Nov. 17, 1925. 1,562,147

N. J. CAMPBELL

RAILWAY CROSSING

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Fig. 1

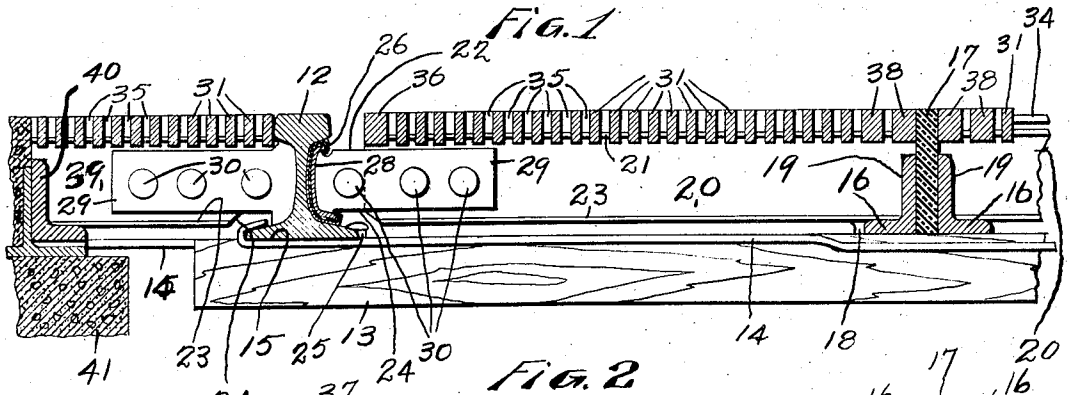


Fig. 2

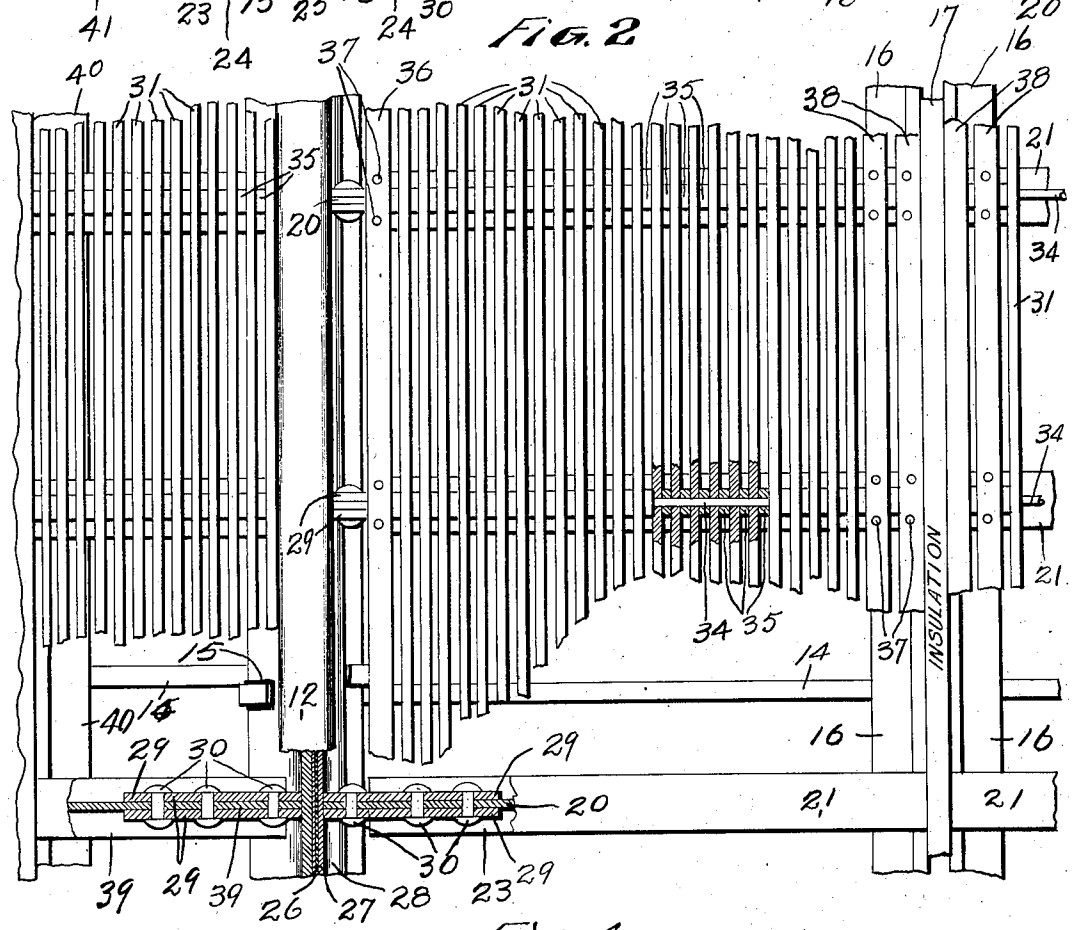
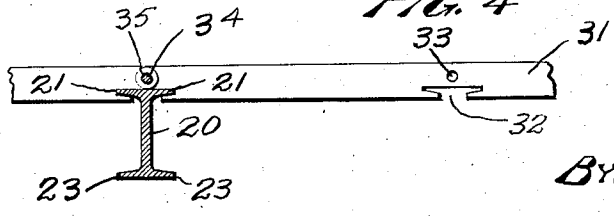


