

[54] CAST STEEL RAILWAY CROSSING

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[51] Int. Cl..... **E01b 7/10**

[58] Field of Search ... 246/435, 436, 438, 442, 379, 246/273, 264, 375, 376, 454, 468, 377

[56] References Cited

UNITED STATES PATENTS

175,699 4/1876 Harreff 246/436

3,099,427 7/1963 Brown 246/435 R
3,403,251 9/1968 Pale et al. 246/415 R
3,518,423 6/1970 Birnbacher 246/468

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[57]

ABSTRACT

This cast steel crossing with movable point is characterized in that the heel portion of the point is clamped on a triangular boss projecting from the crossing proper on which it can swing from one position to the other position, and that a horizontal key having a part-spherical central portion is provided for holding said heel portion of the point on said crossing boss, in order to eliminate the so-called "gap" section in the central portion of the crossing and therefore avoid the abnormal stress heretofore exerted on the wheel tires on account of the insufficient rolling surface of conventional crossings.

6 Claims, 8 Drawing Figures

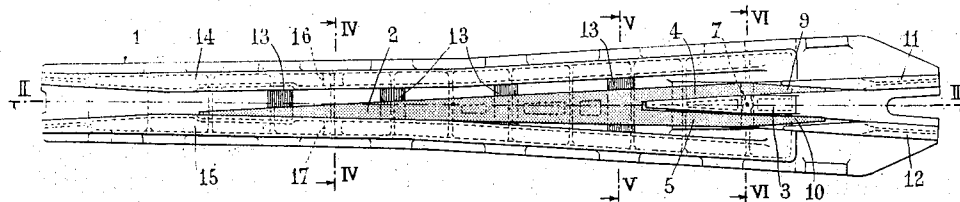


Fig. 1.

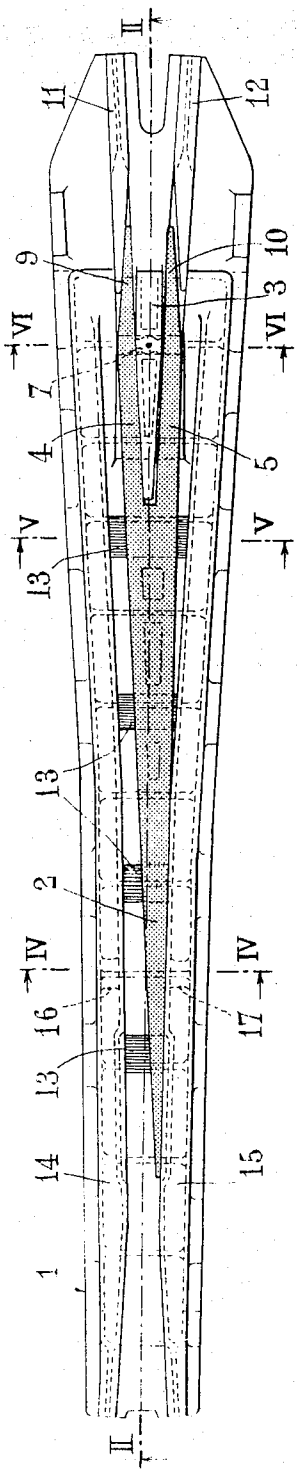


Fig. 2.

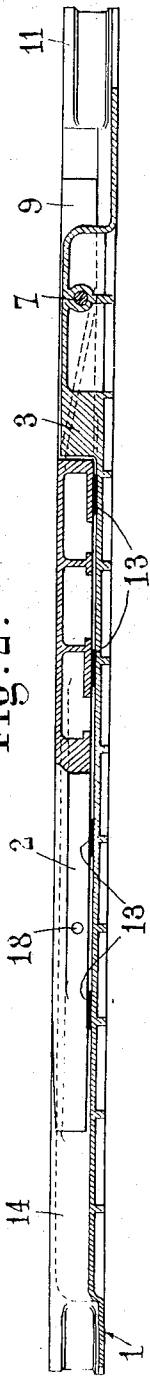


Fig. 3.

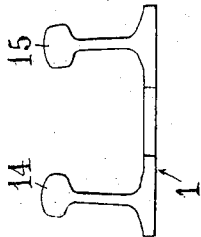


Fig. 4.

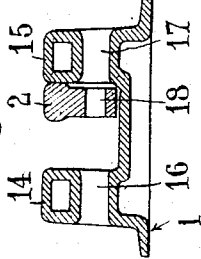


Fig. 5.

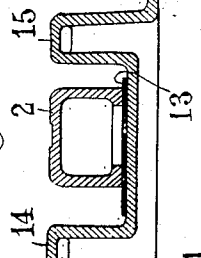


Fig. 6.

