

Nov. 13, 1928.

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1,691,078

RAILWAY CROSSING

Filed May 5, 1928

3 Sheets-Sheet 1

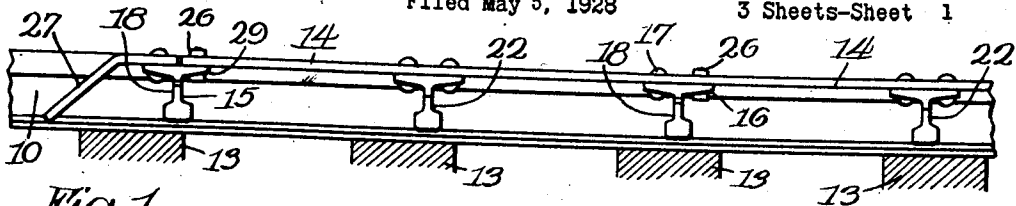


Fig. 1

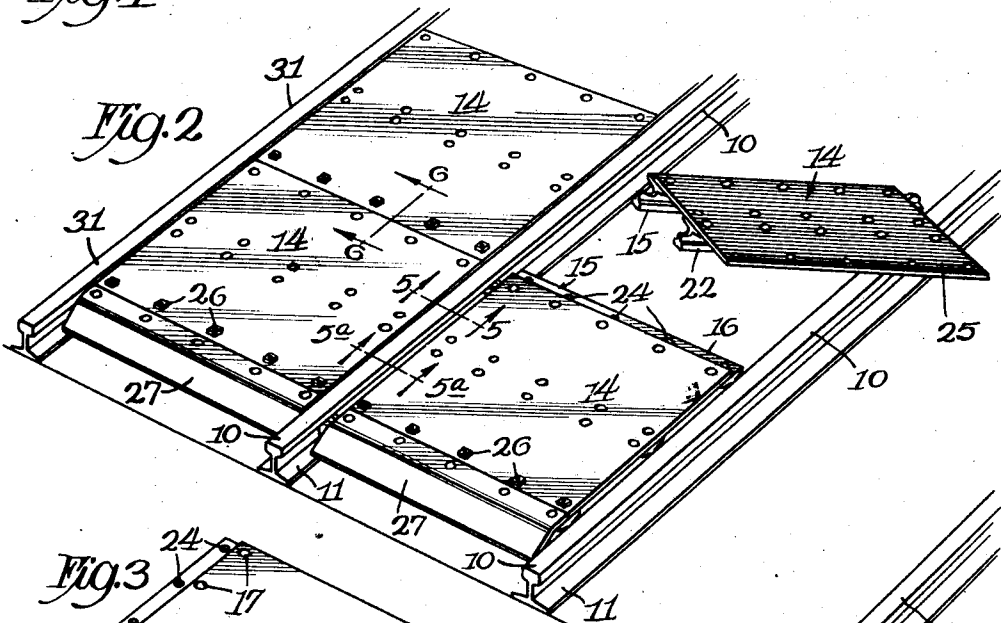


Fig. 2

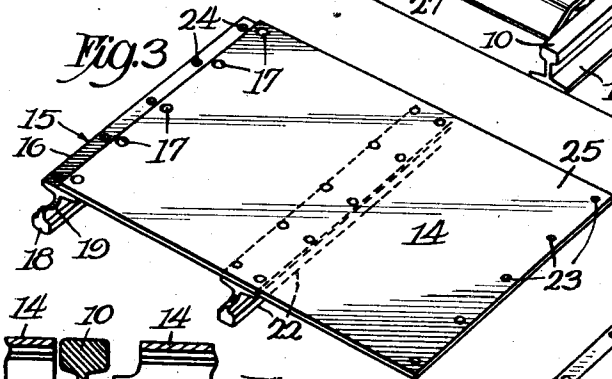


Fig. 3

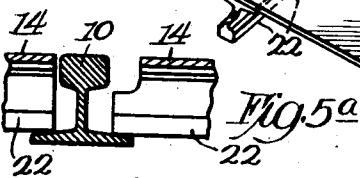


Fig. 5a

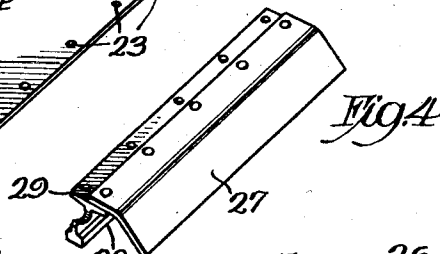


Fig. 4

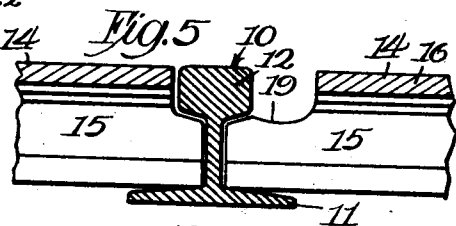


Fig. 5

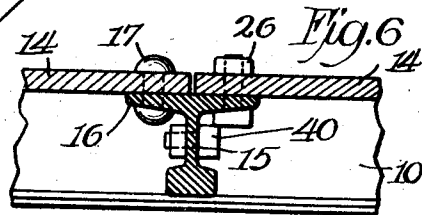


