June 17, 1958 F. S. CURTIS 2,839,249

RAILROAD TRACK CROSSING

Filed June 19, 1956 2 Sheets-Sheet 1

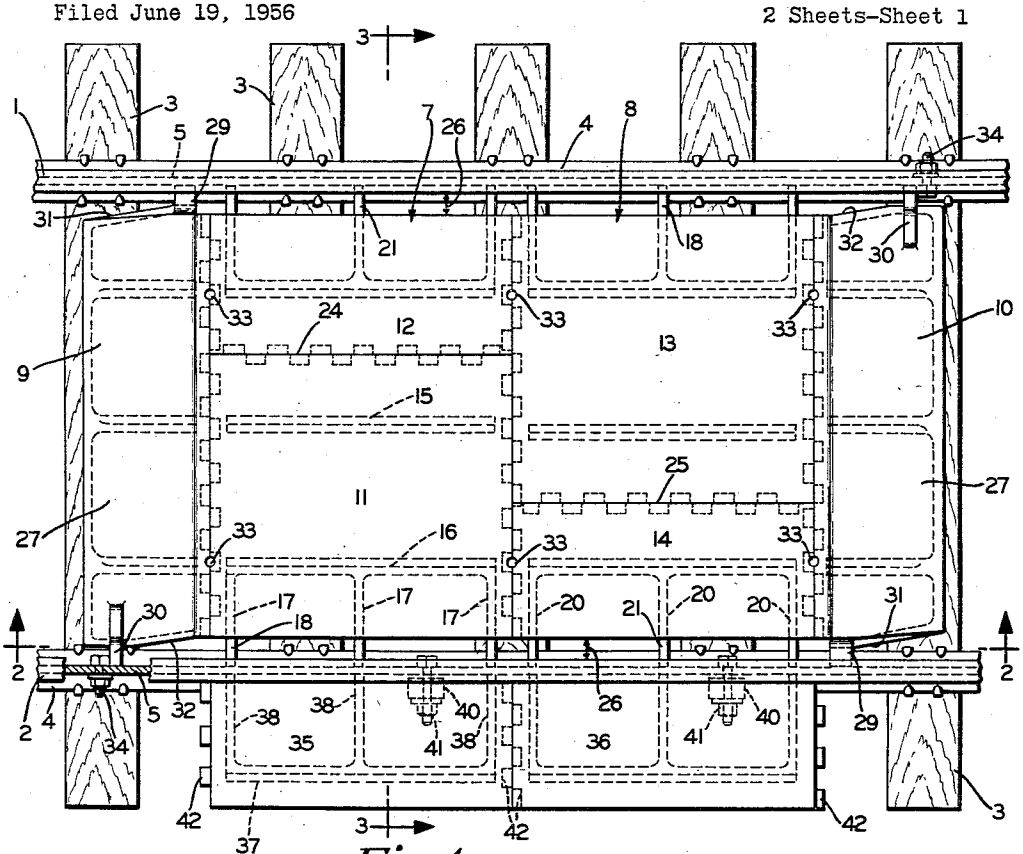


Fig. 1

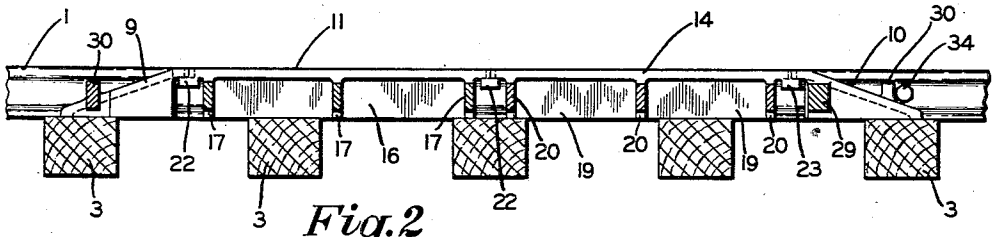


Fig. 2

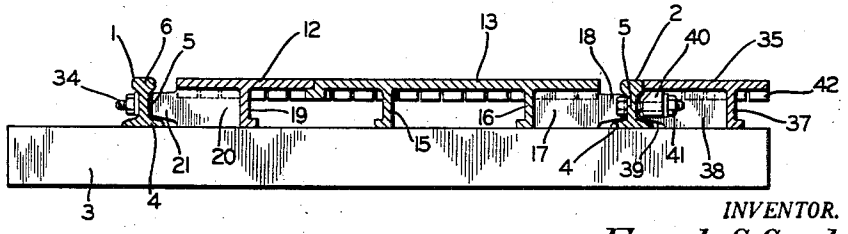


Fig. 3

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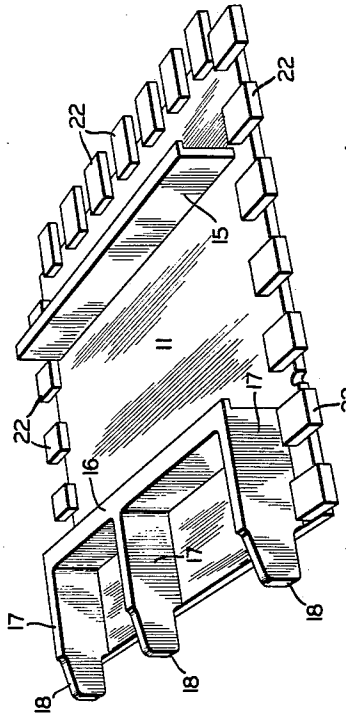