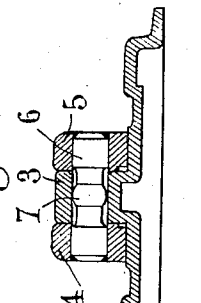
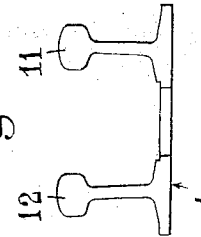
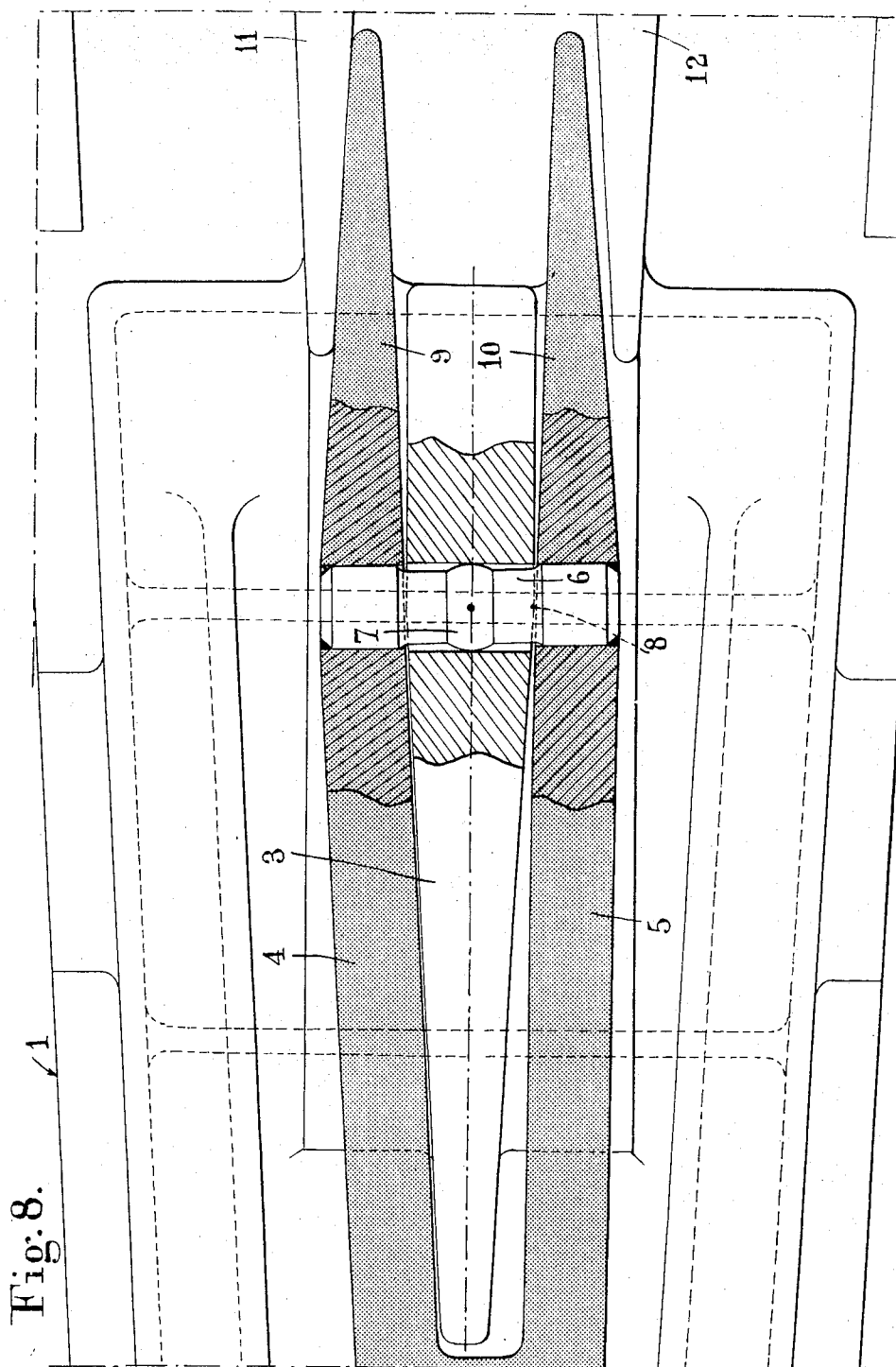


Fig. 7.





CAST STEEL RAILWAY CROSSING

FIELD OF THE INVENTION

The present invention relates in general to railway crossings and has specific reference to cast steel crossings of this character.

BACKGROUND OF THE INVENTION

A trend towards higher railway speeds leads to the elimination from the central portion of these crossings of the so-called "gap" section in which shocks occur and wherein the wheel tyres are exposed to abnormal stress due to the momentary insufficiency of the rolling surface in the track. In conventional crossings this central section is subjected to severe wear and tear, causing damages both expensive and extremely delicate to repair. In contrast thereto, the crossing incorporating a movable point provides a continuous rolling surface, eliminates detrimental shocks and has a considerably longer useful life while reducing maintenance costs.

Hitherto known solutions to this specific problem consisted in either pivoting the point to a vertical pin or using a flexible point; however, service tests proved that this method is unsatisfactory due to the fragility of the assembly.

