

(No Model.)

M. C. NILES.
RAIL JOINT.

No. 537,064.

Patented Apr. 9, 1895.

Fig. 1.

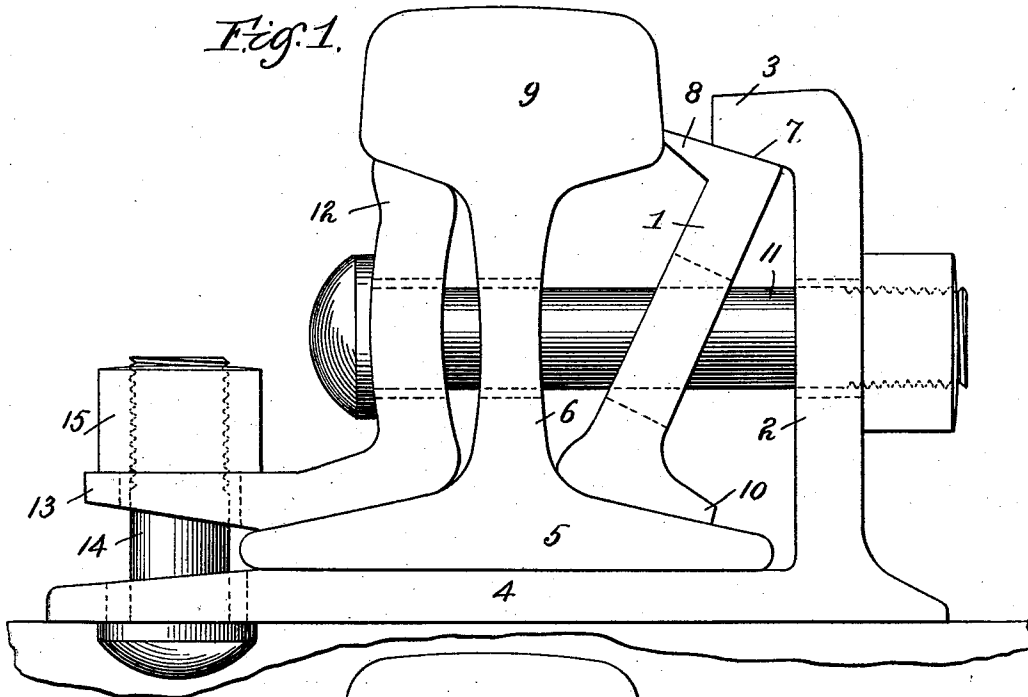
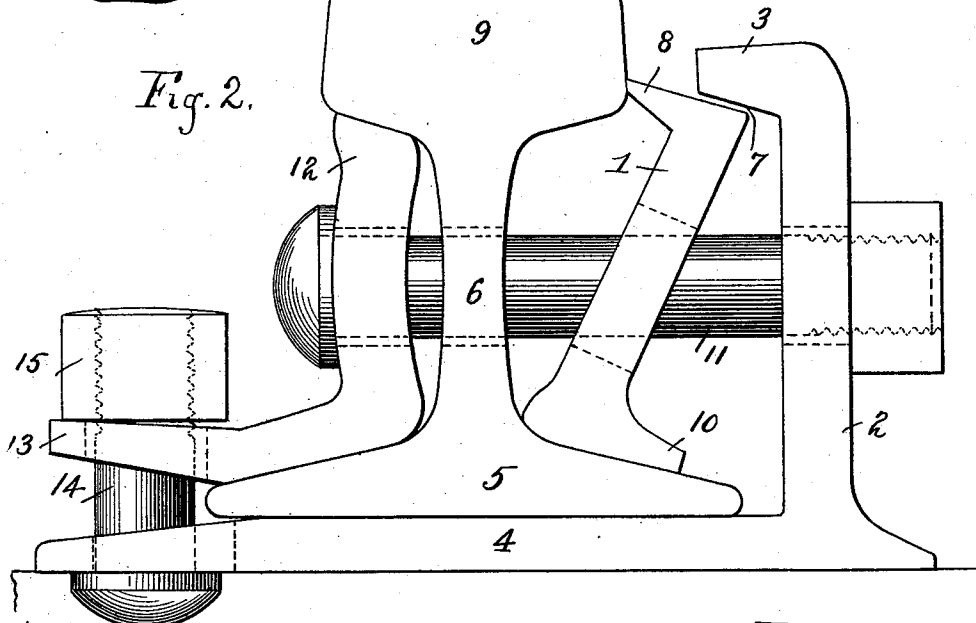


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 537,064, dated April 9, 1895.

