G. P. EUSTIS.

RAIL JOINT.

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1,020,972.

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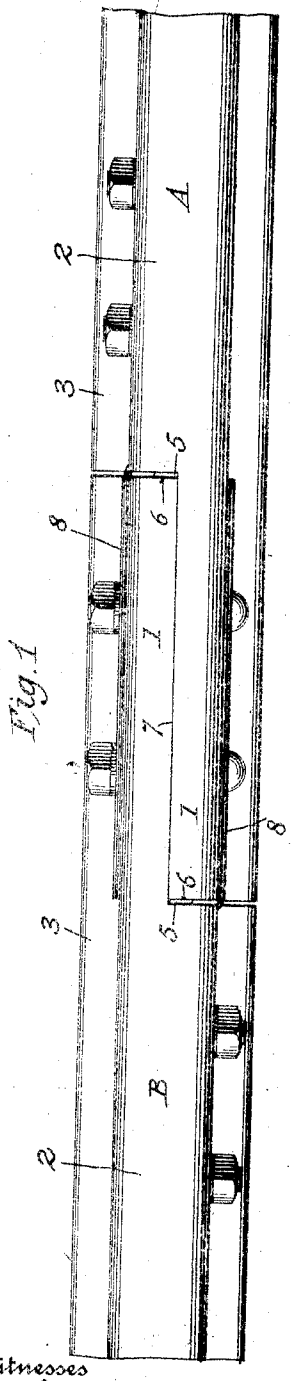

Fig. 1

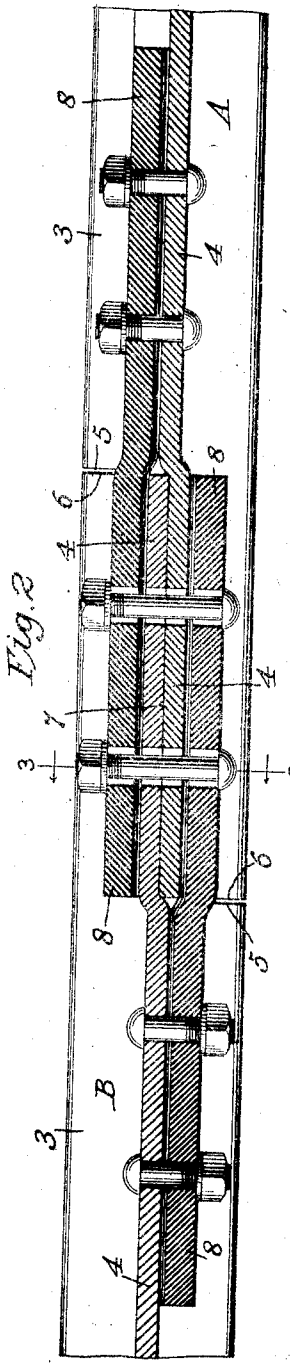

Fig. 2

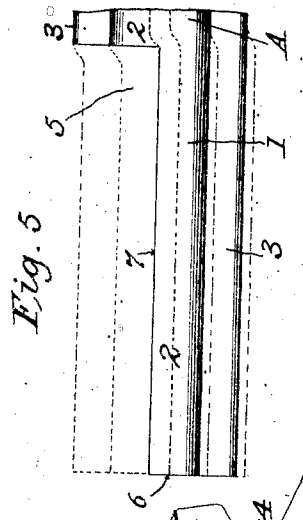

Fig. 5

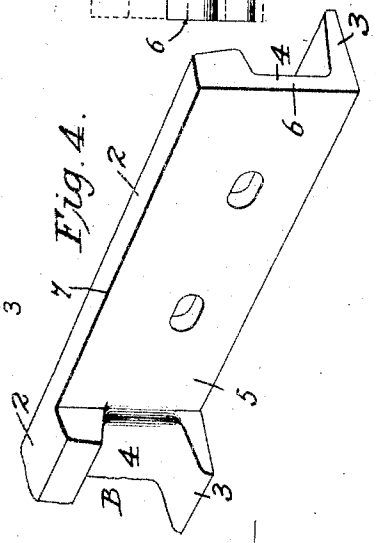

Fig. 4.

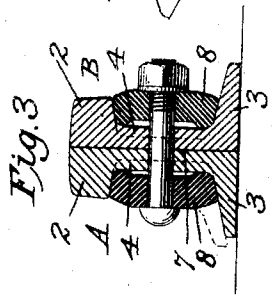

Fig. 3

Witnesses

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RAIL-JOINT.

1,020,972. Specification of Letters Patent. Patented Mar. 26, 1912.

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To all whom it may concern:

Be it known that I, GEORGE P. EUSTIS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Rail-Joints, of which the following is a specification.

