

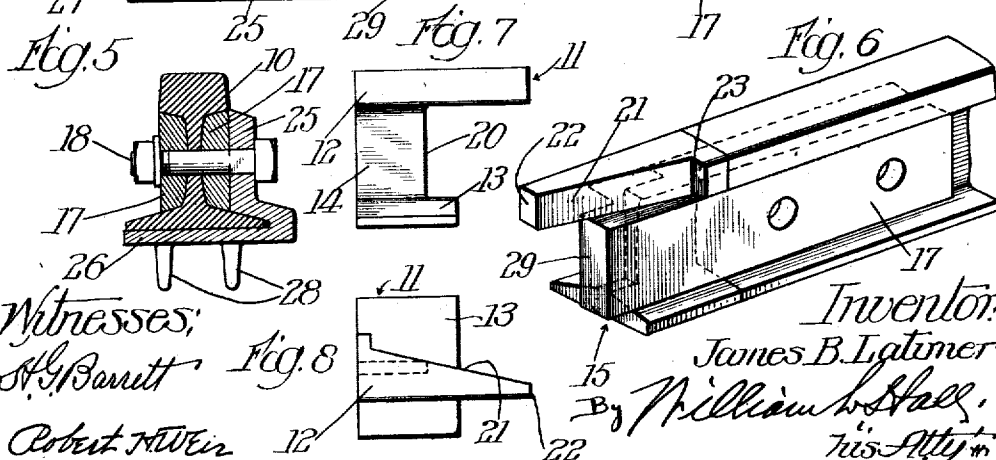
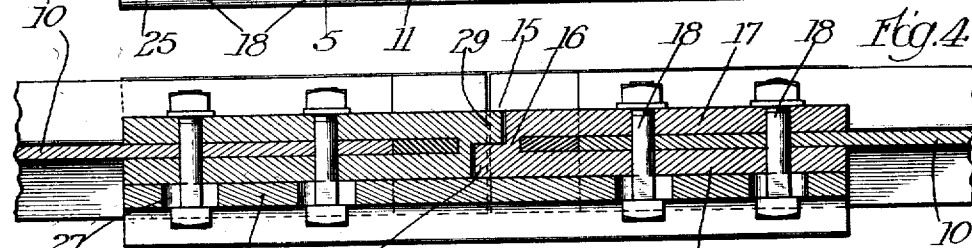
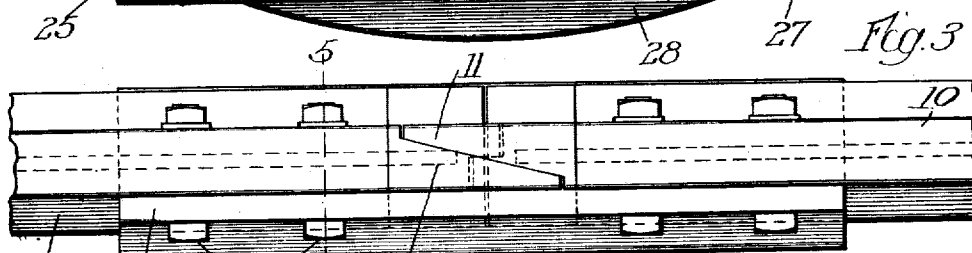
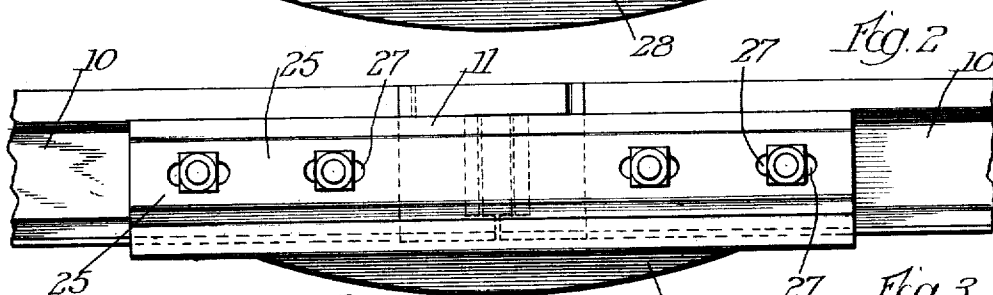
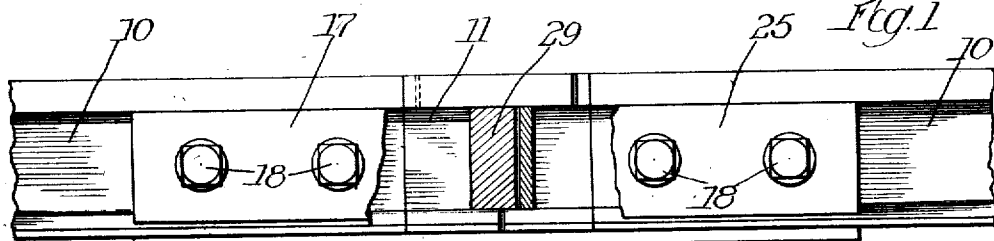
J. B. LATIMER.
CONTINUOUS RAIL JOINT.