Fig. 5

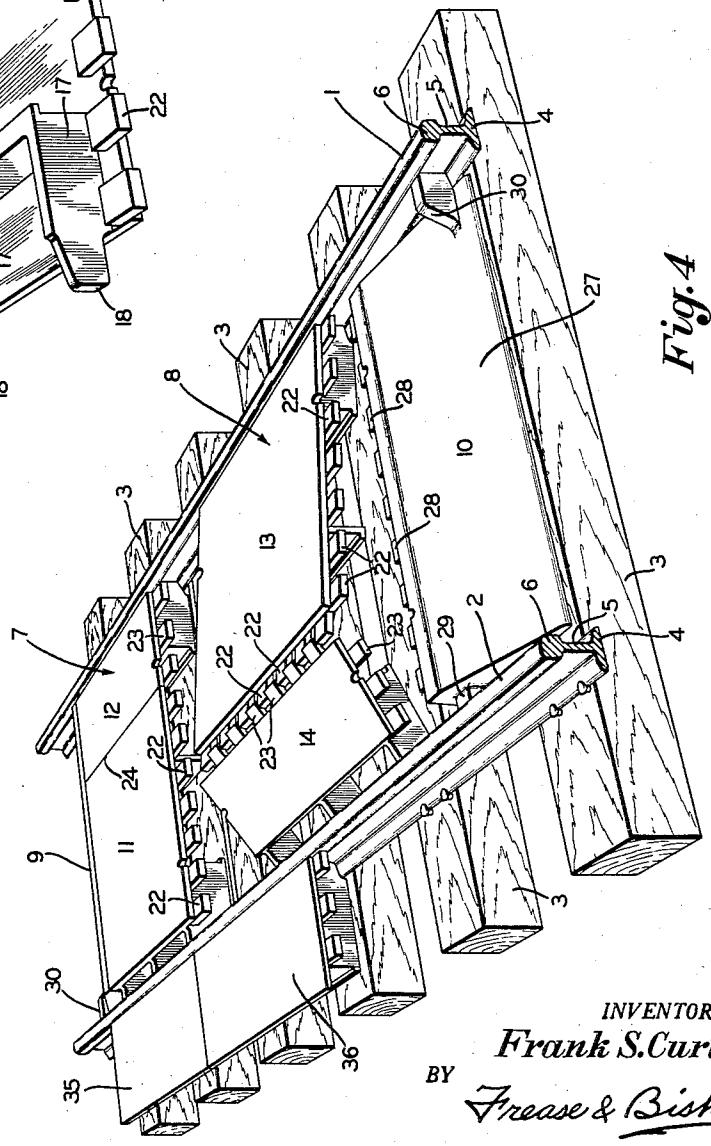


Fig. 4

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RAILROAD TRACK CROSSING

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4 Claims. (Cl. 238—8)

This invention relates to railroad crossings, and more particularly to interlocking means for maintaining crossing plates intact.

