(No Model.)

B. H. LIGHTFOOT.

RAIL JOINT.

No. 392,441. Patented Nov. 6, 1888.

FIG. 1.

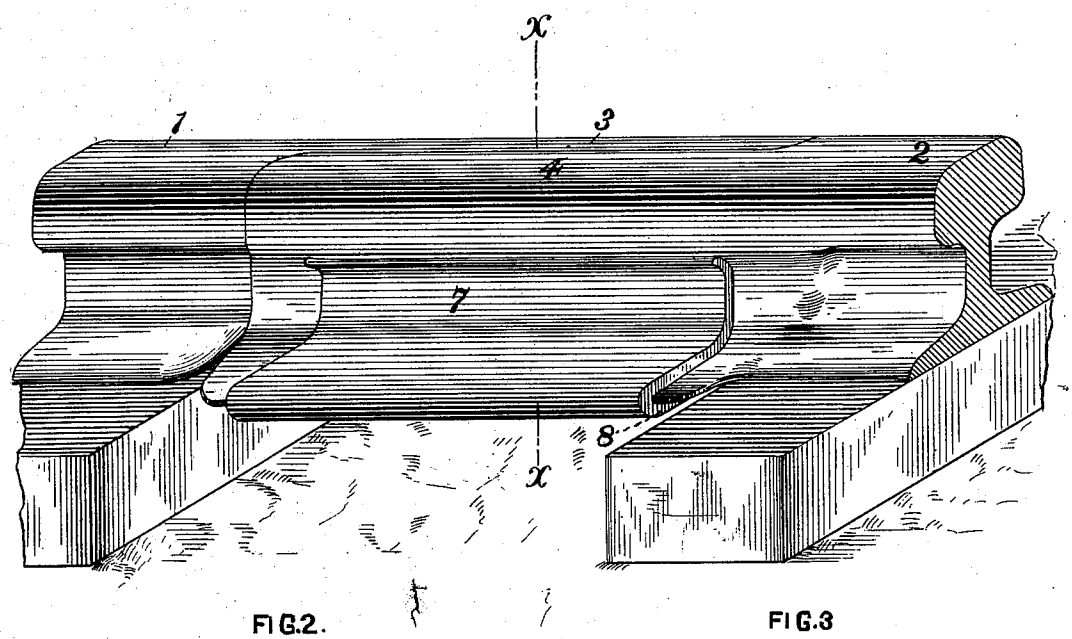


FIG. 2.

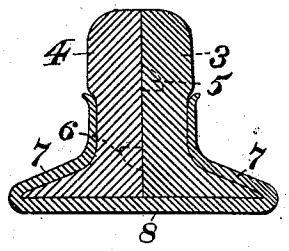


FIG. 3

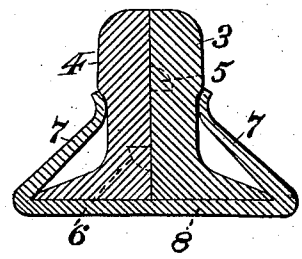
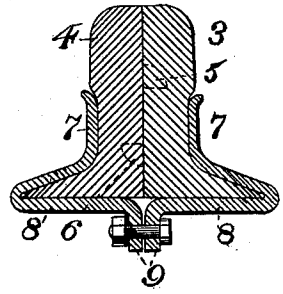


FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

BENJAMIN H. LIGHTFOOT, OF ALLEGHENY, PENNSYLVANIA.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 392,441, dated November 6, 1888.

Application filed October 27, 1887. Serial No. 253,510. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN H. LIGHTFOOT, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Rail-Joints, of which improvements the following is a specification.

