

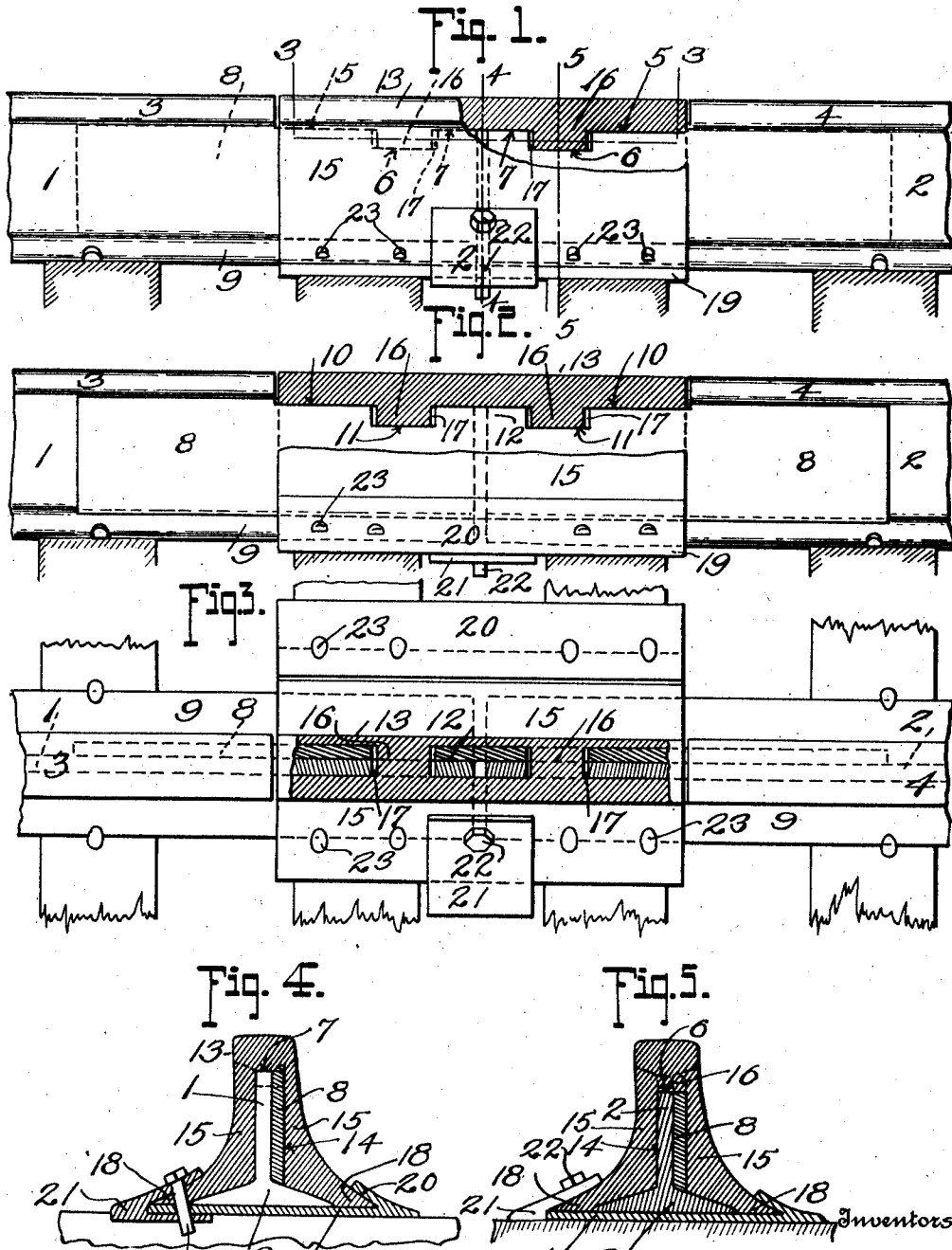
M. S. McNEIL & G. STEINGRUBER.

RAIL JOINT.

APPLICATION FILED MAR. 12, 1912.

1,044,406.

Patented Nov. 12, 1912.



Witnesses
E. Wagner.
D. E. Burdine.

Inventors
George Steingruber
Myron S. McNeil
Becker & Robb
H. C. Robb
 Attorneys

UNITED STATES PATENT OFFICE.

MYRON S. McNEIL, OF HAZLEHURST, AND GEORGE STEINGRUBER, OF MARTINSVILLE,
MISSISSIPPI; SAID McNEIL ASSIGNOR TO SAID STEINGRUBER.

RAIL-JOINT.

1,044,406.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed March 12, 1912. Serial No. 683,355.