The invention contemplates the use of a plurality of metallic plates between the rails of a railroad track. Because of the need for a solid fixed surface for highway crossings of railroad tracks, it is necessary that the surface be composed of durable construction to withstand continuous wear and tear of heavy traffic to which it may be subjected. However, in view of the problem of maintaining and repairing railroad tracks, it is desirable that the crossing be composed of readily removable sections, preferably having interfitting edge portions which may be locked together against longitudinal movement along the track to prevent their displacement for any reason whatsoever.

Accordingly, it is a general object of this invention to provide new and improved crossing plates for a railroad crossing.

It is another object of this invention to provide crossing plates for a railroad track which remain intact and which are readily removable for maintenance and repair of the railroad track, ties, ballast, etc.

In addition it is an object of this invention to provide railroad crossing members which permit adequate ventilation of the railroad ties to prevent dry rot and deterioration of the track.

Finally, it is an object of this invention to provide improved interlocking plate members for railroad highway crossings which substantially eliminate the difficulties enumerated and obtain the foregoing desiderata in an effective manner.

These and other objects and advantages apparent to those skilled in the art from the following description and claims may be obtained, the stated results achieved and described difficulties overcome by the discoveries, principles, apparatus, parts, combinations, subcombinations and elements which comprise the present invention, the nature of which is set forth in the following statement, a preferred embodiment of which—illustrative of the best mode in which applicant has contemplated applying the principles—is set forth in the following description, and which is particularly and distinctly pointed out and set forth in the appended claims forming part hereof.

The nature of the discoveries and improvements of the present invention may be stated in general terms as including a track crossing for a railroad having rails and ties, the crossing including adjacent transverse sections between the rails, each section including two plates having abutting edges extending parallel to the tracks, one plate of each section being smaller in transverse dimension than the other plate, the plates having spaced interlocking lugs along abutting edges of adjacent plates in the same and adjacent sections, the sides of the plates adjacent the rails having bosses extending between the head and a flange of the rails; end members at opposite

ends of the assembled sections having spaced interlocking lugs engaging said lugs on adjacent section plates, each end member also having a second boss at one side fitting between the head and flange of one rail, said second boss being located near the end of the end member adjacent the sections, and each end member having a third boss extending from the other side remote from the sections and fitting between the head and flange of the other rail.

An embodiment of the invention is illustrated, by way of example, in the accompanying drawings:

Fig. 1 is a plan view of the railroad grade crossing;

Fig. 2 is a longitudinal sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a perspective view of the grade crossing showing one section completely assembled and another section partially assembled; and

Fig. 5 is a perspective view of the undersurface of the larger plate of the grade crossing.

Similar numerals refer to similar parts throughout the several views of the drawings.

In Fig. 1 a railroad grade crossing construction is shown between rails 1 and 2 which are attached to ties 3 in the usual manner. As shown in Figs. 3 and 4 the rails 1 and 2 include a base or flange 4, web 5 and head 6 of the usual type.

The track crossing construction is composed of a number of sections generally indicated at 7 and 8 and end members or guard plates 9 and 10 between which the sections are mounted. The section 7 includes a large plate 11 and a small plate 12. Likewise, the section 8 includes a large plate 13 and a small plate 14. The large plates 11 and 13 are similar in size and construction and the small plates 12 and 14 are also similar to each other.

