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REINFORCED CROSSING OF LINES

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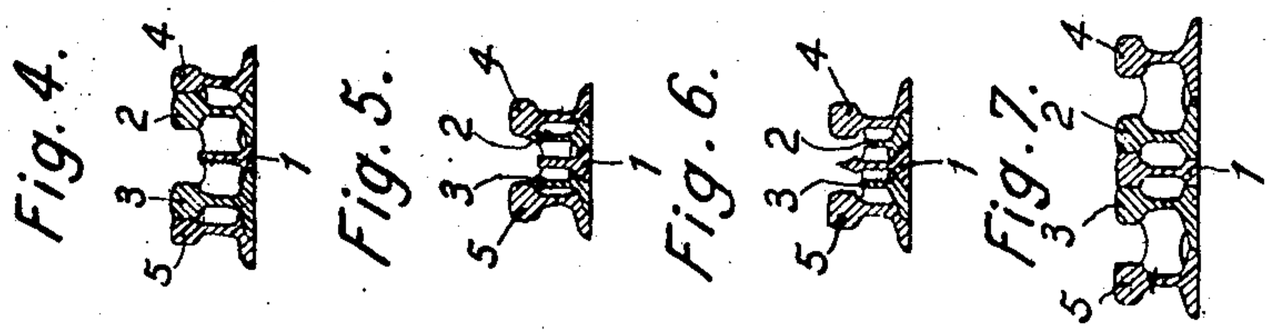