Fig. 6

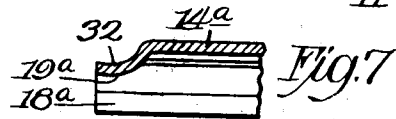


Fig. 7

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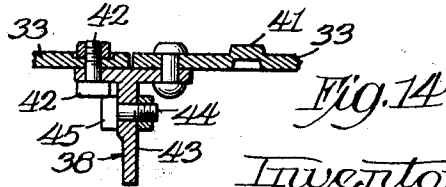
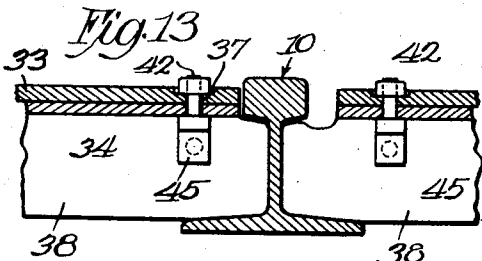
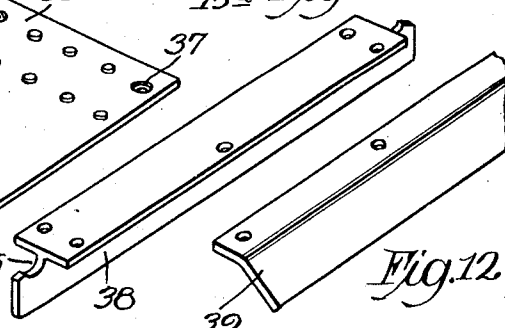
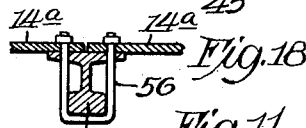
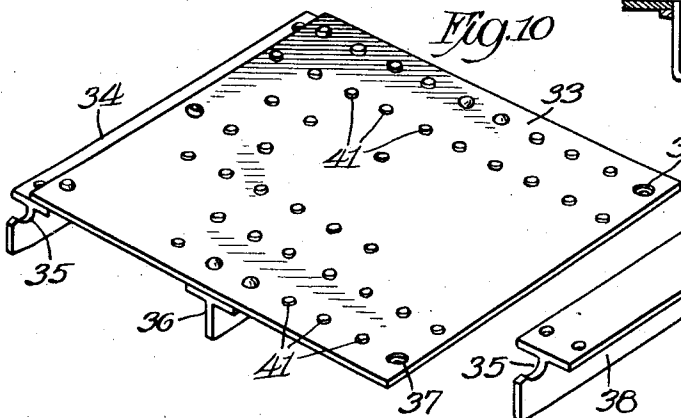
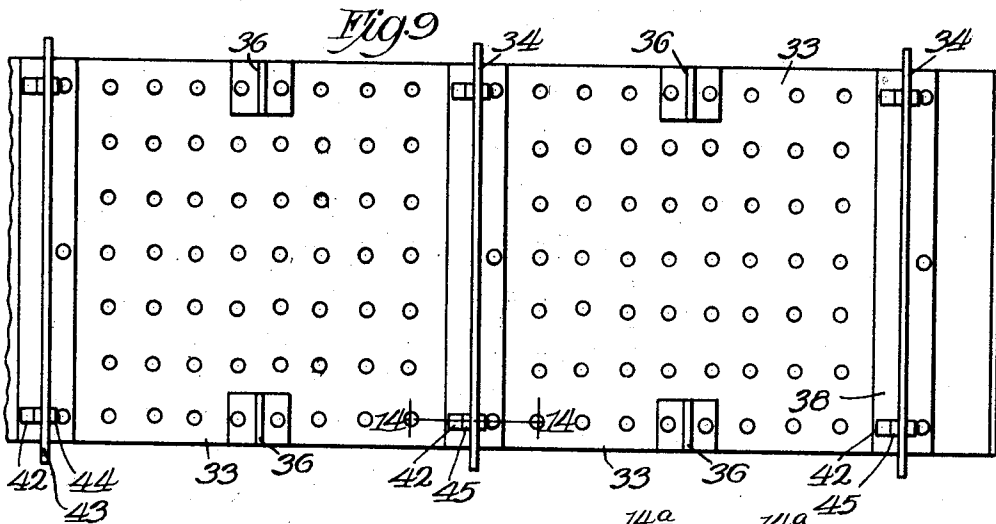
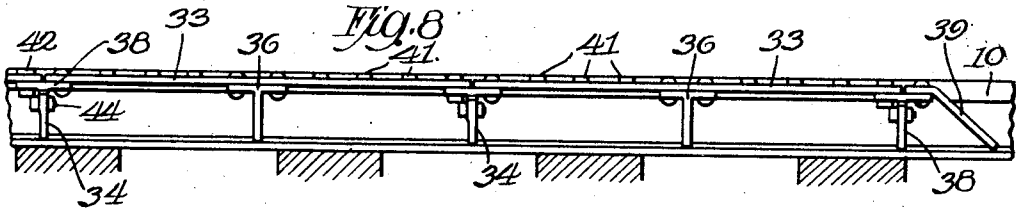
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RAILWAY CROSSING

