

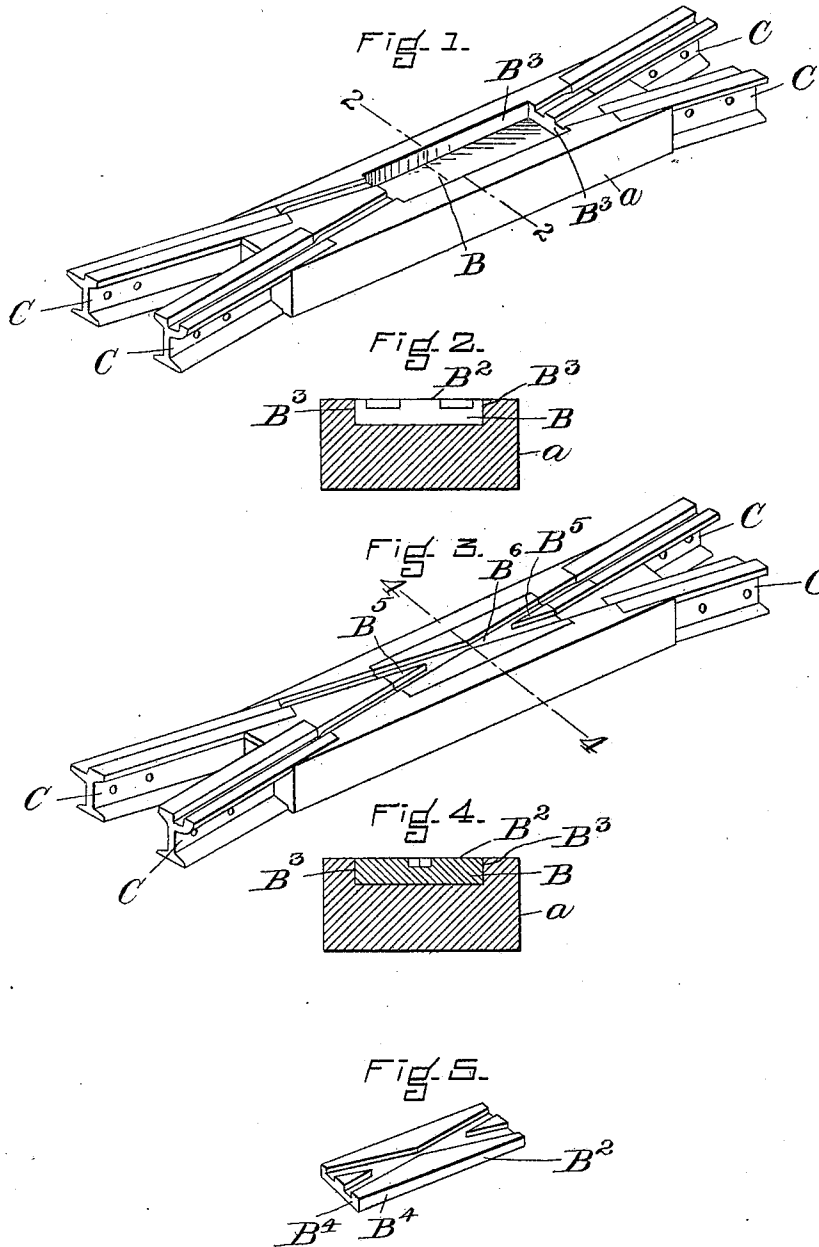
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Patented Apr. 25, 1899.

F. F. STOCKWELL, JR.
RAILWAY TRACK STRUCTURE.

(Application filed Jan. 12, 1899.)

(No Model.)



WITNESSES.

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RAILWAY-TRACK STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 623,578, dated April 25, 1899.

Application filed January 12, 1899. Serial No. 701,938. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC F. STOCKWELL, Jr., a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Railway-Track Structures; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

At the meeting-point of the rails in a frog or switch a point is formed which is narrower than the adjacent rails and which therefore is subject to greater wear. The same is true of the floor or riser in a frog or crossing and is due to the narrow bearing presented by the flange of the wheel in passing over the riser.

My invention relates to that class of railway-track structures known as "frogs," "switches," or "crossings" and to similar structures in which the rails comprising the tracks meet, converge, or cross and in which that portion of the structure which forms the upper surface at the point of meeting, convergence, or crossing is made up of a plate of great wear-resisting qualities formed with points and risers in prolongation of the rail portions. Heretofore, so far as known to me, it has been found impracticable to provide a structure of this kind in which the points formed on the plate are in accurate alignment with the rails of which they are designed to be prolongations; nor has it heretofore been found practicable to provide a structure of this kind in which the plate is not loosened by the repeated and severe shocks to which it is subjected; nor, again, has it heretofore been found practicable in the manufacture of such a structure to preserve the hardness and wear-resisting qualities of the plate, which are all essential to its efficiency.