To all whom it may concern:

Be it known that we, MYRON S. McNEIL and GEORGE STEINGRUBER, citizens of the United States, residing at Hazlehurst and Martinsville, respectively, in the county of Copiah and State of Mississippi, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

The present invention relates to rail joints and consists of a device of this class which may be applied to the common forms of rails without necessitating any changes in the structure thereof other than the shortening of the head of the rail and the cutting of notches in the web portion of the rail at a location where the head has been cut away.

A main object of the invention is to provide a construction of rail joint, by virtue of which the rails may be coupled together without the use of bolts and nuts, the device possessing extreme simplicity of construction and allowing the operation of assembling the various parts to be performed with the greatest ease and rapidity.

Other objects of the invention are to so construct a rail joint as to provide room for the expansion of the rails, the internal structure of the device according to the present invention being designed partly for this purpose; to provide a device whereby the rail head will be maintained straight and the rail will be prevented from spreading; and to provide a construction whereby substantial braces will be placed under the rail head so as to maintain the joints perfectly level.

The present invention consists in cutting away a certain length of the rail head of two adjacent rails which are to be joined together, and in then cutting notches of a form hereinafter described in the web portion of the rail, from which the head has been removed. A solid steel bar is placed against the web portion of the two adjacent rails, said bar being notched or cut away in a manner to correspond with the cut-away portions of the rail webs. This bar extends across the entire rail joint, and in practice each end will extend about six inches beyond the point where the rail head is cut away, its lower edge being supported by the base of the rail. This bar renders the supporting structure of the rail head about twice as

strong and braces the rail head in a manner which will be obvious upon a further reading of the specification. A head or bridge piece fills in the space from which the rail heads have been removed, and is adapted to grasp the web of the rails and steel bar and rest upon the base of the rail.

For a full understanding of the present invention, reference is to be had to the following description and to the accompanying drawings, in which—

Figure 1 is a side elevation showing the parts of the device assembled and a portion thereof broken away in section. Fig. 2 is a side elevation, partly in section, showing the particular formation of the steel bar before referred to. Fig. 3 is a view partly in plan and partly in horizontal section, taken on the line 3—3 of Fig. 1. Fig. 4 is a section taken on the line 4—4 of Fig. 1. Fig. 5 is a section taken on the line 5—5 of Fig. 1.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Referring particularly to the drawings, 1 and 2 indicate the web portions of two adjacent rails, provided with the ordinary form of rail head 3 and 4, respectively. Each of the rails has its head portion cut away at the region where it joins the web portion for a certain distance from the end of the rail, this structure being apparent from an inspection of the sectional portion of Fig. 1. The web portions 1 and 2 are each cut away so as to form a shallow notch 5 in a location adjacent to the inner ends of the rail heads 3 and 4. The web portions 1 and 2 are each further provided with a deep notch 6 and a projection 7, this formation being illustrated in Fig. 1.

In practice, the web portions of two adjacent rails, which it is desired to join, will bear such a relation to each other at the time of greatest expansion of the rails that the projections 7 of each of the web portions will abut against each other and their upper edges will be in alinement.

A solid steel bar 8, having its width substantially equal to that of the web portions 1 and 2, and in practice having a length which will be sufficient to enable it to extend about six inches beyond the ends of the rail heads 3 and 4, is placed in a vertical position so as to lie against the web portions 1 and 2 and to

closely engage a portion of the under surface of the rail heads 3 and 4. The upper side of the steel bar 8 is preferably curved to conform to the curvature of the under surface of the rail head and its under side is inclined or beveled so as to conform to the angular inclination of the surface of the rail base 9, which latter, according to the present invention, will be of the ordinary structure.

In a manner similar to the notched structure of the web portions 1 and 2 of the two adjacent rails, the steel bar 8 is provided at 10—10 with shallow notches, the edges of which, in practice, lie in substantially the same plane as the notches 5 of the web portions 1 and 2 and are of the same length. The steel bar 8 is further provided with two deep notches 11—11, of a shape corresponding to the deep notches 6 of the web portions 1 and 2, and having their edges lying in the same plane with the edges of the notches 6 and having substantially the same length. A projection 12 lies between the deep notches 11—11 at the center of the cutaway portion of the steel plate 8. The projection 12 has its upper edge lying substantially in the same plane as the upper edges of the projections 7—7 of the web portions 1 and 2 and lies against the same, the projection 12 having a length slightly greater than the combined length of the projections 7—7 so as to allow for expansion.