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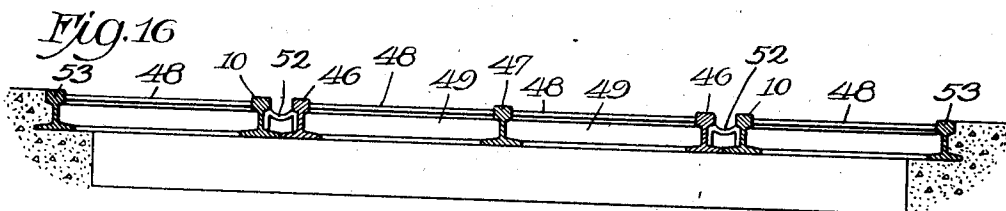
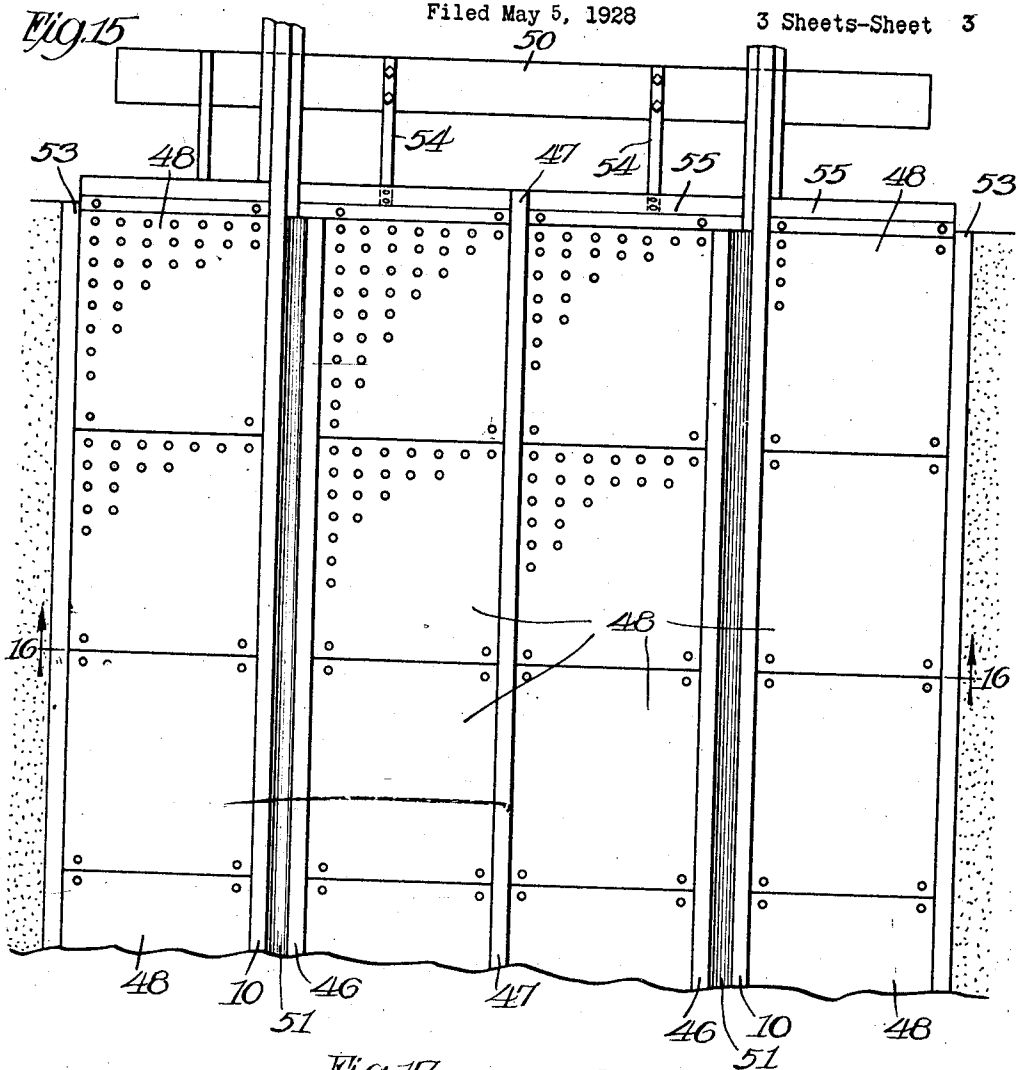
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RAILWAY CROSSING

