(No Model.)

J. WAYLAND.

RAIL JOINT.

No. 590,028. Patented Sept. 14, 1897.

Fig. 1.

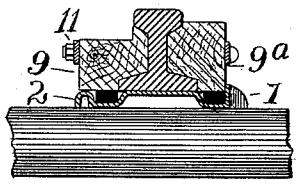


Fig. 2.

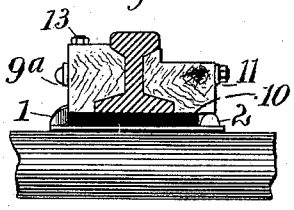


Fig. 3.

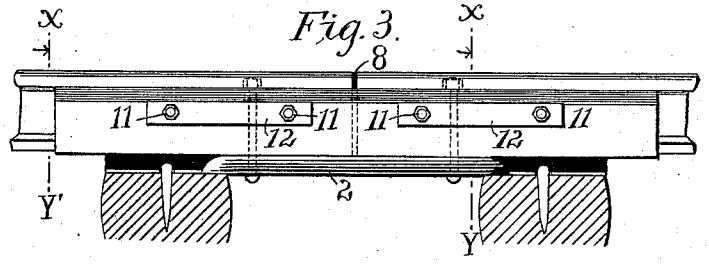


Fig. 4.

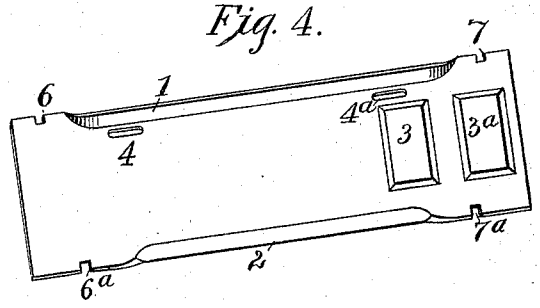
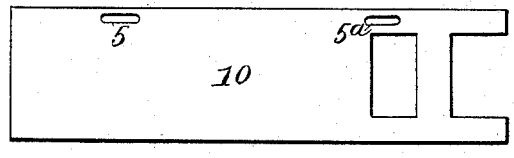


Fig. 5.



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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 590,028, dated September 14, 1897.

Application filed May 29, 1897. Serial No. 638,689. (No model.)

To all whom it may concern:

Be it known that I, JAMES WAYLAND, a citizen of the United States, residing at Newark, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

The object of my invention is to provide a mechanical connection between two adjacent abutting rails of a railway-track without admitting of electrical connection between the same.

Devices having this general object in view are sometimes provided with a bed-plate resting on adjacent cross-ties and serving as a support for the abutting rail ends, a strip of insulating material being interposed between at least one of the rail ends and the bed-plate. It has been found difficult to prevent buckling or distortion of the bed-plate under the hammer-like blows it receives in service during the transit of rapidly-moving trains, which distortion permits the insulation to be destroyed by the grinding action of the rail ends against the distorted bed-plate. My invention has in view particularly to provide against such a result, which, for example, in a signaling system might prove disastrous by creating false signals and jeopardizing the safety of the passengers and trains.

In carrying out the invention I form the plate with strengthening webs or ribs in such a manner as to permit an enormous strength to be attained with thicknesses of metal, preferably steel, which may be easily worked by dies and may therefore be produced at an expense far below what would be possible in ordinary plates of the same strength.

The several features of novelty will be hereinafter more fully described, and will be definitely indicated and ascertained in the claims appended to this specification.

In the accompanying drawings, Figure 1 is a cross-section of a rail-joint embodying my invention, the plane of section being indicated by the line X Y of Fig. 3, looking in the direction of the arrow on said line. Fig. 2 is a similar cross-section on line X′ Y′, looking in the direction of the arrow on said line. Fig. 3 is a side elevation of a rail-joint embodying the invention. Fig. 4 is a perspective view of the improved bed-plate; and Fig. 5 is a plan of the insulating shim or plate used between the rail ends and the bed-plate.

Referring first to Fig. 4, I provide the bed-plate, which may be cast but is preferrably punched from stout plate iron or steel, with a vertical wall at one side formed by an upturned edge and a ridge at the opposite side composed of a double web, forming an arch of metal integral with the main body of the bed-plate. Both side walls are long enough to bridge adjoining cross-ties, thereby giving the greatest rigidity against downward flexure and preventing any relative motion between the insulated rail ends and the bed-plate. At one end of the plate—that which supports the uninsulated rail end—I provide a plurality of arched webs 3 3^a, integral with the body of the plate and having all around their perimeters a flat web on a level with the main floor of the plate.