APPLICATION FILED JULY 2, 1909. RENEWED SEPT. 6, 1910.

1,012,141.

Patented Dec. 19, 1911.

2 SHEETS-SHEET 1.

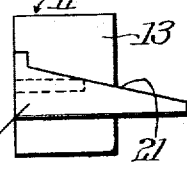


Witnesses:

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Robert H. Miller

Fig. 8



Inventor:
James B. Latimer
By William H. Hall,
his Atty.

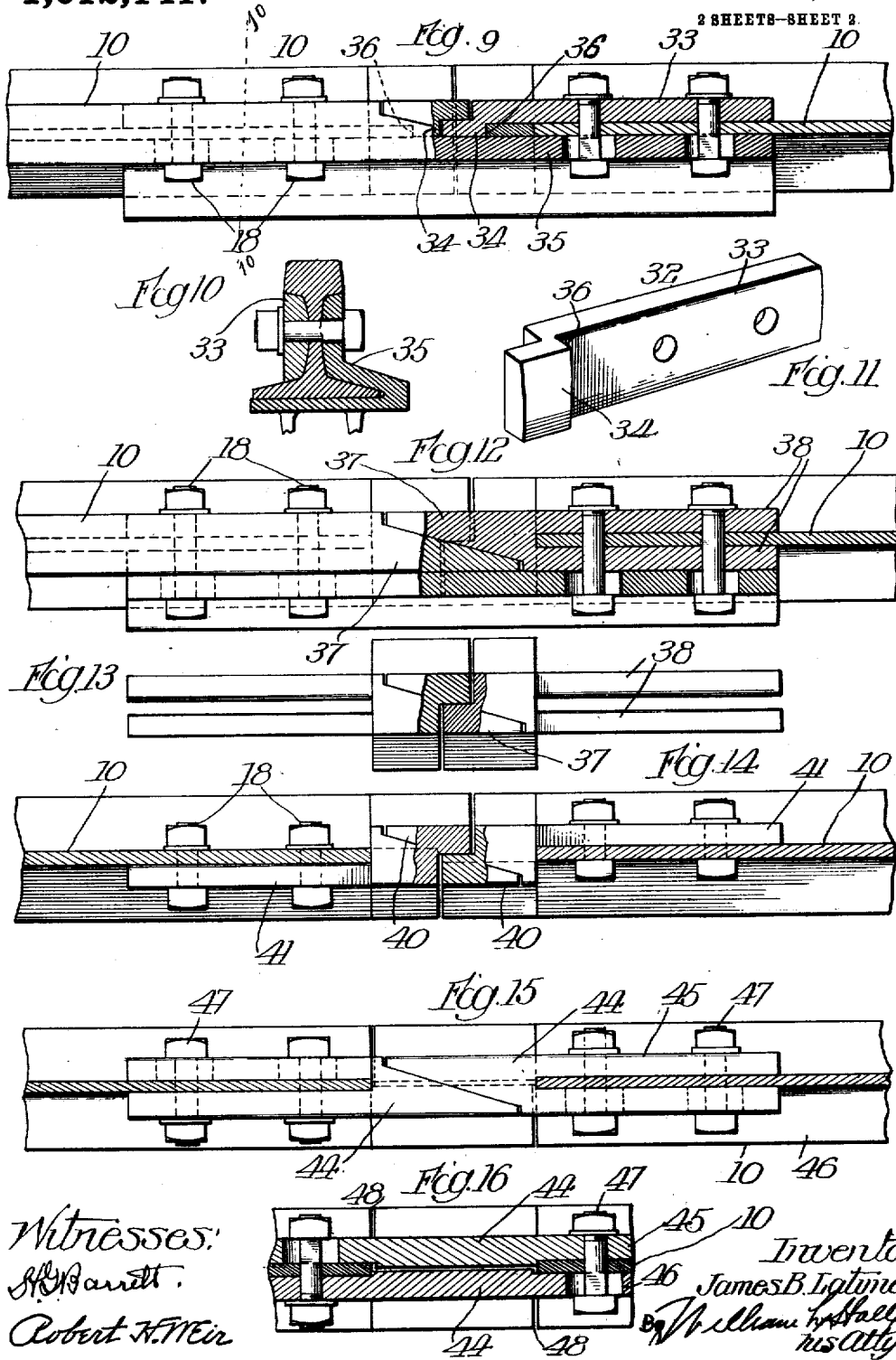
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES B. LATIMER, OF CHICAGO, ILLINOIS.