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3 Sheets-Sheet 3



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# UNITED STATES PATENT OFFICE.

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## RAILWAY CROSSING.

Application filed May 5, 1928. Serial No. 275,423.

This invention relates to railway crossings, and more particularly to the means for supporting and maintaining the parts in position.

5 One of the objects of the invention is the provision of new and improved means for supporting the plates of a railway crossing.

Another object of the invention is the provision of new and improved means for securing the crossing in position between the running rails.

15 A further object of the invention is the provision of a new and improved method of laying or positioning a railway crossing and for securing the same after it has been positioned.

20 A still further object of the invention is the provision of a sectional crossing that is so constructed that it may be attached or removed in sections and when in position will be securely interlocked with the running rails.

25 Another object of the invention is the provision of a new and improved railway crossing that is cheap to manufacture, easily assembled, the parts readily removable, that may be firmly secured in position, and that is efficient and durable in use.

30 Other and further objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawings, in which—

35 Fig. 1 is a side elevation of the crossing showing one of the track rails removed and the ties in section;

Fig. 2 is a perspective view of a portion of a railway track disclosing the method of attaching the crossing;

40 Fig. 3 is a perspective view of one of the plates;

Fig. 4 is a perspective view of one of the end guard members;

Fig. 5 is a section on line 5—5 of Fig. 2;

Fig. 5<sup>a</sup> is a section on line 5<sup>a</sup>—5<sup>a</sup> of Fig. 2;

45 Fig. 6 is a section on line 6—6 of Fig. 2;

Fig. 7 is a view similar to Fig. 5 showing a slightly modified form of construction;

Fig. 8 is a view similar to Fig. 1 showing a modified form of construction;