My invention relates to a railroad rail joint, the objects being to obtain greater strength at the union of rails, the avoidance of thumping or jar heretofore incident to the breaks in the continuity of the rails at unions; to admit of the expansion and contraction of the rails under changes in temperature, and to cheapen and give greater durability and safety to the permanent way of railroads.

To these main ends my invention, generally speaking, relates to the formation of the meeting ends of rails and overlapping the same, and to the construction of the tie plates and the relative arrangement between them and the rail ends. It may be briefly stated, as generally introductory to a fuller description of my invention, that the end of each of the two adjacent rails is bent or offset laterally to a prescribed length and that the head is cut away on one side in line with the uncut web, while an equal length of the base flange is also removed leaving a space the inner edge of which is in line with the web, so that when the adjacent ends of two rails are brought together a double web will be present at the joint and the properly shouldered end of each of said rails will closely fit a correspondingly shouldered portion of the other rail, thereby forming a smooth-surfaced head for the treads of passing wheels.

In the accompanying drawing, which shows one embodiment of the invention, Figure 1 is a plan view of the improved rail joint. Fig. 2 is a horizontal sectional view of the rail joint in line with the fastening bolts. Fig. 3 is a cross sectional view on the line 3—3 of Fig. 2. Fig. 4 is a perspective view of one end of a rail ready for use, and Fig. 5 is a plan view of the improved rail end showing in dotted lines the shape of the rail after the bending of the same and before bisecting of the head and base flange.

A indicates one rail and B the other or adjoining rail. An end of each rail is offset for suitable length or bent to one side, such bending of the ends of the respective rails being right and left. After offsetting or bending the end of each rail, portions of the head 2 and base flange 3 are removed from each rail end in the plane of the side of its web 4, the latter being left intact. The removal of a portion of the head 2 and a part of the base flange 3 from the side of each rail end leaves a recess 5, the side of which forms, by preference, a right angle with the end of the cut portions of the head and base, respectively.

The features thus far described will be understood by reference more especially to Figs. 4 and 5, while other elements of the invention will be explained in the following description of the assemblage of the several parts.

Referring to the plan view, Fig. 1, it will be seen that the ends 1—1 of the rails A and B, respectively, are overlapped, the two bisected parts of the head meeting on the line 7 and ending at 6. The terminals 6 are at a right angle to the adjacent side of the recess 5 as seen in Fig. 4, and the separation between the ends admits of movement of the rails under expansion and contraction, which is further provided for as hereinafter described.

Referring now to the horizontal section, Fig. 2, the overlapping of the offset webs 4 at the joint is clearly shown, and to complete the joint fish plates 8 are themselves offset or bent in a manner similar to that already described with reference to the rail ends. Bolts, as indicated, are used for the attachment of the fish plates to each other and the webs of the rail. At the right and left of Fig. 2 it will be seen that the bolts pass through round holes, the single webs 4 and the single fish plates 8, there being, therefore, no movement at the points occupied by the outer ends of these plates; but at the central portion of the joint the bolts which pass through the two web members 4 and the two fish plates 8 occupy elongated holes shown also in Fig. 4, by which arrangement the expansion and contraction is effectively provided for.

My invention furnishes a smooth surface for the wheels which in their passage over the rails do not meet with the usual breaks in the rails, shock and jar being entirely eliminated. Inasmuch as the webs of the two rails are not divided or weakened, but left intact, there is practically a double web at the joint, whereby the greatest weakness heretofore found in the track is corrected.

Nor is this increased strength in any way impaired but indeed enhanced by the bisecting of the head, for on bringing the two ends of the rail together the full area in cross section of the head is restored with the elimination of the break which is a fatally weakening factor. The length of the offset or bend in the rail end and fish plate, respectively, and the number and character of bolt connections may be changed in accordance with the amount of weight and traffic to be cared for.

Having thus described my invention, I claim:—

1. A rail joint comprising the bisected ends of two rails the webs of such ends being offset and overlapped and provided with elongated holes, combined with offset fish plates the outer member of each of which is rigidly attached to the main portion of the web of one rail, and the inner member of each of which has elongated holes corresponding to those in the offset webs, and bolts completing the union of said inner member and the offset webs, whereby expansion and contraction at the central portion of the joint is provided for, substantially as set forth.

2. A rail joint comprising two rails an end of each of which has a part of the length of its web offset and a part of the head and also a portion of the base removed, and the offset lengths of the two rails being provided with elongated bolt openings, combined with offset fish plates the inner ends of which have holes corresponding to those of the offset lengths of the two rails, and the outer ends of which fish plates have non-elongated holes corresponding to bolt holes in the main parts of the webs of the two rails whereby, when the joint is assembled and bolted up, expansion and contraction are allowed at the offset and overlapped union of the rails and the inner ends of the embracing fish plates, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE P. EUSTIS.

Witnesses:

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