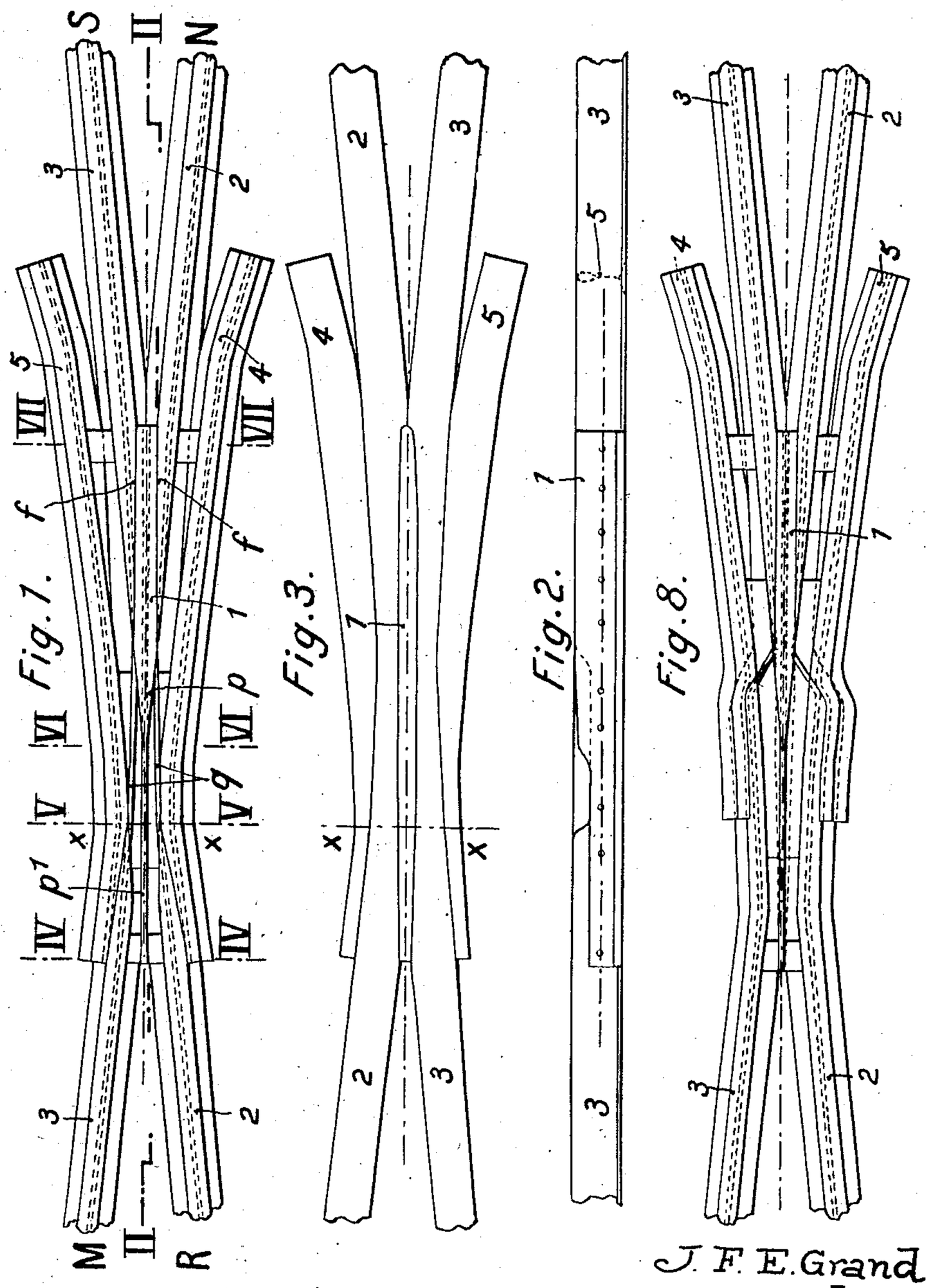

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REINFORCED CROSSING OF LINES

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It is known that in built up crossings with base plate ordinarily used on railroads, there is insufficient connection between the portion of the frog forming the point and the opposite part constituted by the extension of the rails or wing rails. It results therefrom that the vibrations, repeated shocks, hammering when the vehicle wheels pass over the crossing, cause a dislocation of the various elements, the wear of the running surfaces or treads of the rails, and, consequently, the rapid putting out of service of these crossings. Moreover, the distortions and displacements of the elements of the crossing might cause the trains to run off the rails.

It will be reminded that ordinary built up crossings with base plate are composed of four rails assembled together: a point rail and a counter-point rail terminating before the transverse axis of the crossing, and two wing rails each extending on either side of this transverse axis for forming running surfaces or treads on the side opposite to the point and counter-point rails, and for simply forming guide guard rails on the side of these point and counter-point rails.

The present invention is substantially characterized by the fact that the point of the crossing is formed by a rail section, constituting a fifth rail of the assembly, enclosed by two counter-point rails extending throughout the length of the crossing and each connected by its two ends to the track. This fifth rail forms the point and the running surface or tread on one side of the transverse axis of the crossing, and on the other side, it terminates in its web and a portion of its base or flange, so that this fifth rail and the two counter-point rails can be rendered rigid together and can form an absolutely rigid and undistortable unit.

The crossing is completed by two wing rails which are located one to the right and the other to the left of the longitudinal axis of the assembly for enclosing the three preceding rails.

The various rails above mentioned are bent and planed so as to tightly press against each other and to exactly fit against one another.

The invention is illustrated, by way of example only, in the accompanying drawing, in which:

Fig. 1 is a top plan view.

Fig. 2 is a longitudinal vertical section made along line II—II of Fig. 1.

Fig. 3 is an underside plan view.

Figs. 4 to 7 are cross sections made respectively along lines IV—IV, V—V, VI—VI and VII—VII of Fig. 1.

Fig. 8 shows a modification.

As illustrated in the drawing, the new crossing comprises a rail **1** arranged in the longitudinal axis of the crossing, forming a point at p and terminating at p^1 in its web and its base or flange, the head of the rail being dispensed with in that portion.

This rail **1** is enclosed by two counter-point rails **2** and **3**, arranged one to the right, and the other to the left of the longitudinal axis of the unit, and extending throughout the length of the latter, each being connected by both its ends to the track. The heads of these rails are removed in the central portion of the crossing, as will be seen from Fig. 1. The heads of said rails are cut according to oblique planes for forming faces f which fit against the rail **1**.

The web and base or flange of these rails subsist at q, then the heads are again obliquely cut for forming the opposite parts of the tracks.

Finally the two wing rails **4** and **5** enclose the three central rails **1**, **2** and **3**. They extend on either side of the transverse axis x—x, but they do not compulsorily occupy the entire length of the crossing.

