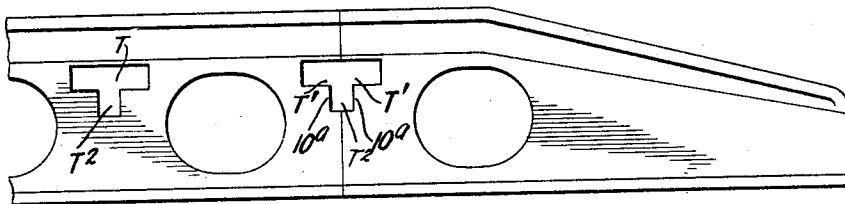


Fig. 2.

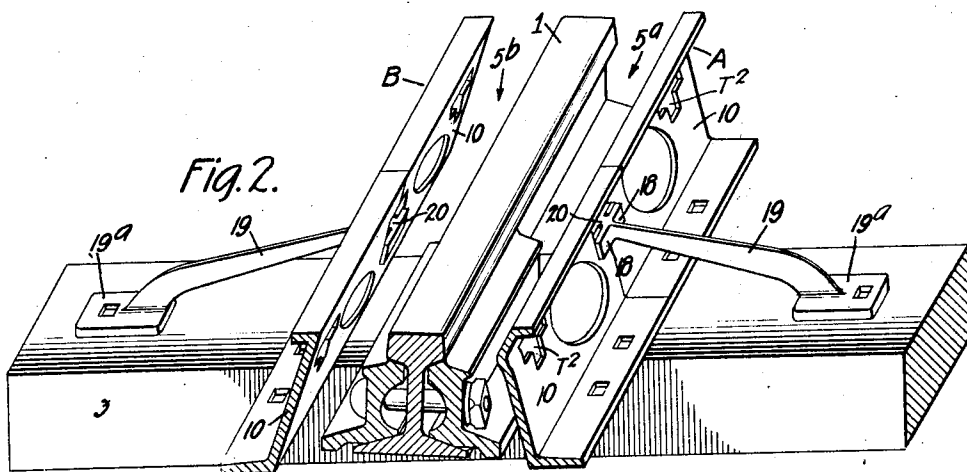


Fig. 3.

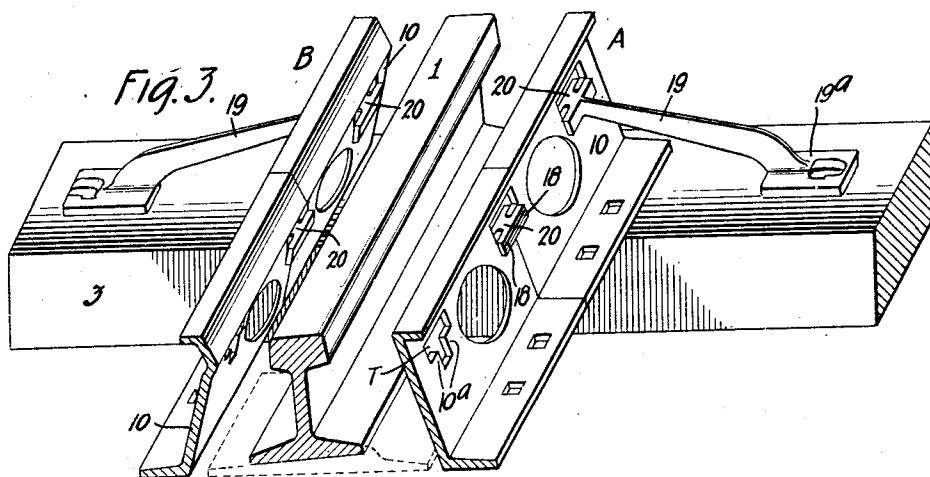


Fig. 4.

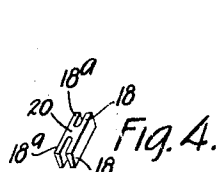
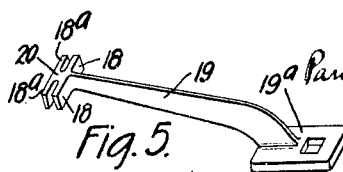


Fig. 5.



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## UNITED STATES PATENT OFFICE.

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## FLANGEWAY AND RAILWAY-RAIL GUARD STRUCTURE.

Application filed December 23, 1927. Serial No. 242,057.

This invention relates to flangeway and railway rail guard structures and is in the nature of an improvement on the invention set forth in my Patent No. 1,645,279 of October 11, 1927; and in my Patent No. 1,659,730, granted February 21, 1928, for flangeway and rail guards for highway crossings of railroads.

The objects of this invention are to interlock the meeting or abutting ends of aligned guard sections of the class mentioned where the meeting ends come opposite, that is, above, cross ties; and also when they do not come opposite or above cross ties, in such wise as to hold the interlocked section firmly in working position.

In the accompanying drawings forming a part hereof and illustrating the best form of my invention now known to me;

Fig. 1 is a side elevation of two aligned endwise contacting guard sections. The view shows a T-shaped opening at the meeting ends of the sections and also a similar opening wholly enclosed by the web of a section.

Fig. 2 is a perspective view showing endwise abutting, aligned guard sections one at one side and the other at the other side of a railway track rail, two T-shaped openings being wholly enclosed by the guard webs and one of the openings being at the meeting ends of the sections; the latter opening having positioned in it an interlocking device which is the head of a brace leading to a cross tie under the meeting ends of the sections. The sections at the right hand side of the track rail are portions of flangeway guard sections, and the sections at the left hand side of the track rail are track rail guard sections.