The plates 11 and 13, more particularly shown in Fig. 5, include longitudinal support bars 15 and 16 spaced transversely from each other. The bar 16 includes preferably three transverse bar portions 17 extending from the support bar 16 to the edge of the plate 11. Each transverse bar portion 17 includes a boss portion 18 for engaging one of the rails 1 and 2 between the flange 4 and head 6 as shown in Figs. 1 and 3. The side of the support bars 15 and 16 as well as the bar portions 17 engages the upper side of the ties 3 and the bars and bar portions have a height equal to the height of the rails 1 and 2 less the thickness of the plates 11 and 13.

The smaller plates 12 and 14 include support members below their undersurface similar to the support bars 16 and transverse bar portions 17 of the large plates 11 and 13. For example, the plate 14 includes a support bar 19 as well as transverse bar portions 20, as shown in Figs. 1, 2 and 3. In addition, the transverse bar portions 20 include boss portions 21, similar to boss portions 18 on the transverse bar portions 17.

The plates 11, 12, 13 and 14 are provided with interfitting lugs or interlocking members along their abutting edges and sides, which members or lugs maintain the plates in assembly with each other and prevent separation of one plate by lifting vertically. As shown in the drawings, the large plates 11 and 13 are provided with equally spaced lugs 22 extending outwardly from the underportion thereof and preferably welded thereto. Likewise, the small plates 12 and 14 include lugs 23 having spacings and size similar to the lugs 22. The lugs on one plate are staggered with respect to the lugs on the other plate, thereby allowing interlocking of the lugs and the plates. When the plates 11 and 12 are assembled together they extend between the rails 1 and 2, present-

ing a flat surface therebetween, with the boss portions **18** engaging the rail **2** and the boss portions **21** engaging the rail **1**, and providing a division or separation line **24** at the adjacent abutting edges of the plates **11** and **12**. Similarly, the plates **13** and **14** when assembled provide a division or separation line **25** by adjacent abutting edges of said plates.

When all of the plates **11—14** are assembled as shown in Fig. 1, a space **26** preferably exists between said plates and adjacent rails **1** and **2** to accommodate the flanges of wheels of railroad cars.

The end members or guard plates **9** and **10** have upper inclined surfaces **27** extending from the side adjacent the plates **12—14** to the side remote therefrom as shown in Figs. 2 and 4. The end members **9** and **10** are likewise provided with interfitting lugs or interlocking members **28** of size, spacing and shape similar to the lugs **22** and **23** on the plates **11—14**. The lugs on each end member are staggered with respect to the lugs on each adjacent plate. Thus when the plates **11—14** and the members **9** and **10** are assembled as shown in Figs. 1 and 2, the lugs **28** of the end members **9** and **10** interfit with the lugs **22** and **23** along the adjacent edges of adjacent plates **11—14**.

Moreover, the end members or guard plates **9** and **10** are provided with similar bosses **29** extending from the side of the member **9** or **10** and near the edge adjacent the crossing plates **11—14**. Also, the end members or guard plates **9** and **10** include a boss **30** extending from the side opposite the boss **29** and near the edge remote from that adjacent the crossing plates **11—14**. The bosses **29** and **30** interfit between the flange **4** and head **6** of the rails **1** and **2** similar to the boss portions **18** and **21** of the plates **11—14**. Finally, the end members or guard plates **9** and **10** are provided with inclined side walls **31** and **32**, respectively, which are inclined at a slight angle to the longitudinal axis of the assembled plates or to the rails **1** and **2**.

Further, when the plates **11—14** and end members **9** and **10** are completely assembled as shown in Fig. 1, a plurality of apertures **33** are provided. Half-portions of each aperture exist in adjacent abutting edges in all of said plates and members. The purpose of the apertures **33** is to provide a means for readily separating the plates **11—14** and members **9** and **10** by the insertion of a lever to spread the members and plates longitudinally out of abutment with each other.