50 Fig. 9 is a bottom plan view of the crossing shown in Fig. 8;

Fig. 10 is a perspective view of one of the plates;

55 Fig. 11 is a perspective view of one of the supports;

Fig. 12 is a perspective view of one of the guard members;

Fig. 13 is a transverse section of one of the rails showing the invention in position thereon;

Fig. 14 is a section on line 14—14 of Fig. 9;

Fig. 15 is a top plan view of a portion of a railway track showing a modified form of the invention in position thereon;

Fig. 16 is a section on line 16—16 of Fig. 15;

Fig. 17 is a perspective view of one of the guard rails; and

Fig. 18 is a view similar to Fig. 6 but showing a modified form of means for attaching the plates to their supports.

Referring now to the drawings, the reference character 10 designates the track rails, each of which has the usual flange 11 and ball or wheel engaging portion 12. The ties are shown at 13.

The crossing comprises a plurality of plates 14 which are preferably, though not necessarily, of cast metal. Each plate which will be considered as extending lengthwise of the rails for convenience of description, is comparatively short and is of a width to extend between the rails to within a short distance of the balls of the rails. They are spaced from the rails sufficiently to provide proper clearance for the wheel flanges. Each plate is rigidly connected at one end to a supporting member 15.

As shown in Figs. 1 to 7, this support is an inverted railway rail, the flange 16 being rigidly connected to the end of the plate 14 as by means of the rivets 17. The plate extends only to the central portion of the flange whereby the rail will also support the adjacent end of an adjacent plate. The rail extends beyond the sides of the plates and the extended portions 18 are coped as at 19 to provide clearance for the car wheel flanges. The extended portion 18 of each support 15 is adapted to extend beneath the ball of the track rail and rest on the flange 11 of said rail. One or more intermediate supports 22 are rigidly secured to the intermediate portion of said plate. These supports extend beyond the side edges of the plates and their ends are coped or grooved to provide clearance for the car wheel flanges. They are of a length to pass between the balls of the rails, but are long enough to rest on the rail flanges. The opposite or free end 25 of each plate is

provided with openings 23 which are adapted to register with corresponding openings 24 in the flanges 16 of the end supports 15, and are secured thereto by any suitable means, such as the bolts 26. See Figs. 1 and 2.

In assembling the plates 14 between the track rails, the plate is turned at an angle to the tracks and the free end 25 slightly elevated, as shown in Fig. 2, which will permit the ends of the supports 18 to be inserted between the balls and flanges of the rails, after which the plate may be moved parallel with the track with the end 25 resting on flange 16 of the adjacent support 18. Suitable fastening means are then inserted in the holes 23 and 24 for clamping the parts together.

A suitable guard plate 27 may be provided for each end of the crossing. This plate is adapted to be attached to one of the supports and is curved downwardly at its outer end for extending to a position adjacent to the ties or road bed, as is usual in such constructions.

In constructing the crossing, one of these plates 27 rigidly connected to the support 28 is first placed in position, after which the remaining plates 14 are placed in position in the manner previously described, and the free ends 25 of the plate 14 are rigidly connected to the flange 29 of the support 28 by bolts or other fastening means. The guard plate at the opposite end of the track will, of course, not be provided with a support 28 because the guard rail would be attached directly to the flange 16 of the outer support 18.

If the crossing is designed for a single railroad track, approaches are provided at each side of the track. A supplemental rail 31 is secured in the pavement at each side of the track and is spaced therefrom the same distance as the rails are spaced apart, whereby the plates employed for the crossing between the supplemental rails and the track are preferably, though not necessarily, of the same dimensions as those between the track rails so that the parts are all interchangeable. If desired, plate 14<sup>a</sup> may be provided on each end thereof with a downwardly and laterally extending curved portion forming a wheel flange guard 32. See Fig. 7. The flange guard 32 is adapted to fit into the coped portion 19<sup>a</sup> of the support 18<sup>a</sup>, as clearly shown in Fig. 7.