Fig. 4



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Fig. 5

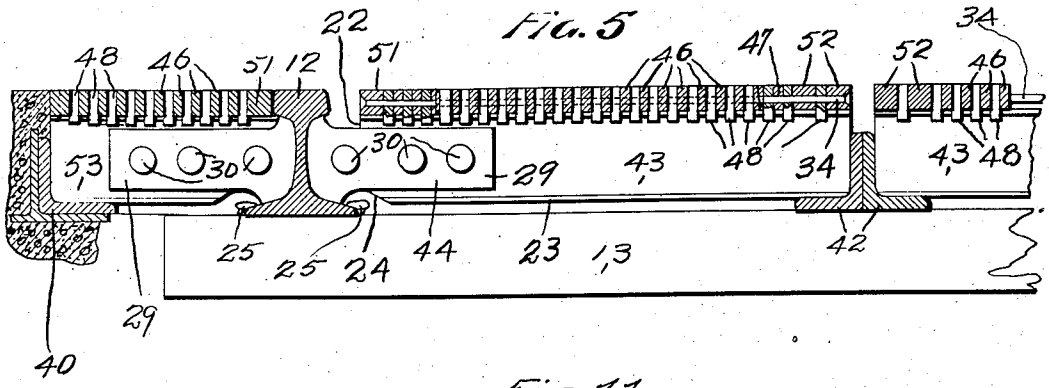


Fig. 11

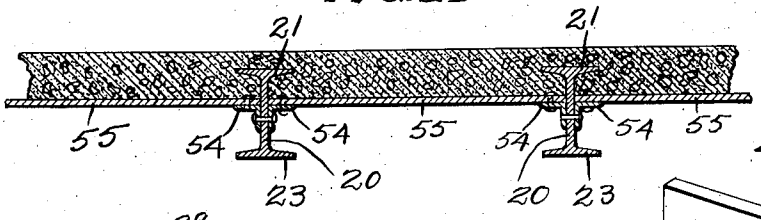


Fig. 6

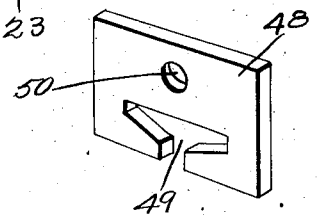


Fig. 9

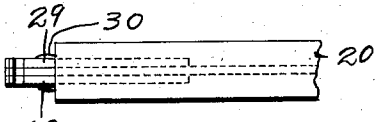


Fig. 10

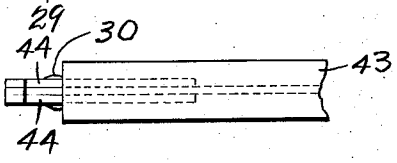


Fig. 7

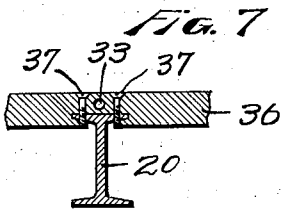


Fig. 3

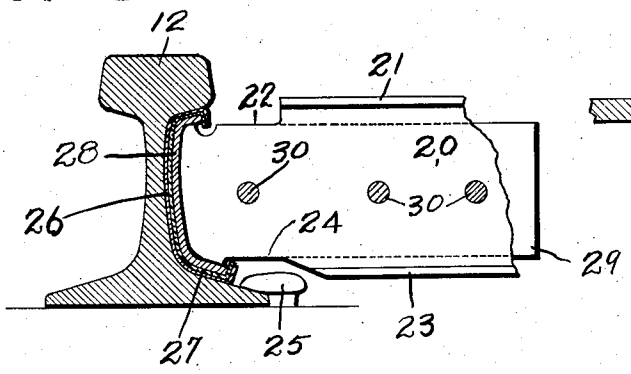
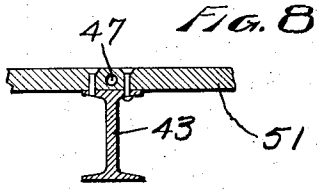


Fig. 8



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UNITED STATES PATENT OFFICE.

NEAL J. CAMPBELL, OF ST. LOUIS, MISSOURI.

RAILWAY CROSSING.

Application filed June 20, 1925. Serial No. 38,580.

To all whom it may concern:

Be it known that I, NEAL J. CAMPBELL, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Railway Crossings, of which the following is a specification.

My invention relates to improvements in railway crossings and has for its primary object a railway crossing, which is so arranged that the edges adjacent the rails will move up and down therewith, thereby at all times maintaining a constant level. In the railway crossings, as at present used, it frequently happens that the rail sinks down below the edge of the crossing, making a bump or the edge of the crossing adjacent the rail may rise above the top of the rail. In either event, the crossing is made rough and it causes considerable jar to a vehicle using the crossing.