A bolt **34** is provided in each rail **1** and **2** at diagonally opposite positions of the assembly and in abutment with the bosses **30** to prevent the end members **9** and **10** from separating longitudinally in either direction from the plates **11—14**. When separation occurs due to any means such as by vibration, the end members **9** and **10** are prevented from separation by contact of the bosses **30** and bolts **34**. Such contact causes the bosses **29** to bind against the rails **1** and **2**, thereby maintaining the assembly of the crossing as shown in Fig. 1.

When the crossing is assembled one or more sections may be used depending upon the length of track covered by the particular crossing, such as a sidewalk or roadbed. It is to be understood that one section may be used between end members **9** and **10**. However, two or more sections **7** and **8** are provided for the usual railroad crossing.

For assembly of the sections the boss portions **18** of the plate **13** are inserted against the web **5** of the rail **1**. Simultaneously, the boss portions **21** of the plate **14** are placed agaainst the web **5** of the rail **2** and with the lugs **22** and **23** of the plates **13** and **14**, respectively, interfitted with the plates **13** and **14** inclined as shown in Fig. 4. Thereafter the inclined plates are dropped into place on the ties **3** and moved longitudinally of the tracks **1** and **2** into engagement with the plates **11** and **12**.

When the sections **7** and **8** are thus assembled it is preferred that the division or separation lines **24** and **25** be

out of alignment with respect to each other as shown in Fig. 1. Thereafter, the end members **9** and **10** are placed against the corresponding edges of the plates **11—14** and the bolts **34** inserted at the proper location in the webs **5** of the rails **1** and **2**.

The end members **9** and **10** are placed in position by first inserting the boss **29** against the web **5** of the rail and then rotating the particular member **9** or **10** slightly through an arc having its center at the point of contact between the lug **29** and web **5**, thereby bringing the boss **30** into abutment with the opposite web **5** between the flange **4** and head **6**. Accordingly, the inclined edges **31** and **32** of the end members **9** and **10** permit the rotation of the members when being inserted or removed from position between the rails.

The crossing may also include side plates **35** and **36** which extend over the outer portions of the ties **3** beyond the rails. The surface of the side plates **35** and **36** are coextensive in the longitudinal direction with the plates **11—14**. In the transverse direction the plates **35** and **36** preferably extend to the end of the ties (Fig. 1) where the tops of the plates join the surface of the road leading across the tracks **1** and **2**. It is to be understood that where a double track is used, however, the side plates **35** and **36** may be replaced by plates **11—14** between the inner rails of the double tracks.

The side plates **35** and **36** include a support bar **37** (Fig. 3) the lower end of which extends across the ties **3**. Transverse bar portions **38** (Figs. 1 and 3) extend from the support bar **37** toward the rail **2**. Each transverse bar portion **38** includes a boss **39** extending against the rail **2** between the flange **4** and the head **6**. Moreover, the undersurface of the side plates **35** and **36** includes an apertured member **40** integral therewith and by which the side plates are secured and held in place adjacent the rails **2** by means of a bolt and nut assembly **41**. The bolt of the assembly **41** extends through the web **5** of the rail as well as through apertured member **40**.

Finally, each side plate **35** and **36** is provided with spaced lugs **42** on opposite ends thereof whereby adjacent plates **35** and **36** may be fitted together in a manner similar to the plates **11—14** and the end members **9** and **10**.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiment of the improved construction illustrated and described herein is, by way of example, and the scope of the present invention is not limited to the exact details of construction shown.