One object of my invention is to provide for railway switches, frogs, and crossings a track structure of this kind in which the points formed on the plate shall be in accurate alignment with the rails of which they are prolongations.

Another object of my invention is to provide a track structure of this kind in which the plate shall be so securely held as not to

be loosened by the repeated and severe shocks to which it is subjected.

A further object of my invention is to provide a method of making such a track structure by which are preserved the hardness and the wear-resisting qualities of the plate, so essential to its efficiency, and by which is obtained a track structure which wears uniformly in all its parts.

Another object is to avoid subjecting the plate to excessive initial strains, which are inimical to its durability. In my process the strains to which the plate is subjected are accurately predetermined.

My invention consists in the track structure herein described and claimed and in the herein-described method of making the same.

In the drawings accompanying this specification, Figure 1 represents a perspective view of a frog having a pocket or recess cast in the meeting-point of the tracks. Fig. 2 is a cross-section through line 2 2 in Fig. 1. Fig. 3 is a perspective of a frog, showing a plate having the points and crossing grooves worked in its top and secured in the recess in the frog. Fig. 4 is a cross-section through line 4 4 of Fig. 3. Fig. 5 is a perspective of the plate detached from the frog.

Similar letters refer to similar parts in the several views of the drawings.

A represents a body part of cast metal, provided with the recess B, cast in the top.

C C C C are short lengths of the usual rails cast into the body portion.

My usual practice is to make openings in the web of the inner end of the short lengths of rails C C C C, so that when the same are set in the mold and the body portion cast about them the metal will flow through said openings and firmly bind the body portion and the rails together, as shown in the patent to H. R. Luther, No. 483,964, of October 4, 1892.

B² represents a plate having the points B⁵ and floor or riser B⁶ formed in it, which plate is made of steel or other equally wear-resisting material and preferably hardened.

The principal part of my invention consists in the way in which the plate B² is prepared and held in the body portion A of the track structure. In practice I plane the walls B³ of the recess B to an accurate bearing-surface,

also the edges B^4 of the plate B^2 , leaving the length of the said plate B^3 somewhat greater than that of the recess B . The body portion A is then slightly heated, so that it will expand sufficiently to enable me to insert the plate B^2 in the recess B , after which the body portion is allowed to cool and firmly hold the said plate B^2 in position.

By the above method I am enabled to insert and hold by shrinkage of the body portion A hardened plates having points B^5 B^5 and risers B^6 without having them softened by contact with molten metal. Another advantage is that the plates are held more firmly than it is possible to do by inserting the plates B^2 in the mold and casting the metal around them, because it is a well-known fact that steel will shrink one-fourth of an inch to the foot, while cast-iron shrinks only one-eighth of an inch to the foot. Consequently it is necessary to provide some means for keeping the plates cool while the body portion is being cast about them, a task that is found to be impracticable.

Having described my invention, what I claim is—

1. As a new article of manufacture, a railway-track structure as switches, frogs, crossings, and the like; consisting of a cast body portion having rail-sections secured therein, and provided with a recess in its top adapted to receive a plate, a hardened plate of great wear-resisting qualities of dimensions greater than the dimensions of said recess when the plate and said cast body portion are at nor-

mal temperatures, said hardened plate having formed in its top points, treads and risers, the said plate being placed in said recess when said cast body portion is expanded by low heat, and firmly held therein by compression due to the contraction of the body portion after cooling to normal temperature.

2. The herein-described method of making railway crossings, frogs, switches and similar structures by first casting a body portion about the rails and upon a core which forms a recess in the top of said body portion; second, preparing for insertion in said recess a plate of great wear-resisting qualities and forming upon the surface of said plate points, risers and treads in alinement with the rail portions, said plate being slightly larger than the said recess at ordinary temperatures; third, expanding said body portion until said recess is large enough to receive said plate; fourth, fitting said plate in said recess when said body portion is expanded by heat; and fifth, cooling said body portion, thereby contracting said body portion on said plate and holding said plate in position in said recess by shrinkage of said body portion upon it.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this the 10th day of January, 1899.

FREDERIC F. STOCKWELL, JR.

Witnesses:

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