A further object is to construct a railway crossing, which is ventilating, in other words, a crossing which will permit the moisture after a rain to evaporate and thereby retard the rotting of the ties underneath the crossing to a great extent.

A still further object is to construct a railway crossing, which can be readily removed and replaced when changes on a track are necessary, and one which it will not be necessary to completely take apart and reassemble while track repairs are being made.

In the drawings:—

Fig. 1 is a cross section of a railway rail showing a portion of my improved crossing in position;

Fig. 2 is a top plan view of the same;

Fig. 3 is an enlarged section of a rail showing the manner in which the ends of the supporting bars are carried by the rail;

Fig. 4 is a cross section taken through one of the supporting bars showing one manner of securing the road-way rails thereto;

Fig. 5 is a view similar to Fig. 1 showing a crossing when used on a switch or on tracks where no block or crossing signals are used;

Fig. 6 is a perspective view of a modified form of spacer used;

Fig. 7 is a cross section of one of the supporting bars showing one manner of securing the edge rails thereto;

Fig. 8 is a similar view showing another manner of securing the edge rails;

Fig. 9 is a top plan view of one of the supporting bars used in Fig. 1 showing the manner of increasing the bearing surface of the end of the bar;

Fig. 10 is a similar view of one of the supporting bars as used in Fig. 5; and

Fig. 11 is a cross section of a crossing showing the same when constructed with concrete, asphalt or similar material.