Having now described the features, constructions and principles of invention, the characteristics of the new railroad track crossing construction, the advantageous, new and useful results provided; the new and useful discoveries, principles, parts, elements, combinations, subcombinations, structures and arrangements and mechanical equivalents obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. A track crossing for a railroad track having ties and rails with head and flange portions, including at least one transverse section between the rails, each section having a side adjacent each rail and having a pair of opposite ends extending transversely of the rails, each section including two plates, each plate having a single edge abutting a corresponding edge on the other plate, end members at opposite ends of the transverse section, each member having an end abutting one end of the section and having a side adjacent each rail, the plates having spaced interfitting lugs along the abutting edges, the lugs on one plate being staggered with respect to the lugs on the other plate, each section having spaced lugs along the opposite

ends, each end member having spaced lugs on the section-abutting end and staggered with respect to and interfitting the spaced lugs on the ends of the section, the plates having bosses along the sides adjacent the rails extending between the head and flange on the corresponding rails, each end member having a boss extending from each side and fitting between the head and flange of one rail, and the boss extending from one side of the end member being nearer the abutting ends of the end member and corresponding section than the boss extending from the other side of the end member.

2. A track crossing for a railroad track having ties and rails with head and flange portions, including adjacent transverse sections between the rails, each section having a side adjacent each rail and having a pair of opposite ends extending transversely of the rails, each section including two plates, each plate having a single edge abutting a corresponding edge on the other plate, end members at opposite ends of the assembled sections, each member having an end abutting one end of a corresponding section and having a side adjacent each rail, the plates having spaced interfitting lugs along the abutting edges, the lugs extending from the undersurface of the adjacent plates, the lugs on one plate being staggered with respect to and interfitting the lugs on the other plate, each section having spaced interfitting lugs along the opposite ends and staggered with respect to and interfitting the lugs on adjacent sections, each end member having lugs on the section-abutting end and staggered with respect to and interfitting the spaced lugs on the abutting end of the adjacent section, the plates having bosses along the sides adjacent the rails and extending between the head and flange on corresponding rails, each end member having a boss on each side and extending between the head and flange on the corresponding rails, and the boss at one side of each end member being nearer the abutting ends of the end member and corresponding section than the boss extending from the other side of the end member.

3. A track crossing for a railroad track having ties and rails with head and flange portions, including adjacent transverse sections between the rails, each section having a side adjacent each rail and having a pair of opposite ends extending transversely of the rails, each section including two plates, one plate being smaller in transverse dimension than the other plate, each plate having a single edge abutting a corresponding edge on the other plate, end members at opposite ends of the assembled sections,

each member having an end abutting one end of an adjacent section and having a side adjacent each rail, the plates having spaced interfitting lugs on the abutting edges and along the ends abutting the end members, each end member having spaced lugs on the plate-abutting end, the lugs on one plate being staggered with respect to and interfitting the lugs on the other plate, on the plates of adjacent sections, and on the end members, the plates having bosses along the sides adjacent the rails extending between the head and flange of the corresponding rails, each end member having a boss on each side adjacent a rail extending separately between the head and flange of the corresponding rail, and the boss on one side of each member being nearer the abutting ends of the end member and corresponding section than the boss on the other side of each end member.

4. A track crossing for a railroad track having ties and rails with head and flange portions, including adjacent sections between the rails, each section having a side adjacent each rail and having a pair of opposite ends extending transversely of the rails, each section including two plates, each plate having a single edge abutting a corresponding edge on the other plate, the abutting edges of plates of adjacent sections being unaligned with each other, end members at opposite ends of the assembled sections, each member having an end abutting one end of an adjacent section and having a side adjacent each rail, the plates having spaced interfitting lugs along the abutting edges, the lugs on one plate being staggered with respect to and interfitting the lugs on the other plate, the lugs being below the under surface of adjacent plates, each section having spaced lugs on opposite ends, each end member having spaced lugs on the plate-abutting end, the lugs on opposite ends of one section being staggered with respect to and interfitting the lugs on corresponding ends of adjacent sections and of adjacent end members, the plates having bosses along the sides adjacent the rails fitting between the head and flange of the corresponding rails, each end member having a boss extending from one side at a point near the abutting end of the adjacent section and fitting between the head and flange of one rail, and each end member having a second boss extending from the other side at a point remote from the abutting end of the adjacent section and fitting between the head and flange of the other rail.

No references cited.