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J. H. ALLEN.
RAILWAY OFFSET JOINT.
APPLICATION FILED MAY 4, 1906.

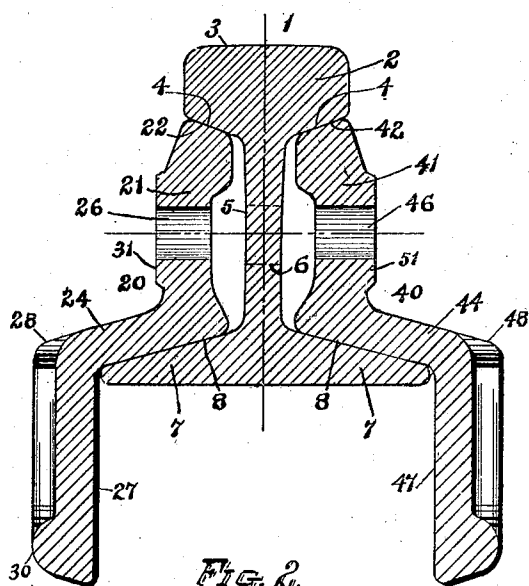


FIG. 2.

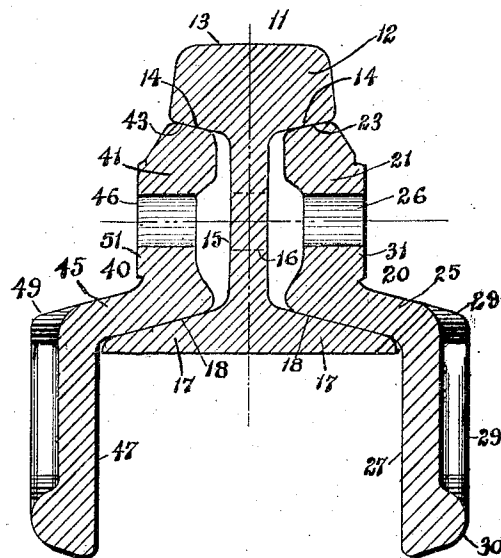


FIG. 3.

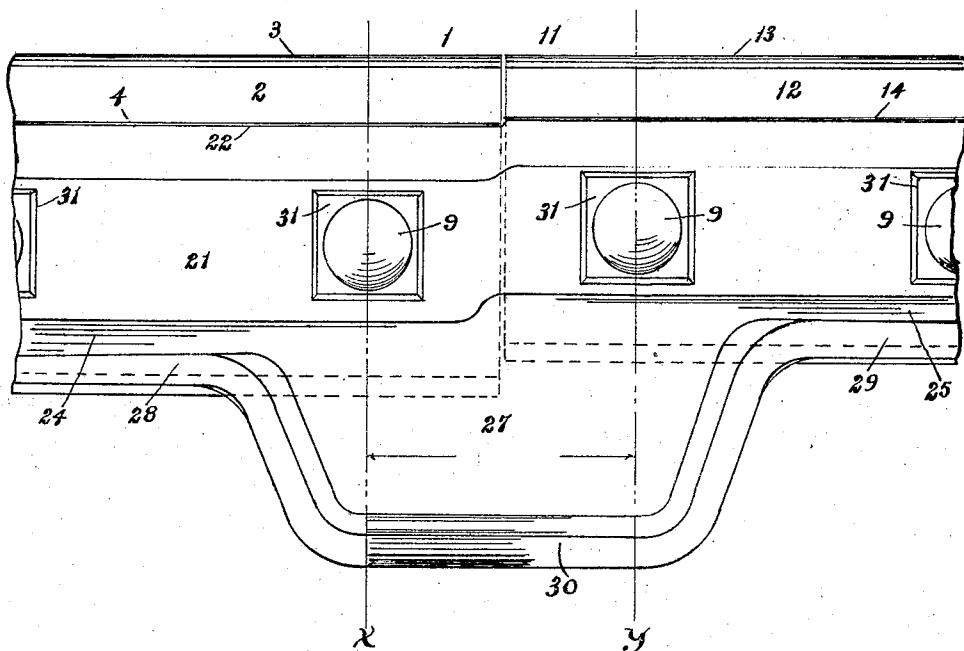


FIG. 1.

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RAILWAY OFFSET JOINT.

No. 879,938.

Specification of Letters Patent.

Patented Feb. 25, 1908.

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To all whom it may concern:

Be it known that I, JOHN H. ALLEN, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Railway Offset Joints, of which the following is a specification.

The objects of this invention are to secure an improved connecting plate for joining the adjacent ends of rails of different weights or sizes, particularly in height; to secure such a plate which shall be of simple construction and capable of being cheaply manufactured by casting; to at the same time obtain a maximum strength and firmness in the support of the rail ends; to secure a connecting plate which can be readily and positively fitted to an offset joint; to facilitate the bolting of the plate to the rails, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of a railway offset joint having my improved connecting plate applied thereto; and Figs. 2 and 3 are cross-sectional views of the same taken upon lines *x* and *y*, Fig. 1, respectively, looking in the directions indicated by the arrows.

In said drawings, 1 indicates the larger of two rails coming together in an offset joint, said rail having the head 2 with upper tread surface 3 and lower upwardly and outwardly inclined lateral bearing surfaces 4, 4,—vertical web 5 perforated as at 6 to receive the fastening bolts of the joint,—and lateral base flanges 7, 7, each providing an upper outwardly and downwardly inclined bearing surface 8.