SUMMARY OF THE INVENTION

To avoid these inconveniences, the present invention provides an improved railway cast steel crossing of the movable point type, characterized in that the heel portion of the point is fork-shaped and fits on either side of a triangular boss or projection of the crossing so that it can swing from one to the other position, and that a horizontal key having a part-spherical central portion is adapted to hold said heel portion of the point on said boss.

The heel portion of the point comprises to this end a vertical V-shaped end notch forming two lateral wings disposed with a slight clearance on either side of said triangular boss of the crossing, the latter, also of elongate configuration, comprising a slightly swollen portion in the key area about which the point can swivel between its two positions.

BRIEF DESCRIPTION OF THE DRAWING

Other features characterizing the cast steel railway crossing of this invention will appear as the following description proceeds with reference to the accompanying drawing, in which a typical form of embodiment of this crossing is illustrated diagrammatically by way of example, not of limitation. In the drawing:

FIG. 1 is a plan view from above of the crossing according to this invention;

FIG. 2 is a longitudinal section taken substantially along the line II—II of FIG. 1;

FIG. 3 is an end view of one of the sides of this crossing;

FIGS. 4 to 6 are cross sections taken on a larger scale along the lines IV—IV, V—V and VI—VI respectively of FIG. 1;

FIG. 7 is an end view of the other end of the crossing;

FIG. 8 is a part-sectional and fragmentary plan view showing on a larger scale a detail of the crossing.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The cast steel railway crossing 1 illustrated in the drawing and designed according to the present invention is characterized in that its movable point 2 is adapted to swing from one position to its other position on a triangular boss 3 without using any vertical pivot pin, shaft or the like.

To this end, the heel portion of the point has formed therein a V-shaped elongated vertical notch forming two wings 4, 5 fitting with a slight clearance on either side of said triangular boss 3 also of elongated configuration; a horizontal key 6 having a part-spherical central portion 7 holds the two wings 4, 5 on the boss 3.

This boss 3 comprises in the key area a slightly swollen portion 8 about which the point is adapted to swing from one position to the other position.

The rear ends of the point wings 4, 5 are bevelled in order to engage in each position of said point with the likewise bevelled ends respectively of the pair of upstream rails 11 and 12, in order to avoid any break of continuity along one or the other rolling lines of the crossing.

The movable point 2 is carried by wear and friction plates 13, preferably in the form of inserts secured by welding to the crossing base plate and consisting advantageously of manganese steel.

The two downstream rails of the crossing are each provided with a cavity 16, 17 aligned with a corresponding cavity 18 formed in the point, in the vicinity of its front end, to permit the passage of a bar for guiding the movements of said point and adapted to be controlled or driven from a power unit through a worm-and-gear mechanism or any other sufficiently reliable mechanism.

The movable-point cast steel crossing according to this invention is also advantageous in that it comprises two separate portions, i.e. the crossing proper and the point, so that each portion can be made from the material best suited to its specific function. Thus, the crossing may be made from a steel having the same density as the rails associated therewith, thus permitting an easy assembling by welding and eliminating fish-plates; and the point may be cast from high-grade steel in order to improve its strength under different stresses; moreover, the replacement of the point is extremely easy due to its fitting in the crossing with the assistance of a cross key.

Of course, many modifications may be brought to the specific form of embodiment described hereinabove with reference to the attached drawing, without departing from the basic principle of the invention as set forth in the appended claims.

What is claimed is:

1. Cast steel railway crossing with movable point, characterized in that the heel portion of the point is clamped on a triangular boss of the crossing on which it can swing from one position to the other position, and that a horizontal key, of which the central portion is of part-spherical configuration, is provided for holding said heel portion of the point on said crossing boss.

2. Cast steel railway crossing with movable point according to claim 1, characterized in that the heel portion of the point has an elongated V-shaped vertical notch formed therein to provide two side wings fitting with a slight clearance on said triangular boss of the

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crossing, said crossing proper being likewise of elongated configuration and provided with a slightly swollen portion in the key area about which the point can swing from one position to the other position.

3. Cast steel railway crossing with movable point according to claim 2, characterized in that said triangular boss of said crossing comprises in the key area a slightly swollen portion about which the point can swing from one position to the other position.

4. Cast steel railway crossing with movable point according to claim 2, characterized in that the rear ends of the two wings of said point are bevelled for coacting with the likewise bevelled ends of the pair of upstream rails in each point positioned respectively, in order to avoid any break of continuity along one or the other running lines of the crossing.

5. Cast steel railway crossing the movable point according to claim 2, characterized in that the movable point is carried by wearing and friction plates preferably of the insert type secured by welding to the crossing base plate and consisting advantageously of manganese steel.

6. Cast steel railway crossing with movable point according to claim 2, characterized in that the two downstream rails of the crossing are each formed with a cavity aligned with another cavity formed in said point in the vicinity of its front end, to permit the passage of a bar for guiding the movements of said point, said bar being driven from a power unit of the worm-and-gear type or of any other suitable type having a sufficient reliability.

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