CONTINUOUS-RAIL JOINT.

1,012,141.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed July 2, 1909, Serial No. 505,547. Renewed September 6, 1910. Serial No. 580,631.

To all whom it may concern:

Be it known that I, JAMES B. LATIMER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Continuous-Rail Joints; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved continuous rail joint for railway tracks.

Among the objects of the invention is to produce a simple and efficient joint between the adjacent ends of adjoining rails which will avoid the pounding of the wheels against the rail ends at open joints between the rails as the car wheels pass thereover; to provide a joint of this character which is economical to make and which may be readily applied at small expense of time and labor, and to produce a joint having these characteristics which is strong and durable and is well braced against deflection.

The invention consists in the matter hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation, with parts broken away, of the adjacent ends of two adjoining rails equipped with a rail joint embodying my invention. Fig. 2 is a reverse side elevation thereof. Fig. 3 is a plan view. Fig. 4 is a horizontal section through the joint. Fig. 5 is a cross section on 5—5 of Fig. 3. Fig. 6 is a perspective view of one of the rail ends and the associated joint section, showing means for attaching the joint section to the rail. Fig. 7 is a side elevation of one of the joint sections. Fig. 8 is a plan view of the joint section. Fig. 9 is a partial plan view and partial horizontal sectional view of a modification. Fig. 10 is a section on the line 10—10 of Fig. 9. Fig. 11 is a perspective view of the joint extension attaching device illustrated in Fig. 9. Fig. 12 is a partial plan view and partial horizontal sectional view illustrating a further modification. Fig. 13 is a detached partial plan view of the modified form of joint shown in the assembled view of Fig. 12. Fig. 14 is a partial plan view and partial horizontal

sectional view showing a still further modification. Fig. 15 is a like view illustrating another modification. Fig. 16 is a fragmentary horizontal, longitudinal section of the construction shown in Fig. 15, taken in a plane below the heads of the joint sections or extensions.