11 indicates the smaller of the two rails forming the offset joint and which also has all the features just described in connection with said larger rail 1, and which are indicated on the smaller rail 11 by reference numerals 12 to 18 inclusive.

My improved connecting plates are used in pairs, a right and a left for each joint, arranged on opposite sides of the rail ends; aside from this their construction is just alike and a detail description of one will suffice for the other.

The connecting plate 20 has a main vertical or upright portion 21 adapted to lie between the heads and flanges of the rails and

forming at one end portion of its upper edge an inwardly beveled bearing 22 to engage the under surface 4 of the head of the larger rail, and at the other end portion of its upper edge a similar but higher bearing 23 for the head 11 of the smaller rail. At the lower edge of the end portion for the larger rail is an outwardly and downwardly inclined flange 24 adapted to engage at its under surface the top 8 of the base flange of the rail, and at the other end portion is a similar flange 25 enough higher up to correspondingly engage the base of the smaller rail.

It will be understood that the main upright portions of the connecting plates are perforated as at 26, 46, respectively, in alignment with the perforations of the rails so that bolts 9 may bind the whole firmly together. Furthermore, the upper and lower bearings of the connecting plates flare oppositely outward, as shown, in the usual manner, and the main upright portions of the fish plates do not engage the vertical web of the rail, so that a powerful wedging effect is obtained by tightening up the bolts. By my improved construction of offset joint these upper and lower bearings are the only engagements of the connecting plates with the rails, and hence the plates are very readily and positively fitted into position.

In order to strengthen the fish plate against vertical strain, an extension or lower vertical or upright portion is provided at the middle of the plate where the two rail ends abut, extending downward from the flanges 24, 25. This extension 27 does not extend to the ends of the connecting plate, but only for its middle portion, as above stated, and beyond the ends of the same the edges of the flanges 24, 25, are projected somewhat as at 28, 29, and which projection is carried also down around the lower edge of extension 27 so as to form a heavy lateral outer rib 30. This rib materially strengthens and stiffens the said extension 27 just where the strain upon the rail-joint is most likely to fracture the connecting plate, and a very strong firm construction is consequently secured.

Seats 31 for the heads or nuts of the fastening bolts 9 are raised outwardly on the main portion 20 of the connecting plate, so that even on that end of the plate which engages the smaller rail and where the inclined flange 25 is very high up, there will be room

for even a square nut to be turned without striking the said inclined portion.

The opposite connecting plate 40 from the one just described is of the same construction except reversed in positions of its parts to fit the opposite side of the rail ends, said parts of this connecting plate being marked with reference letters consecutively from 41 to 51 to correspond with the parts marked with reference letters 21 to 31 on the connecting plate 20.

In an offset joint having connecting plates of my improved construction the extensions 27, 47 lie between two adjacent ties which are next to the abutting rail ends and obviously said ties will be arranged at different heights to properly support the said rail ends so that the connecting plates will properly fit them and form a smooth even tread surface at the tops of the same.

My improvements are designed for a cast offset joint, and it will be noted that the construction described is one which will facilitate such casting.

Having thus described the invention, what I claim as new is:

1. A connecting plate for railway offset joints, comprising a main upright portion having a vertical offset therein, outwardly and upwardly beveled bearings at the upper edge of said main portion, outwardly and downwardly inclined flanges at the bottom of said main portion and a lower vertical portion depending from said flanges beneath the offset in the main vertical portion.

2. A connecting plate for railway offset joints, comprising a main upright portion having a vertical offset therein, outwardly and upwardly beveled bearings at the upper edge of said main portion, outwardly and downwardly inclined flanges at the bottom of said main portion, and a web or extension depending from the outer edges of said flanges beneath the offset in the main upright portion and being of less length.

3. A connecting plate for railway offset joints, comprising a main upright portion having a vertical offset therein, outwardly and upwardly beveled bearings at the upper edge of said main portion, outwardly and

downwardly inclined flanges at the bottom of said main portion, a lower upright portion depending from said flanges beneath the offset in the said main portion, and a lateral rib extending along the margin of said depending portion.

4. A connecting plate for railway offset joints, comprising a main upright portion having a vertical offset therein, outwardly and upwardly beveled bearings at the upper edge of said main portion, outwardly and downwardly inclined flanges at the bottom of said main portion, a web or extension depending from the outer edges of said flanges beneath the offset in the main portion, terminating at its ends short of the ends of said flanges, and a rib extending along the free edges of said flanges and web.

5. In a railway offset joint, the combination with abutting rail ends, of opposite connecting plates each having a main upright portion with an offset therein, outwardly and upwardly beveled bearings at the upper edge of said main portion to engage the heads of the rails, outwardly and downwardly inclined flanges at the bottom of the main portion to engage the base flanges of the rails, a web depending from the junction of said flanges adapted to be free from the bases of the rail ends and bolts passed through said connecting plates and rail ends.

6. In a railway offset joint, the combination with abutting rail ends, of opposite connecting plates each having a main upright portion with an offset therein, outwardly and upwardly beveled bearings at the upper edge of said main portion to engage the heads of the rails, outwardly and downwardly inclined flanges at the bottom of the main portion to engage the base flanges of the rails, a web depending from the junction of said flanges, a rib extending along the margin of said web and remaining portion of the edges of the flanges, and bolts passed through said connecting plates and rail ends.

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