The construction will be readily understood upon inspection of Figs. 1 and 4. It will be seen that between the arched webs and around the same the level of the plate has not been disturbed, so that when resting on the cross-tie there is no tendency for the edges of the raised parts to cut the fiber of the tie, and at the same time an extraordinarily strong structure is made.

Slots 4 4^a are provided at one side of the plate to permit bolts to pass through the same for the purpose of locking down the rail ends and the coupling-blocks and preventing outward spread of the rails. On the bed-plate when the joint is made is placed a shim or sheet of insulating material. (Shown in plan in Fig. 5.) It is provided with openings to surround the raised webs 3 3^a and permit it to lie flat on the floor of the bed-plate. It is provided also with bolt-holes 5 5^a, adapted to register with holes 4 4^a when laid on the bed-plate.

The bed-plate in forming a rail-joint is laid with the vertical wall 1 on the outside of the line of rails, and spikes are driven into the cross-ties, so that the heads overhang the walls of the notches 6 6^a and 7 7^a. The rail ends meeting between the cross-ties are preferably separated by an insulating-strip 8 of indurated fiber or other tough material. The rail ends are prevented from spreading sidewise by coupling-blocks 9 9^a, of oak, set firmly be-

tween the head and base of the rails and extending down flush with the insulating-shim 10. Horizontal bolts threading holes in the rails lock the coupling-blocks 9 9^a firmly to the rail ends, and iron washers or strips 12 prevent the bolts working into the wood of the blocks. Vertical bolts 13 bind the rail ends and coupling-blocks hard against the bed-plate and the insulating-shim, said bolts passing through the slots 4 4^a, which permit the rails to shift under expansion and contraction, due to changes of atmospheric temperature, without shifting the road-bed or bed-plate.

It will thus be seen that all parts of the joint are firmly locked together and there is a minimum possibility for any of the parts to shift their positions, and even if the insulating-shim should crack or break under the strains to which the joint may be subjected it cannot be displaced so as to permit contact of the insulated rail end with the bed-plate or any other part which might establish electric communication between the two rail ends. The repair of a joint having a damaged shim is an operation of great simplicity in my organization, the vertical bolts being loosened and the rails raised to permit withdrawal of the old shim and the insertion of a new one.

It will be seen that the block 9 may be easily slid away from the joint without the slightest disturbance of the block 9^a, its bottom surface being on the plane of the top of the arched rib 2 and resting on the rib and the shim whose top surface is also in the plane of the top of rib 2.

It will be noted that the shim completely surrounds one of the arched webs on the end of the bed-plate. This construction prevents it from shifting lengthwise of the track.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bed-plate for a rail-joint provided with upturned integral webs at the sides, one of said webs having a double wall upset from the body of the plate and surrounded by the floor of the plate at one side and both ends, for the purpose described.

2. A bed-plate for a rail-joint provided with a strengthening side rib integral with the body of the plate formed of an arched web having double walls upset from the body of the plate and surrounded by the floor of the plate at one side and both ends.

3. A bed-plate for a rail-joint provided at one end with an arched web to form a support for the uninsulated rail end, said web being integral with the floor of the plate and surrounded by the same on all sides of its periphery.

4. A bed-plate for a rail-joint provided at one end with a plurality of arched webs to form a support for the uninsulated rail end, said webs being integral with the floor of the plate and surrounded by the same on all sides of their peripheries.

5. A bed-plate for a rail-joint provided at one end with a plurality of arched webs to form a support for the uninsulated rail end, said webs having between them a body of metal lying in the same plane as the floor of the plate.

6. A bed-plate for a rail-joint provided with upturned integral webs at its sides to lock the rail ends against lateral motion, and having at one end an arched web to support the uninsulated rail end, said web being integral with the floor of the plate and surrounded by the same on all sides of its periphery.

7. A rail-joint comprising coupling-blocks connecting the rail ends and a bed-plate bolted thereto spanning two cross-ties and having integral upturned side webs, one of which has double walls.

8. A rail-joint comprising coupling-blocks connecting the rail ends, and a bed-plate bolted thereto spanning two cross-ties, and having integral upturned side webs and an arched web at one end rising above the floor of the plate to form a seat for one rail end, and a shim of insulating material completely surrounding said arched web and supporting the insulated rail end.

9. A rail-joint comprising a bed-plate having a side strengthening-rib, a shim whose top surface is flush with the top of the rib, and a removable coupling-block bearing on the shim and rib.

In testimony whereof I have hereunto subscribed my name this 27th day of May, A. D. 1897.

JAMES WAYLAND.

Witnesses:
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