The invention herein relates to certain improvements in that class of rail-joints known as "continuous tread," wherein the ends of adjacent rails overlap each other in a horizontal plane, thereby insuring the bearing on or engagement of the car-wheel with the end of one rail before it has left the rear end of the preceding rail. It is necessary in this class of rail-joints that the overlapping ends of the rails should be held firmly together not only horizontally, but also vertically. For this purpose resort has heretofore been had to bolts passing through the rails; but these bolts, while effective in holding the overlapping ends together horizontally and also to a certain extent vertically, are objectionable for the reason that when the nuts are screwed on sufficiently tight to hold the rails together they prevented the rails from moving with desirable freedom when expanded or contracted by changes in temperature; and, further, they are subjected to severe shearing strains by the independent movements of the overlapping rail ends. This latter objection has, however, been entirely obviated in the construction of rail-joints set forth in Letters Patent No. 294,245, granted February 26, 1884, to Francis Lightfoot, and also in an application by said Lightfoot, filed April 26, 1887, and numbered serially 236,135, wherein independent vertical movement of the overlapping ends is prevented by the engagement of ribs or grooves on the inner face of one rail end with complementary grooves or ribs on the inner face of the other rail end. It will be readily understood that having insured a unison of movement of the two parts or elements of the joint, as set forth in the above-recited Letters Patent and application, comparatively little force or power will be required to hold said ends together horizontally, a tendency to such movements being to a great extent prevented by the spikes holding the rails on the cross-ties.

The object of the invention herein is to provide means whereby the overlapping ends of such continuous-tread joints will be held together in such manner as to permit the ends to move freely as expanded or contracted by changes in temperature, while insuring the engagement of the devices employed for preventing independent vertical movement of such ends.

In general terms the invention consists in the construction and combination of elements, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of a continuous-tread joint embodying my invention. Fig. 2 is a sectional view on the line *x x*, Fig. 1. Figs. 3 and 4 are views similar to Fig. 2, showing modifications of the invention herein.

In the practice of my invention the ends of the rails 1 and 2 are preferably constructed in accordance with the construction set forth in the hereinbefore-cited Letters Patent and application—*i. e.*, the ends of the rails are swaged or pressed aside, thereby forming tongues 3 and 4, whose inner faces coincide, or approximately so, with the longitudinal axis of the rails, the tongues having one or more horizontally-projecting ribs, 5, and grooves or recesses 6 formed on their inner faces. This construction of rail ends insures a uniform and simultaneous vertical movement of both ends when held in engagement with each other.

From the above it will be readily understood that the main function of the bolts and nuts shown and described in said Letters Patent and application is to hold the tongues 3 and 4 in such relation to each other that the grooves 6 and ribs 5 will engage each other. In lieu of said bolts and nuts I propose to employ a clamp passing under the flanges of the rail ends and provided with jaws 7, which shall bear upon the webs of the rails at a point between the head and flange, and thereby firmly hold the tongues 3 and 4 together. The clamp is constructed with a rigid base, 8, and from the edges of said base the jaws extend inwardly toward each other, the distance between the inner faces of said jaws at the junction with the base being approximately equal to the

middle of the flanges of the rail ends, so that the jaws will bear against the edges of the flanges. The jaws 7 pass along the top of the rail-flanges and then bend up vertically, so as to afford a broad bearing against the web of the rail. As the jaws are preferably made so as to have a spring-bearing against the web of the rails, the distance between the inner faces of the vertical portions should be somewhat less than the combined thickness of the webs of the tongues 3 and 4, thereby insuring a strong but yielding clamping action. In lieu of constructing the jaws with a vertical portion bearing against the web along the entire height thereof, as shown in Fig. 2, they may be shaped as shown in Fig. 3, wherein the clamp has only two points of bearing on each side—*i. e.*, the edge of the flange and against the under side of the head.

In laying a line of rails embodying my invention it is necessary that the clamp should be slipped onto one of the rails before the two tongues are placed together, and after the two tongues have been properly adjusted together the clamp is driven back until the tongues are grasped thereby.

To provide for the application of the clamp after the rails have been secured in position, I form the clamp in two parts, as shown in Fig. 4, the base S of each part being formed with a flange, 9, having bolt-holes formed therethrough. It will be readily understood that this form of clamp can be readily applied to a splice-joint at any time without disturbing the rails.

I claim herein as my invention—

In combination with two rails having their adjacent ends overlapping, the inner faces of such overlapping portions being provided with complementary interlocking grooves and ribs, a clamp for holding such ends in position, substantially as set forth.

In testimony whereof I have hereunto set my hand.

BENJAMIN H. LIGHTFOOT.

Witnesses:

W. B. CORWIN,

DARWIN S. WOLCOTT.