A bridge piece 13 having its upper portion of a shape similar to the shape of the upper surface of the rail heads 3 and 4, and being provided with a central channel 14 so as to form side wings 15, is placed in the space between the rail heads 3 and 4 where the latter have been cut away. This bridge piece is so positioned in the structure that the web portions 1 and 2 of the adjacent rails and the steel bar 8 which are in contact with each other enter the vertical channel 14 so as to be securely engaged by the side portions or wings 15. The bridge piece 13 is provided in the upper portion of its channel 14 with two depending projections 16 which, in practice, enter the deep notches 11—11 of the steel plate 8 and the deep notches 6 of the web portions 1 and 2. The length of the projections 16, in practice, is less than that of the deep notches referred to, so as to provide spaces 17 to allow for expansion. The side wings 15 of the bridge piece curve outwardly in a manner which will be obvious upon reference to Figs. 4 and 5, so as to closely engage the base portion of the rails, the outwardly curved portions terminating in base portions 18 which, in practice, bear upon the tie plate 19.

The tie plate 19 is provided with an upwardly extending portion 20 which engages a portion of the upper surface of the base portion 18 of the bridge piece throughout the length thereof.

A V-shaped clamping member 21 having a width relatively to that of the bridge piece substantially as shown in Fig. 1, has its upper member engaging the upper surface of the base portion 18 of the bridge piece and its lower member engaging the lower surface of the tie plate 19, a bolt or spike 22 passing through both members of the V-shaped clamping piece, the base portion 18, and the tie plate 19. The tie plate 19 is provided with a plurality of openings 23 through which spikes may be driven to secure the tie plate to the ties.

From the foregoing, it will be seen that we have provided a structure which will consist of a solid mass of steel at the region where the strain and lateral pressure are greatest, and the parts are so arranged that the rail heads will be maintained constantly level. The tie plate securely holds the bridge piece and steel plate in position against the webs of the rails and cannot be dislocated, no matter how far the spike which passes through the V-shaped clamp may rise. The steel plate 8 serves to strengthen the web portions 1 and 2 to a remarkable degree, and a very valuable feature of the utility of this member resides in the fact that it serves as a brace for the rail heads and maintains the same in the proper position.

The parts being mounted in the manner shown in Figs. 1 and 2, it will be apparent that unusual allowance has been made for expansion by virtue of the particular construction described. Any expansion on the part of the rail heads 3 and 4 will be taken up by the spaces which are provided by the formation of the projections 16 of the bridge piece, which are of lesser length than that of the notches 6.

Having thus described the invention, what is claimed as new is:

1. A device of the character described, consisting of two adjacent rails, each having its head cut away for a suitable distance at its end, the web portions of the rails having notches at their upper sides at such cutaway portions, a metallic plate disposed longitudinally against the web portions of the rail and having its upper side throughout a portion of its length notched to correspond with the notches in said web portion, a bridge piece having its upper surface in substantial alinement with the rail heads and having a channel formed throughout its length, said notched portions of the rail webs and said notched portions of said metallic plate being disposed in said channel, a tie plate engaging the lower ends of said bridge piece, and means for clamping together said tie plate and the lower ends of said bridge piece.

2. A device of the character described consisting of two adjacent rails, each having its head cut away for a suitable distance

at its end, the web portions of the rails having notches at their upper sides at such cut-away portions, a metallic plate disposed longitudinally against the web portions of the rails and having notches throughout a portion of its length to correspond with the notches of said web portions, the sides of the notches of the several members being in alinement, a bridge piece having its upper side in substantial alinement with the rail heads and having a channel formed throughout its length into which said web portions and the notched portion of said metallic plate enter, said bridge piece being formed with a plurality of projections in said channel adapted to enter the notches of said web portions and said metallic plate, a tie plate engaging the lower ends of said bridge piece, and means for clamping together said tie plate and said bridge piece.

3. A device of the character described consisting of two adjacent rails, each having its head cut away for a suitable distance at its end, the web portions of the rails having notches at their upper sides at such cut-away portions, a metallic plate disposed longitudinally against the web portions of the rails and having notches throughout a

portion of its length to correspond with the notches of said web portions, the sides of the notches of the several members being in alinement, a bridge piece having its upper side in substantial alinement with the rail heads and having a channel formed throughout its length into which said web portions and the notched portion of said metallic plate enter, said bridge piece being formed with two side wings, each with an outwardly extending portion to engage the base of the rail, a plurality of projections in said channel adapted to enter the notches of said web portions and said metallic plate, a tie plate adapted to engage the outwardly extending portions of the bridge piece, and a V-shaped clamping member having one side adapted to engage said outwardly extending portion of said bridge piece and having its other side engaging said tie plate.

In testimony whereof we affix our signatures in presence of two witnesses.

MYRON S. McNEIL.
GEORGE STEINGRUBER.

Witnesses:

R. W. MILLER,
CARROLL S. LOEB.