Fig. 3 is a perspective view similar to Fig. 2 but shows a brace head in an opening above the cross tie with the brace secured at its lower end to the cross tie. The view also shows the shankless head or locking device in an opening spaced apart from the cross tie.

Fig. 4 is a perspective view of the shankless head of locking device shown in Fig. 3; and Fig. 5 is a perspective view of the head having an integral shank as illustrated in Figs. 2 and 3.

In laying or installing both the flangeway guards and the track rail guards it frequently happens that the meeting or abutting ends of the sections do not come to-

gether over a cross tie but spacedly apart therefrom between adjacent ties. The present invention is intended for the production of these sections in such wise that their meeting ends can be interlocked whether such meeting ends are over cross ties or are between cross ties.

In the drawings, 1 is a track rail shown in place on a cross tie 3. A indicates a section-  
alized flangeway guard adjacent and spaced  
apart from the inward side of the track  
rail, the sections being in endwise alignment  
and having their opposed ends in contact. B  
indicates a track rail guard adjacent but  
spaced apart from the outward side of the  
track rail. The space 5<sup>a</sup> between the track  
rail and flangeway guard is for reception of  
paving material but this space 5<sup>a</sup> is not to  
be completely filled with paving material  
which is placed in the space so as to come  
only part way up to the tops of the rail and  
flangeway guard for entrance of a wheel  
flange as set forth in my said patent appli-  
cation, which also shows the present space 5<sup>b</sup>  
between the track rail and the track rail  
guard filled with paving material up to the  
tops of the track rail and track rail guard.  
The top of the rail and the tops of the  
guards at each side are approximately flush  
one with another in actual installations.

In accordance with the present invention, webs 10 of the guard sections are respectively provided at desired intervals apart along the lengths of the sections, between the ends of the sections, with one or more  
T-shaped openings T each wholly enclosed  
by the metal of a web 10.

At their meeting ends each section web is formed with an inverted L-shaped opening in its margin (Fig. 1) and when the two inverted L-shaped openings are opposed one to the other, the two L-shaped openings form a T-shaped opening T' as shown in Fig. 1. The downward extension of these T-shaped openings is indicated by T<sup>2</sup>. In Fig. 5 I show a bracing and web interlocking device, its head comprising a neck 20 from each side of which a pair of cross arms 18 extend, one on one side and the other on the other side of the neck, in opposite directions. From each side of the neck, at its outward end, another pair of cross arms 18<sup>a</sup> severally project in opposite directions, there being a preferably, outwardly flared space between each cross arm 18 and a later-

ally opposed cross arm 18<sup>a</sup>. The spaces between the laterally opposed cross arms severally receive a margin of the wall of a downward extension T<sup>2</sup> when the parts are assembled; each of the cross arms 18 then bearing on a surface 10<sup>a</sup> of the web adjacent the downward extension T<sup>2</sup> and each of the cross arms 18<sup>a</sup> then bearing on a corresponding surface of the web opposed to a surface indicated by 10<sup>a</sup>. The neck 20 enters the downward extension T<sup>2</sup> below the upper transverse portion of the T-shaped opening. The shank of the bracing and locking device is indicated by 19, its base 19<sup>a</sup> being spiked to a cross tie.

When the meeting ends of sections come between cross ties the shank 19 is unnecessary and the four-armed head of the shank with its neck 20 is used for interlocking the meeting ends of the sections. The cross armed head is dimensioned; or, at least, its outermost arms 18<sup>a</sup> and neck 20 are dimensioned, to pass into and through the upper transverse portion of each T-shaped opening; and then the neck is forced down into an extension T<sup>2</sup> with the side margins of the downward extension forced in place each between two opposed cross arms 18 and 18<sup>a</sup>. The inward tapers of the spaces between each two of the laterally opposed cross arms 18 and 18<sup>a</sup> permit each pair of laterally opposed cross arms to come into tight gripping relations with the two opposite web surfaces at 10<sup>a</sup>.

The meeting ends of the webs are thus tightly interlocked by the two cross arms bearing on the outward, and by the two cross arms bearing on the inward side of, a web, portions of each web being anchored in a space between two laterally opposed cross arms. The result is to prevent lateral displacement of one web in relation to the other; to endwise connect the meeting ends of two sections, and practically to prevent vertical displacement of one section in relation to the other.

Various shapes of the openings and various shapes of the shankless interlocking device, or head of the bracing shank, may be devised other than as shown, without departure from this invention, the function of which is to grip the section webs on their opposite sides between opposed bearing surfaces of the head or locking device, whether it has, or does not have, a shank for connection with some stationary element of the track structure.

What I claim is:

1. In flangeway and track rail guard structure, the combination of a guard web provided with an opening for reception of a web locking device; and a web locking device having a neck and at each end thereof, rigid, opposedly projecting, laterally spaced apart, web engaging members; the wall of said opening and said device being dimensioned for assemblage, and in assemblage, the neck passing through a portion of the opening with surfaces of two of said spaced apart members bearing on one side, and surfaces of two other spaced apart members bearing on the other side, of the web.

2. In flangeway and track rail guard structure, the combination of a guard web provided with an opening for reception of a web locking device; and a web locking device having a neck and at each end thereof, rigid, opposedly projecting, laterally spaced apart, web engaging members; the wall of said opening and said device being dimensioned for assemblage, and in assemblage, the neck passing through a portion of the opening with surfaces of two of said spaced apart members bearing on one side, and surfaces of two other spaced apart members bearing on the other side, of the web; said locking device having a shank; and a track element to which the shank is fixed.

Signed at Lebanon in the county of Lebanon and State of Pennsylvania this 26 day of November A. D. 1927.

PAUL EUGENE GERHARD.