

UNITED STATES PATENT OFFICE.

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RAIL-SUPPORTING MECHANISM.

970,139.

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To all whom it may concern:

Be it known that I, ROBERT D. TOWNSEND, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rail-Supporting Mechanism, of which the following is a full, clear, and precise specification.

My invention relates to rail supporting mechanism particularly adaptable for maintaining proper gage of track along curves.

In railway operation many accidents occur on account of spreading of the rails, particularly at curves, and many accidents also occur on account of narrowing of the gage. To prevent spreading of the rails braces or chairs are usually employed secured to the tie at the outside of the rail and abutting against the web and head parts of the rail. The practice does not allow the use of such high supports or braces on the inside of the rail, owing to the interference thereof with the flanges of the wheels passing over the rails. Several forms of low braces have been proposed and patented, but these are either too clumsy, heavy, and expensive without proportionate strength, or are too flimsy and weak for any efficient and reliable service.

Among the important objects of my invention are, therefore, to provide a support for the inside of the rail which will secure and support the rail in the most efficient manner without interfering with the wheel flanges; to provide a supporting member which can be easily and cheaply stamped out and shaped from sheet metal, preferably steel, and which is light, yet of such shape as to give the greatest strength and rigidity; to provide a supporting member which, besides acting as a lateral support for the rail, will at the same time act as a base plate therefor; to so situate spike or bolt holes through the supporting member that the application of the bolts will result in firm clamping engagement of the member with the rail; to provide such construction as will adapt the inside supporting member to be readily used in association with the usual form of outside supporting member or brace; to provide a support for the inside of the rail which can be readily inserted in place in respect to the rail by merely raising the rail a small fraction of an inch; and in general to provide a more efficient and commercial form of supporting mechanism for rails.

In the following specification and accompanying drawings the nature of my invention is clearly shown.

In these drawings Figure 1 is a side elevational view of two cooperating supporting members applied to a rail, which is shown in vertical section. Fig. 2 is a top view of the supporting members and a section of the rail, with part of the rail head being broken away. Fig. 3 is a sectional view of the inner supporting member taken on plane 3—3, Fig. 2, and Fig. 4 is an elevation view looking from the outer end of the inner supporting member.

I have shown a form of rail support or brace C which is now commonly used for application to rails at the outside thereof, this brace comprising a base 1, the upright body part 2, the top 3, and the depending flange 4, the base being secured to the tie *t* directly adjacent the base *b* of the rail R, the inner end of the top 3 engaging under the head *h* of the rail and the depending flange 4 abutting against the web *w* of the rail, this brace preventing lateral outward displacement and tipping of the rail. In some instances a base plate of ordinary construction is interposed between the rail base and the brace base to be spiked to the tie in common with the brace and rail in the usual well-known manner. To prevent inward displacement of the rail spikes have been depended upon, or some form of inner supporting member has been provided heretofore. These inner supporting members must, however, be sufficiently low so as to eliminate any possibility of interference thereof with the flanges of the wheels passing over the rails, as engagement of the wheel flanges with the supporting members might cause derailment. Inner supporting members heretofore utilized in most cases engage only with the base or flange of the rail, and their shape and form is such that they readily bend or break. In accordance with my invention I provide an inner supporting member I which can be readily and cheaply formed up in suitable dies from sheet metal blanks, the supporting member forming a base plate for the rail and also rigidly engaging the upper part of the flange and the web thereof to most efficiently support the rail against inward displacement or tipping. To form this inner supporting member a rectangular blank of sheet metal, preferably steel, has its side edges