Application filed November 26, 1894. Serial No. 529,969. (No model.)

To all whom it may concern:

Be it known that I, MILTON C. NILES, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rail-Joints, of which the following is a full, clear, and exact specification.

This invention relates to that class of rail joints in which the rails are clamped by pressure upon the upper and lower sides of the foot flanges, induced by the inward movement of a side lever plate such for instance as that shown and described in United States Letters Patent No. 529,044, issued to me November 13, 1894, to which reference may be had for an understanding of any features not fully described herein.

My said prior invention had for its primary object, to cause the lever plate to press the base or bed plate firmly against the under side of the rail flanges and at the same time force the clamping plate down against the upper side of such flanges. My present invention has substantially the same object in view but to accomplish it by greatly simplified and improved means.

Another object of my present invention is to cause the clamping plate in a device of the described nature, to hold the heads of the rails against independent side flexure; and a still further object of this invention is to cause one of the otherwise essential parts of the joint to close the space between the rails and the side lever plate, instead of employing a separate piece for this purpose as heretofore.

With these ends in view my invention consists in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects hereinafter appearing, are accomplished, all as fully explained with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is an end elevation of my improved joint showing the parts tightened upon the rail, and Fig. 2 is a similar view thereof showing the parts in the position they occupy before being tightened.

In my said prior invention the lower edge of the inclined clamping plate was held against inward movement by the rail webs

while the upper edge of such plate stood off from the rails and engaged under an overhanging lip or flange on the side lever plate, which latter, when moving inward, effected the clamping of the rails between the clamping plate and the bed or base plate by reason of the inward tilting of the clamping plate; but in my present invention I hold the inclined clamping plate 1 against inward movement at its upper edge as well as at its lower edge, so that the side lever plate 2 will move relatively to the plate 1.

The side lever plate 2 is provided as heretofore at its upper edge with an inwardly projecting flange 3, which engages over and is supported upon the upper edge of the clamping plate 1, but in my present invention at least one of the engaging faces of these parts 1 and 3 is formed on an upward incline or bevel whereby the inward movement of the side lever plate 2 will also induce an upward pressure of the bed or base plate 4 throughout the transverse extent of the foot flanges 5 of the rails; and at the same time of course, pressing the clamping plate 1 downwardly against such foot flanges as well as inward against the webs 6; thus at one and the same time holding the rails against independent vertical and independent side or lateral movement. In practice I prefer to form the engaging faces of the parts 1 and 3 on complementary bevels 7 to insure better bearing for the side lever plate 2 and reduce the friction to a minimum, but it will of course be understood nevertheless, that substantially the same result might be accomplished by beveling but one of the said parts.

The clamping plate 1 is preferably arranged in an inclined position as shown and is held against inward movement at its lower edge by being braced against the webs of the rails while its upper edge is preferably provided with an inward extension 8 which rests against the rail and thus prevents the inward movement of the plate 1 at its upper edge, and this extension 8 is preferably brought to bear against the heads of the rail for the two-fold purpose of holding the heads of the rails against any independent side flexure that might result from a thrust of the wheel flanges in rounding the curve or at other points, and for closing the space which exists between

the flange 3 and the heads 9 of the rails, it being claimed by those skilled in the art that when such space is left open, sand, sleet and gravel collect between the rails and the joint and render it objectionable.

The lower edge of the plate 1 is provided with an outwardly extending foot piece 10 which rests upon the foot flanges 5 of the rail and which is of sufficient outward extension to project beyond the center of gravity of the clamping plate 1, and thus hold such plate in its proper position while the side lever plate with its base plate 4 is being fitted to the rail.

With a rail joint thus constructed it will be seen that even though the thickness of the foot flanges 5 should vary in the different rails, the parts of the joints may nevertheless be accurately fitted to such rails, for it is obvious that any variation in the thickness of such flanges will simply result in variation of the extent to which the bevel flange 3 overlaps the edge of the clamping plate 1, and even though the flange 3 may overlap more in one instance than in another the joint may nevertheless be tightened up with sufficient pressure so long as such flange has any bearing whatever upon the plate 1.