As shown in the drawings 10, 10 designate two adjoining rails of standard cross section, and 11, 11 joint sections or extensions which are attached to the rail ends and constitute the joint between the rails upon which the tread at the joint is formed. As shown in Figs. 1 to 10, inclusive, each joint section or extension is of the same cross section as the rails 10, and comprises a head 12, a base 13, and a web 14. The said joint sections are squared at their outer ends to fit the adjacent squared ends of the rails. They are attached to the rails by means of yokes or clips 15, each consisting as shown in Figs. 1 to 6, inclusive, of a closed or transverse end portion 16 and laterally separated arms 17, 17. Said arms embrace the webs of the joint sections and rails and are attached to the rails by means of bolts 18, 18 which extend transversely through, and fit tightly in, registering holes in said arms and the rail webs. The said yoke or clip arms are preferably made of a depth to fill the spaces between the rail and joint section heads and bases. The web of each joint section or extension 11 is cut away or made shorter than the base thereof to provide a notch 20 to receive the closed or transverse portion of the yoke.

The heads 12 of the two joint sections of a joint are fitted together in such manner as to avoid the presence of a transverse space between the sections extending entirely across the rail tread. Such joint is in the nature of a scarf joint and may be produced by a variety of different shapes of the section heads; it being the intention that the inner end of each joint section shall extend a distance past the inner end of the other joint section in such a way that the tread surface of the joint formed by said sections shall consist in part of one joint section and in part of the other joint section. As herein shown the head 12 of each joint is longitudinally cut away or tapered at its inner side, as shown at 21, to fit a corresponding inwardly facing tapered surface of the other joint section. Preferably the

said tapered side of each joint section head does not meet the outer straight side thereof, but the inner end of each head terminates in a blunt or squared point 22 which faces a corresponding shoulder 23 at the base of the tapered face 21 of the other joint section head.

The joint may be stiffened by an angle fish plate or splice bar, comprising a vertical web 25 and a bottom flange 26. The web fits flat against the yokes of one side of the rails, and the bottom flange 26 fits against the under face of the bases of the joint sections and rails. Said angle fish plate is attached to the rails by the same bolts 18 which attach the yokes to said rails, said bolts extending through horizontally elongated holes 27 of the web, thus permitting the necessary relative longitudinal movement of the rails, due to expansion and contraction. Preferably those portions of the shanks of the bolts which engage the slots or elongated holes 27 are of angular cross-section, as shown in Figs. 4 and 5. If the joint be a suspended joint, the bottom flange 26 of the angle fish plate or splice bar may be stiffened by depending flanges 28. If it be a supported joint said bottom flange will be made plain. The said fish plate stiffens the joint against lateral and vertical deflection. In order to additionally stiffen the joint against lateral deflection, the closed or transversed portions 16 of the yokes 15 may be provided with overlapping extensions 29, as best shown in Figs. 3, 4 and 6. As shown in Figs. 3 and 6, the offset or laterally overlapping parts 29 are arranged to brace the joint in a direction opposite to the lateral brace afforded by the overlapping heads of the joint sections. This arrangement greatly reinforces the joint against lateral deflection and renders it unnecessary to apply a fish plate on the side of the joint opposite to the angle fish plate.

It will be observed that the yokes at each joint, and the joint sections likewise are duplicated, so that a yoke or a joint section may be applied to either rail end with equal facility. It will be furthermore observed that the yokes vertically fill the spaces between the heads and bases of the joint sections and rails, and that this construction serves to greatly stiffen the joint against vertical deflection.

The joint sections may be quickly applied to the rails at small expense of time and labor. In the application of a joint section to a rail it is placed with its squared end against the squared end of the rail, and the holes in the yoke arms and rail web may be brought into register by driving a drift pin into one set of the registering holes so as to bring the holes into accurate register for the reception of the bolts 18 which fit tightly therein. It will thus be seen that the joint

section is made to fit closely against the rail end so as to avoid possibility of the joint opening at this point. In the installation of the joint, spaces are left between the bases of the two joint sections and the yokes, in accordance with the usual practice, to provide for the necessary freedom of relative longitudinal movement of the rails under expansion and contraction of the rails. Such spaces are indicated most clearly in Figs. 1, 3 and 4.