Bent portions and planed portions are provided on each of the rails, in order that they should tightly fit against each other as illustrated in Figs. 1, 2 and 3 of the drawing, and for forming the gaps necesary for the passage of the flanges of the vehicle wheels.

These five rails are assembled together in any suitable manner, by rivets, bolts, stay members, bushings, etc.

On Fig. 1, it will be seen that the two lines of running or tread elements are constituted by:

Line MN—Portion of the counter-point **3** to the left of the transverse axis,
Point **1**, and portion of the counter-point **2** placed to the right of the transverse axis.

Line RS—Portion of the counter-point **2** to the left of the transverse axis,
Point **1**, and portion of the counter-point **3** to the right of the transverse axis.

In the wing rail **5**, a certain length of the rail head, to the right and to the left of the transverse axis x—x, completes, in the central portion, the running surface or tread corresponding to the line MN.

Likewise, in the wing rail **4**, a certain length of the rail head, to the right and to the left of the transverse axis, completes, in the central portion,

the running surface or tread corresponding to the line RS.

These arrangements render absolutely impossible any creeping movement of one of the rails relatively to the others. The whole forms an absolutely rigid and undistortable system which considerably reduces the effects of the flexure stresses and of the shocks which usually tend to dislocate the apparatus. This results in a reduction of the wear of the running surfaces or treads and of the fish-plates, in a greater security against the risk of rupture of the elements, and in a longer life of the crossing.

The point 1 and the wing rails 4 and 5 which are the elements the most liable to wear can be made of a metal harder than that of ordinary rails. As these three rails have relatively small lengths, the increase of price due to the use of a metal of better quality is not very considerable, whilst the life of the crossing is rendered much longer.

The central rail 1 of the apparatus which is the main characteristic element of the present patent can be replaced by any member the shape and construction of which are different from those illustrated, for instance, by a forged or moulded member fulfilling the same function or improving its qualities.

Fig. 8 illustrates a modification in which the counter-point rails are bent in the vicinity of the end of the point or nose of the crossing in order to immediately come in contact with the wing rails. The main object of this arrangement is to prevent these latter rails from supporting any load.

The arrangements described above are of course given by way of example only, all the details of construction, shapes, materials and dimensions of this apparatus can be modified without departing thereby from the scope of the present invention.

I claim:

1. In a crossing, a rail section arranged in the axis of the crossing, planed portions in the head of the said rail section for forming the point of the crossing, a first counterpoint rail parallel to the outer rails of the crossing extending without interruption throughout the length of the crossing and bent according to the angle thereof, a planed portion in the head of said rail parallel to the axis of the crossing and bearing throughout its length against the unplaned portion of the head of the axial rail section, a second counterpoint rail symmetrical to the first counterpoint rail relatively to the axis of the crossing, a first wing rail bent according to the angle of the crossing and arranged externally along the first counterpoint rail, a second wing rail symmetrical to the first rail relatively to the axis of the crossing, an opening in each of the counterpoint rails dispensing with the head on the portion of the said rail extending between the portion bearing against the axial rail section and the portion bearing against the corresponding wing rail, and means for rendering rigid the said four rails and the axial rail section.

2. In a crossing, a rail section arranged in the axis of the crossing, two planed portions in the head of the said rail section which are parallel to the outer rails of the crossing for forming the point, the said rail section extending beyond the point but only by its web and its flange, a first counterpoint rail parallel to the outer rails of the crossing extending without interruption throughout the length of the crossing and bent according to the angle thereof, a planed portion in the head of said rail parallel to the axis of the crossing and bearing throughout its length against the unplane portion of the head of the axial rail section, a second counterpoint rail symmetrical to the first counterpoint rail relatively to the axis of the crossing, a first wing rail bent according to the angle of the crossing and arranged externally along the first counterpoint rail, a second wing rail symmetrical to the first rail relatively to the axis of the crossing, an opening in each of the counterpoint rails dispensing with the head on the portion of the said rail extending between the portion bearing against the axial rail section and the portion bearing against the corresponding wing rail, and means for rendering rigid the said four rails and the axial rail section.

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