The form of the device shown in Figs. 8 to 14 differs from that just described in that instead of using inverted rails for supports for the plates 33, T-bars are employed for this purpose. Each plate 33 is provided with a T-bar 34, which is rigidly attached thereto and extends beyond the ends of the plate in the same manner as the bars 18 in Fig. 3. The ends of the bars 34 are coped as at 35 for accommodating the wheel flanges as in the previous construction. One or more inter-

mediate supports 36, similar to the intermediate support 22 in the previous construction, is also provided. If desired, instead of extending these supports the full width of the plate, short sections may be employed as shown in Fig. 9.

The free end of the plate 33 is provided with suitable openings 37 by which the same is adapted to be attached to an adjacent support 38 in the manner previously described. The guard member 39 is substantially the same as the guard member 27, previously described.

Suitable anti-slipping devices or projections may be provided on the plates 33. These projections may be made in any convenient manner. As shown in Fig. 14, they may be made by punching holes partly through the plate whereby the material will be elevated and provided with sharp edges.

If desired, suitable means may be provided for holding the bolts 42 in elevated position in the openings in said flanges while the plates are being attached. Any appropriate means may be employed for this purpose.

As shown in Figs. 13 and 14, the webs 43 of the supporting bars 38 are provided with holes in which the bolts 44 may be secured with the heads 45 beneath the bolts 42, whereby said bolts will be held in elevated position.

In a similar manner, the bolts 26 may, if desired, be held in position by any suitable means as the bolts 40, while the plates are being attached.

In assembling the parts, the bolts 26 or 42 are placed in the flanges, after which the bolts 40 or 44 are secured in position in the webs 15 or 43. The plates 33 may then be placed in position, after which the nuts may be placed on the bolts 42 to hold the plates in position.

A further modified form of construction is shown in Figs. 15, 16, and 17. In this form of construction, guard rails 46 may be secured on ties adjacent to the track rails and an intermediate rail 47 secured along the longitudinal center line of the track. The plates 48 which are in all respects similar to the plates 14 or 33 except that they are narrower, are secured between the intermediate rail 47 and the guard rails 46 in the manner described above. These plates are mounted on supports 49, similar to the supports 18, 22, 36 and 38, described above.

Since the arrangement of the supports and the plates is substantially the same as described above, it is not thought necessary to repeat that description.

While in each of the different forms of construction shown, the plates of each are duplicates, it is understood that this is for convenience of manufacture, and that the approaches may be so constructed as to require plates of greater or less width than those required between the track rails.

It is understood that the height of the supports when in position on the rail flanges is such that the upper surface of the plates will be flush with the upper surface of the track rails. This will necessitate using lighter rails than the track rails where inverted rails are employed as supports for the plates.

The flange guard 51 is adapted to be mounted between each track rail 10 and the guard rail 46. This guard is placed in position by slipping it in from the end of the guard rail. It is provided with a depression 52 for accommodating the flange of the car wheel. A supplemental rail 53 may be secured in the concrete at each side of the road bed at sufficient distance from the track rails for accommodating the plates 48 which are attached in the manner previously described. Guard members 54 may be attached at their outer ends to the cross tie 50 and at their inner ends to the supports 55 for preventing the movement of the crossing longitudinally of the track rails.

The plates may be connected to the supports in any suitable manner, as by means of U-bolts instead of straight bolts or rivets. In Fig. 18 is shown such a construction, wherein the plates 14<sup>a</sup> are secured to the supports 15<sup>a</sup> by means of U-bolts 56. By means of this arrangement the construction unit comprising the plate and support may be readily assembled and the U-bolt held in position for engaging the end of an adjacent plate when the same is placed in position between the track rails.

While in the form of construction shown the parts are all of metal, it is understood that they may be of wood or other suitable materials.

It is thought from the foregoing taken in connection with the accompanying drawings that the construction and operation of my device will be apparent to those skilled in the art, and that changes in size, shape, proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. A railway crossing comprising a plurality of similar units connected together, each unit comprising a plate having openings through one end thereof, a support rigidly connected to the opposite end of said plate and extending beyond the sides and end thereof, and an intermediate support rigidly secured to said plate and extending parallel to said first named support, the ends of said supports being coped to provide clearance for a railway wheel flange.