In the construction of my device, I employ rails 12, which are secured to ties 13 in the usual manner. If desired the rails, which form the track, may be secured together by means of tie bars 14, which are preferably insulated from the rails 12 by means of insulating material 15. This insulation is especially essential on tracks where the block system is used or where crossing signals, such as bells and the like, are employed. Located between the rails and parallel thereto are supports 16. These supports are preferably angle irons as illustrated in Fig. 1 and are spaced apart so as to permit the insertion of insulating material 17. This insulating material being for the same purpose as the insulating material 15.

The supports 16 are secured to the ties 13 by means of spikes or other securing means 18 so that they will not shift laterally or longitudinally. Resting on the supports 16 are supporting bars 20, which are preferably I beams and which have their ends cut away as at 19 so as to snugly fit against the supports 16.

The supporting bars 20 have their upper flange 21 cut away as indicated by the numeral 22, so that the flange will be spaced some distance away from the ball of the rail 12. The purpose of this is to allow free passage of the wheel flange. The flange 23 of the supporting bars is also cut away as at 24. The purpose of this is to provide clearance for the spikes 25, which secure the rails to the ties.

When a track is equipped for the block signal or crossing signals, the supporting bars must be insulated from the rail, which is done in the following manner: against the rail is placed a metallic plate 26, which fits snugly against the web, the underside of the ball and the top of the base flange. Resting on the plate 26 is a sheet of insulating material 27, while on this sheet is supported a plate 28. This plate is of relatively thick material and is for the purpose of preventing the end of the supporting bar from mashing through the insulating material by

distributing the weight over a great amount of surface. The plate 28 is held in position by bending over the extreme ends of the plate 26 and the insulating strip 27. This is clearly illustrated in Fig. 3. After the flanges 21 and 23 have been cut away from the supporting bar 20, only a relatively thin strip of material would extend to support the outer ends of the supporting bars, and in order to give a greater bearing surface, bars 29 are secured on each side of the web of the supporting bar. The ends of these bars 29 have the same contour as the projecting portion of the supporting bar web and in this manner a relatively wide bearing surface is obtained. The bars are secured together by means of rivets or other fastening means 30.

Located on the supporting bars in spaced apart position are a plurality of road-way rails 31. These rails are relatively narrow and extend parallel to the track and are provided with key slots 32 so that they can be slipped over the top flange of the supporting bars and held in position thereon. The rails 31 are also provided with openings 33 through which tie bars 34 extend, and surrounding the tie bars and between each of the roadway rails is a spacer 35. This spacer when the road-way rails shown in Fig. 4 are used, is preferably a washer of the required thickness. Located adjacent the rails 12 is an edge rail 36, which may also be provided with a T slot and which is secured to the flange 21 by means of bolts or similar fastening means 37, while adjacent the opposite end of the supporting bars, I secure edge bars 38. These edge bars are secured to the supporting bars in the same manner as the bar 36. The tie rods 34 extend through the edge bars and are secured in position by means of riveting as illustrated in Fig. 5. The apparatus just described will complete the crossing from one rail to half the width of the track and is duplicated for the other half. In other words, two sections are employed between the rails.

On the outside of each of the rails are placed short supporting bars 39, one end of which is supported by the rail, while the other ends rest on supports 40. These supports in turn rest upon an abutment 41, which may be either a concrete block, a wooden block, or in the case of a concrete road, the end of the road. It is unnecessary to insulate these supporting bars from the rail, no matter which type of track they are used on for the reason that there can be no communication between them and the opposite rail.

In Fig. 5 I have shown a modified form in which the central supports 42 may be formed of either two angle irons placed back to back or a single T iron. In this instance the ends of the supporting bars 43 adjacent the supports 42 are cut off square. The upper and lower flanges of these supports being cut away in the same manner as the supports 20. Bars 44 are also used to give a greater bearing surface.