It will also be seen that the plate 2 acts as a lever and swings the base plate upward against the rail flanges and produces a clamping effect in this way in addition to the clamping effect induced by the flange 3 sliding up the inclined edge of the plate 1, for it will be observed that inasmuch as the lower edge of the plate 2 is normally out of contact with the edge of the rail flanges, such lower edge of the plate 2 will have a tendency to move inward under the pressure of the horizontal bolts 11 when the inward movement of the flange 3 ceases.

A rail joint thus constructed and being provided with any suitable number of the horizontal tightening bolts 11 which pass through the webs of the rails and the plates 1 and 2 is complete and operative, but for the sake of adding greater strength I prefer to employ on the opposite side of the rails an ordinary fish plate 12 through which the bolts 11 also pass and which is provided along its lower edge with a horizontal extension 13 which supports the nuts of vertical bolts 14 whose heads engage under the protruding edge of the base or bed plate 4, and thus hold such edge against the rail flanges with greater security. The extensions 13 are preferably turned upward slightly on an incline when in their normal condition in order to lock the nuts 15 when the latter are screwed down.

While I have been particular to describe, as a desirable feature of my invention, that the base or lower edge of the plate 2 stands normally away from the edges of the flanges 5, I nevertheless wish it understood that my invention is not limited to this particular arrangement for it is obvious that even if such plate 2 should strike the flange 5 the device

would nevertheless be capable of further tightening providing the elasticity of the metal at the junction of the parts 2 and 4 is such as to permit the flange 3 to move inward under the pressure of the bolts 11.

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

1. In a rail joint, the combination with the rails, of a side lever plate having an inwardly extending flange and a base plate or flange engaging under the rails, a clamping plate interposed between the rails and said side lever plate and held against inward movement, and the upper edge of said clamping plate and said inwardly extending flange being in engagement with each other and one being beveled or inclined, whereby inward movement of the lever plate will induce upward movement of said base flange, and means for forcing said lever plate toward the clamping plate, substantially as set forth.

2. In a rail joint, the combination with the rails, of a side lever plate having an inwardly extending flange and a base plate or flange engaging under the rails, a clamping plate held against inward movement interposed between the rails and said side lever plate and resting upon the foot flanges of the rails, the upper edge of said clamping plate and the said inwardly extending flange being in engagement and formed on complementary bevels or inclines, and means for forcing the lever plate toward said clamping plate, substantially as set forth.

3. In a rail joint, the combination with the rails, of a side lever plate having an inwardly extending flange and a base plate or flange engaging under the rails, a clamping plate interposed between the rails and said side lever plate and having its upper and lower edges held by the rails against inward movement, and the upper edge of said clamping plate and said inwardly extending flange being in engagement with each other and one of them being beveled or inclined, whereby inward movement of the lever plate will also induce upward movement of said base plate, and means for forcing said lever plate toward the clamping plate, substantially as set forth.

4. In a rail joint, the combination with the rails, of a side lever plate having an inwardly extending flange and a base plate or flange engaging under the rails, a clamping plate interposed between the rails and said side lever plate and having a portion resting against and bracing the rails near their upper sides, and the upper edge of said clamping plate and said inwardly extending flange being in engagement with each other and one of them being beveled or inclined, whereby inward movement of the lever plate will also induce upward movement of said base plate, and means for forcing said lever plate toward the clamping plate, substantially as set forth.

5. In a rail joint, the combination with the rails, of a side lever plate having an inwardly

extending flange and a base plate or flange engaging under the rails, of a clamping plate interposed between the rails and said side lever plate and having a portion projecting from the edge of the lever plate to the heads of the rails and closing the space between such plate and heads, and the upper edge of said clamping plate and said inwardly extending flange being in engagement with each other and one of them being beveled or inclined, whereby inward movement of the lever plate will also induce upward movement of said base plate, and means for forcing said lever plate toward the clamping plate, substantially as set forth.

6. In a rail joint, the combination with the rails, of a side lever plate having an inwardly extending flange and a base plate or flange engaging under the rails, an inclined clamping

plate interposed between the rails and said lever plate and resting upon the foot flanges of the rails, the upper edge of said clamping plate and the said inwardly extending flange being in engagement and formed on complementary bevels or inclines, the upper edge of said clamping plate having an extension resting against the heads of the rails, and the lower edge of said clamping plate having a foot held against inward movement and extending outward beyond the center of gravity of said clamping plate, and means for forcing the lever plate toward said clamping plate, substantially as set forth.

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Witnesses:

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