2. A railway crossing comprising a plurality of similar units connected together, each unit comprising a plate having openings across one end thereof, a flanged support secured to the opposite end of said plate and

extending beyond the side edges thereof, and of a length less than the distance between the webs of the track rails but greater than the distance between the balls of said rails, the width of said plate being less than the distance between the balls of said rails to provide a clearance for the car wheel flanges between said plate and said rails.

3. A railway crossing comprising a pair of track rails, an auxiliary rail at the outer sides of the track supports and spaced therefrom, a plurality of supports interlocked with said track rails and supported thereby, a plurality of plates rigidly connected to said supports to form a rigid crossing between the track rails, a plurality of supports extending between said track and auxiliary rails and interlocked therewith and supported thereby, and a plurality of plates rigidly connected to said supports for forming a rigid crossing between said auxiliary and track rails.

4. A railway crossing comprising a pair of track rails, supports extending between said rails and resting on the flanges thereof, said supports being longer than the distance between the balls of said rails, said supports having the upper portion of their ends coped to provide clearance for the flanges of a car wheel, a plurality of plates, and means for rigidly securing said plates to said supports.

5. In combination, a pair of track rails, a plurality of plates arranged end to end between said rails, a support beneath each joint formed by the abutting ends of said plates, and means for rigidly securing said plates to said supports, said supports resting on the flanges and extending beneath the balls of said rails.

6. In combination, a pair of track rails, a plurality of plates arranged end to end between said rails, a support beneath each joint formed by the abutting ends of said plates, means for rigidly securing said plates to said supports, said supports resting on the flanges and extending beneath the balls of said rails, and intermediate supports rigidly secured to said plates between the ends thereof and resting on the flanges of said rails, the length of said intermediate supports being less than the distance between the balls of said rails.

7. In a railway crossing, a pair of rails, a plurality of similar units rigidly connected together between said rails, each unit comprising a plate, a support consisting of an inverted rail, means for rigidly connecting one flange of said rail to one end of said plate, with said plate terminating short of the edge of the opposite flange, the opposite flange of said inverted rail being apertured to receive means for fastening the end of an adjacent plate to said flange, said support being of sufficient length to engage beneath the balls of said first named rails and to be supported by the flanges thereof, said support being provided with a transverse depression at each

end thereof for providing clearance for the car wheel flanges, of less length than the distance between the balls of said first named rails, and an intermediate support comprising an inverted rail having its flanges rigidly secured to an intermediate portion of said plate.

8. A railway crossing comprising a plurality of plates rigidly connected together end to end and adapted to be positioned between the track rails in spaced relation thereto, a curved shield rigidly secured to the side edges of said plates for providing clearance for the flanges of car wheels, supports beneath said plates and rigidly secured thereto, said supports being interlocked with the track rails for supporting and preventing removal of said plates, and a down-turned guard plate at each end of said crossing rigidly secured to the outermost supports.

9. In combination, a plurality of parallel rails, a plurality of plates between said rails, a support beneath each end portion of each plate, and means for rigidly connecting said plates to said supports, certain of said supports being of a length greater than the distance between the balls of said rails and having their ends resting on the flanges of said rails beneath said balls for interlocking said supports and plates to said rails.

10. In a railway crossing, a pair of rails

spaced apart in parallel relation, a plurality of plate units connected together end to end between said rails, each unit comprising a plate having apertures in one end thereof, a support beneath the other end portion of said plate, means for rigidly securing said support to said plate, said support being of a length sufficient to rest on the flanges of said rails beneath the balls thereof, whereby each of said units may be removed from said crossing by disconnecting the same from adjacent units, elevating the said apertured end thereof and moving the same in a direction diagonal to said rails.

11. In a railway crossing, a pair of rails spaced apart in parallel relation, a plurality of plate units arranged end to end between said rails to form a crossing, each unit comprising a plate adapted to be inserted between the balls of said rails and a support comparatively narrow as compared with the length of said plate rigidly connected with the under side of an end portion of said plate, of a length greater than the distance between the balls of said rails and adapted to engage the flanges of said rails directly beneath said balls and of a height to extend adjacent to the under side of said balls.

In testimony whereof I affix my signature.

DANIEL C. MULVIHILL.