It will be observed that my construction entirely avoids possibility of the rails being subjected at their ends to the pounding action of the car wheels, as occurs where two plain rail ends are brought together in abutting relation in accordance with the common practice. There arises therefore, no occasion to cut off battered rail ends in order to preserve the rails for use. The joint sections will be made of a sufficiently hard metal to withstand the wear and tear at the joint, but the overlapping arrangement of said sections will reduce such wear. The construction is such, however, to greatly facilitate the replacing of a worn or broken joint section.

The essential features of the invention may be embodied in joint sections or extensions and attaching fittings of a variety of forms. For instance instead of employing the double armed clip or yoke before described, I may employ the single-arm yoke or fitting 32 shown in Figs. 9, 10 and 11. The single shanks 33 are bolted to the rail ends at one side thereof, and are formed to provide lugs 34 which bear against the fish plate or splice bar 35 at the other side of the rails. The webs of the joint extensions or sections are embraced between said arms 33 and the fish plate, and said joint sections are held up to the rail ends by shoulders 36 formed on the offset, inner ends of the attaching fittings. The inner ends of the fittings may overlap to provide for lateral stiffening of the joint in the general manner hereinbefore described.

In Figs. 12 and 13 the joint section or extension attaching fittings are made integral with said sections, each section or extension 37 being provided with two integral yoke arms 38, 38 which overlap and embrace the webs of the rails. The integral fittings are attached to the rails in the same manner as are the yokes or clips of the first described construction and the fish plate is also attached in a like manner. In this form of construction the cross section of the joint extensions or sections may be made as desired. If a lateral interlocking connection between the joint members be desired, this may be effected by extending one side of the base of each section slightly beyond the other side thereof, as shown in said Figs. 12 and 13.

As shown in Fig. 14, each of the joint sec-

tions or extensions 40 is provided with but a single attaching arm 41. In other respects the latter construction may be like that illustrated in Figs. 12 and 13. The fish plate or splice bar is omitted in Fig. 14, but may be of any suitable form.

In Figs. 15 and 16 is shown a construction wherein the joint sections or extensions 44 are formed integral with, and between the ends of, splice bars 45, 46 which latter extend across the joint and are attached to the rails at the sides of the joints by bolts 47. In this construction each of the splice bars is rigidly attached at one end to one rail (the bars being thus attached to different rails) by the bolts 47 which extend tightly through holes in said bars and rail webs, while the opposite ends of said bars are slotted to receive said bolts and thus permit freedom of longitudinal movement of the rails due to expansion and contraction. In this latter construction the joint sections or extensions are longitudinally divided along the longitudinal median line of the joint, instead of transversely, as in the other constructions described. Each side of the base of the joint sections or extensions is shortened to provide the necessary freedom of movement under expansion and contraction of the rails, as indicated at 48, 48. An angle splice bar or fish plate like that illustrated in the first figures may be employed in this construction, or the joint may be otherwise vertically and laterally stiffened. Moreover one of the splice bars 45 or 46 may be provided with a bottom flange to extend beneath the rail bases. If desired the splice bars 45, 46 may be connected beneath the joint sections by a bolt extending through horizontally slotted holes in said bars.

It will be understood that the structural details of the joint may be otherwise varied within the scope of my invention and that the invention is not limited to such details except as to those claims in which the details are specifically set forth.

I claim as my invention:

1. A continuous rail joint comprising, in combination with two rails, two like short joint sections of the same cross section as the rails and made separate from and rigidly attached to the adjacent ends of said rails, the heads of said sections being provided with laterally overlapping portions which extend beyond the bases thereof and which constitute the tread of the joint.

2. A continuous rail joint comprising, in combination with two rails, two joint sections of the same cross section as the rails and made separate from and rigidly attached to the adjacent ends of said rails, the heads of said sections being provided with laterally overlapping portions which constitute the tread of the joint, and means extending across the joint at the side thereof,

and attached to said rails by means permitting relative longitudinal movement of the rails.

3. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of said rails and yokes embracing said joint sections and rails to attach the joint sections to the rails.

4. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of said rails, yokes fitted to said joint sections and the webs of the rails and bolts extending through and fitting tightly in registering openings in the rail webs and the arms of said yokes.

5. A continuous rail joint comprising, in combination with two rails, two joint sections or extensions of the same cross section as the rail fitted to the adjacent ends of said rails, yokes for attaching said joint sections to the rails provided with arms overlapping the sides of said rails, and bolts extending through and fitting tightly in registering openings in the rail webs and said arms, and a fish plate extending across said joint at the side thereof and provided with horizontally elongated openings through which said bolts extend to clamp the fish plate in place.

6. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of said rails, yokes embracing said joint sections and the webs of the rails, bolts extending through and fitting tightly in registering openings in the rail webs and the arms of said yokes, and a fish plate extending across said joint at the side thereof and provided with horizontally elongated openings through which said bolts extend to clamp the fish plate in place, said fish plate being provided with a bottom flange which fits against the lower sides of the bases of the joint sections and rails.

7. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of the rails, each section comprising a head, a base and a connecting web, the heads of said sections overlapping in scarfed or laterally overlapping relation, and yokes embracing the webs of said sections and of the rails and bolted to the rails to rigidly fasten the sections to said rails.

8. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of the rails, the heads or tread portions of said sections overlapping in scarfed or overlapping relation, and means for rigidly fastening the sections to said rails and the fastening means having parts which overlap each other to brace said joint from lateral deflection.

9. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of the rails, each section comprising a head, a base and a con-

necting web, the heads of said sections overlapping in scarfed relation, and yokes embracing the webs of said sections and of the rails and bolted to the rails to rigidly fasten the sections to said rails and arranged to brace said joint from lateral and vertical deflection.

10. A continuous rail joint comprising, in combination with two rails arranged end to end, two joint sections or extensions fitted to the adjacent ends of the rails and having heads constituting the tread at said joint which fit in overlapping or scarfed relation, and means for attaching said joint sections to the rails, said attaching means being arranged to brace the joint from vertical deflection.

11. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of the rails, each section comprising a head, a base and a connecting web, the heads of said sections overlapping in scarfed relation, and yokes embracing the webs of said sections and of the rails and bolted to the rails to rigidly fasten the sections to said rails, said yokes being provided at their adjacent ends with laterally overlapping extensions.

12. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of the rails, each section comprising a head, a base and a connecting web, the heads of said sections overlapping in scarfed relation, and yokes embracing the webs of said sections and of the rails and bolted to the rails to rigidly fasten the sections to said rails, said yokes being provided at their adjacent ends with laterally overlapping extensions, the overlapping extensions of said yokes being opposed to the lateral overlapping parts of the heads, for the purpose set forth.

13. The combination with a rail, of a joint section of the same cross section as the rail fitted in abutting relation to the end of the rail and adapted to fit in lateral overlapping relation to a complemental joint section, and a yoke embracing said joint section and rail web and bolted to the rail web.

14. A short rail joint section or extension for the purpose set forth comprising a base, a head forming a lateral part of the tread and a connecting web, the head being made longer at one end than the base and the web being made shorter at said end than the base, the head, web and base at the opposite end of the section being made plain or squared.

15. A short rail joint section comprising a base, a head forming a lateral part of the tread and a connecting web, the head being made longer than the base and the base being made longer than the web, and a yoke having a closed part fitted to and embracing the web between the head and base and having means for attaching it to a rail.

16. A continuous rail joint comprising, in combination with two rails, two joint sections fitted to the ends of the rails, each section comprising a head, a base and a connecting web, the heads of said sections overlapping in scarfed relation, and yokes embracing the webs of said sections and of the rails and bolted to the rails to rigidly fasten the sections to said rails, the arms of said yokes fitting closely beneath and supporting the laterally divided heads of said sections.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 23rd day of June A. D. 1909.

JAMES B. LATIMER.

Witnesses:

W. L. HALL,

WILLIAM GOLDBERGER.