In the modification shown in Fig. 5 the road-way rails 46 are straight on both sides, and are provided with openings 47 through which the tie bars pass. When this construction is used, I employ spacers 48, which are provided with T slots 49 so as to fit snugly over the top flange of the supporting bar and when the tie rods are inserted through the openings 47 in the road-way rails, and the openings 50 in the spacers are riveted, the entire grating, thus formed, is securely locked to the supporting bars. It is to be understood, of course, that in this construction the edge rails 51 and 52 are secured to the upper flange of the supporting bar. The supporting bar 53, which is used on the outside of the rails, is of similar construction as the bar 43, and the road-way bars or rails are secured thereto in the same manner as before stated. Where the crossing is to be made of concrete, asphalt, wooden blocks or the like, I secure angle irons 54 to each side of the supporting bars between the upper and lower flanges, and to these angle irons and reaching from bar to bar are placed plates of metal 55, which act as a support for the material between the supporting bars. These plates may be either arched or corrugated.

It is to be understood, of course, that the supporting bars extend at an angle to the rails; this angle being preferably a right angle although this is not essential. While the road-way bars extend parallel to the rails, the spacers between these road-way rails, are about the same as are used in the grating or the man-hole so that there will be no danger of a horse catching the calks of its shoe therein and injuring itself. At the same time they are close enough together so that they will not interfere with vehicular traffic thereover.

My crossing is placed in position in the following manner: the road-way rails are first secured to the supporting bars and in this way form a grating. The supports for the center of the road-way are then placed in position on the ties. The ends of the supporting bars, which are designed to rest against the rail, are next placed in position, that portion of the grating at the center of the track being elevated, and when in this position, the central portion is lower, thus permitting the ends of the supporting bars to come in contact with the center support and firmly hold the crossing in position. From this construction, it will be seen that the ends of the crossing adjacent the rails are supported by the rails and are free to move

up and down therewith, thus at all times maintaining the top of the ball of the rail and the adjacent edges of the crossing in alignment, and should the rail mash its way down into the tie, as is frequently the case, the adjacent edges of the crossing will also move downward and thus eliminate any projection of either the rail or the crossing edge.

One of the essential features of my device is that the ends of the supporting bars adjacent the rail are so held as to be free to move up and down with the rail but not independent thereof, and while I have shown one form of accomplishing this purpose, I realize that there are many other ways of doing the same without departing from the spirit of my invention.

My crossing can be readily taken up as before stated when track repairs are necessary and replaced; at a relatively small cost for labor and absolutely none for material. This is impossible with wooden crossing or crossing which are laid down and permanently fixed, such as asphalt, brick, granite and the like, as they must be torn up, which entails a great deal of time as does their replacement, and there is always a certain amount of material waste, which must be replaced by new material.

Having fully described my invention, what I claim is: —

1. A railway crossing comprising a plurality of spaced apart supporting bars, a support for one end of said bars, means for supporting the other ends of said bars so that they may move vertically with a railway rail, and a road-way carried by said supporting bars.

2. A railway crossing comprising a plurality of supports adapted to be secured parallel to and spaced from the rails of a railway track, a plurality of supporting bars, each having one end resting on certain of said supports, their opposite ends being carried by the rails, and a plurality of road-way rails secured to said supporting bars.

3. A railway crossing comprising a plurality of supports parallel to and spaced apart from the rails of a railway track, a plurality of supporting bars, each having one end resting on certain of said supports, their opposite ends being carried by the rails of the track, a plurality of road-way rails located on said supporting bars, and means for securing said road-way rails together in spaced apart relation to each other.

4. A railway crossing comprising a plurality of road-way sections having supporting bars on their underside, a support for one end of said supporting bars, the opposite ends of said supporting bars adapted to be carried by the rails of a railway track and be free to move vertically with said rails, and means for securing said road-way sections to their supporting bars.

In testimony whereof I have affixed my signature.

NEAL J. CAMPBELL.