5—5 near the end thereof beveled away, as best shown in Fig. 2, and is then first passed through dies to have the middle section between the beveled edges 5—5 deflected upwardly to form the arch or ridge 6, the sections 7—7 adjacent the arch remaining straight, and the arch tapering inwardly to a point 8. After the arch is thus formed the entire section between the edges 5—5 is bent over along the transverse area 9 at the point of the arch and toward the base part 10 to form a V-shaped pocket 11 for receiving the flange of the rail, the outer faces of the arch 6 and parts 7 being then in a substantially vertical plane to engage against the rail web. This construction gives a very rigid and permanent form of supporter, the arch which extends to the bend 9 effectively resisting bending of the supporter during service and serving to maintain the engagement with the rail web and flange. The bend 9 is made at a sufficient distance from the edge of the rail flange to accommodate spike or bolt holes 12 between the arch and the edges 5—5 to receive bolts 12' (shown in dotted lines, Fig. 1), the spikes or the bolts driven through the holes passing through the inner end of pocket 11 and engaging against the edge of the rail flange, the spikes or bolts when drawn up tight tending to more firmly draw the top section of the supporter against the base part 10 and to rigidly secure and clamp the rail. The base part 10 extends beyond the opposite edge of the rail base and has spike or bolt openings 13 and 14 for registering with the spike holes 15 and 16 in the base 1 of the brace C. The spike holes of the base 10 are, however, offset inwardly slightly with reference to the holes of the brace so that when the bolts or spikes are applied the supporting members will be drawn toward each other to securely and rigidly clamp the rail between them. The end of the arched section of the supporter I extends well up along the rail web, but the part of the arch outside of the rail head is well below the range of wheel flanges. I thus provide an improved form of supporting member for the inside of a rail, which will serve to effectively retain the rail on its bed and which has sufficient engagement with the web thereof to prevent tipping.

The supporting member, as before stated, is very simple and light and can be readily turned out by machinery for very little cost.

The supporting member can be readily applied by merely raising the rail a small fraction of an inch and can be used with or without a brace or outside supporting member. When used alone the spikes passing through the holes 13 will engage the flange of the rail.

The supporting member could be applied throughout the length of track with the bent

over ends alternately on opposite sides thereof, or in any other arrangement either on straight track or on curves.

I do not desire to be limited to the precise form and arrangement shown, as modifications are possible which would still come within the scope of my invention, and I therefore claim the following:

1. In combination, a rail, a supporting member for the rail comprising a flat base part engaging under the rail and a bent over end part forming a pocket for receiving one flange of the rail, said bent over end part being deflected outwardly along a median area to form a strengthening arch, the end of said bent over part and the arch formed therein abutting against the web of the rail, registering spike holes through the bent over end and base part, a bed for said rail and supporting member, and spikes driven through said spike holes for drawing said bent over end toward the base part to clamp the rail flange between said bent over end and base part and to clamp the end of said bent over part and the arch therein firmly against the rail web.

2. A supporting and brace member for rails, comprising a flat base part for engaging under the rail flange, and a bent-over end part forming an acute angle with the base part and separated throughout its length from said base part to form a V-shaped pocket for receiving the rail flange, said bent-over part being deflected outwardly along a median area to form a strengthening arch, there being registering spike openings through the bent-over part and the base part adjacent the junction line of said parts and communicating with the inner end of said V-shaped pocket.

3. In combination, a rail, a supporting member for the rail, comprising a flat base part engaging under the rail flange, and an end part bent over to be parallel with and to rest against the top of the rail flange and to form with said base a V-shaped pocket for receiving the flange, the depth of said V-shaped pocket being greater than the width of the flange received thereby, the bent-over end being deflected outwardly along a longitudinal median line to form a strengthening arch, there being registering spike holes through the bent-over end and the base, a tie for supporting the rail and supporting member, and spikes driven through said registering spike holes and through the inner end of said V-shaped pocket for drawing the bent-over end toward the base part to thereby securely clamp the flange between the bent-over end and the base part.

4. In combination, a supporting bed, a rail supporting and brace member comprising a flat base part engaging said supporting bed and an end section bent along a transverse line and toward said base part to be

parallel with the top of the flange of a rail
to be supported to form a V-shaped pocket
for receiving the rail flange, a rail mounted
on said base part with a flange extending
5 a distance into said V-shaped pocket and
with its web abutting against said bent-over
end, said bent-over end being deflected out-
wardly along a median longitudinal area to
form a strengthening arch, there being reg-
10 istering spike holes through the bent-over
end and said base part, the inner faces of said
spike holes being in line with the edge of the

flange extending into said V-shaped pocket,
and spikes driven through said spike holes
and through the inner end of said pocket for 15
drawing said bent-over end against said base
part to securely clamp the rail flange be-
tween said bent-over end and base part.

In witness whereof, I hereunto subscribe
my name this 27th day of April, A. D., 1910. 20

ROBERT D. TOWNSEND.

Witnesses:

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