

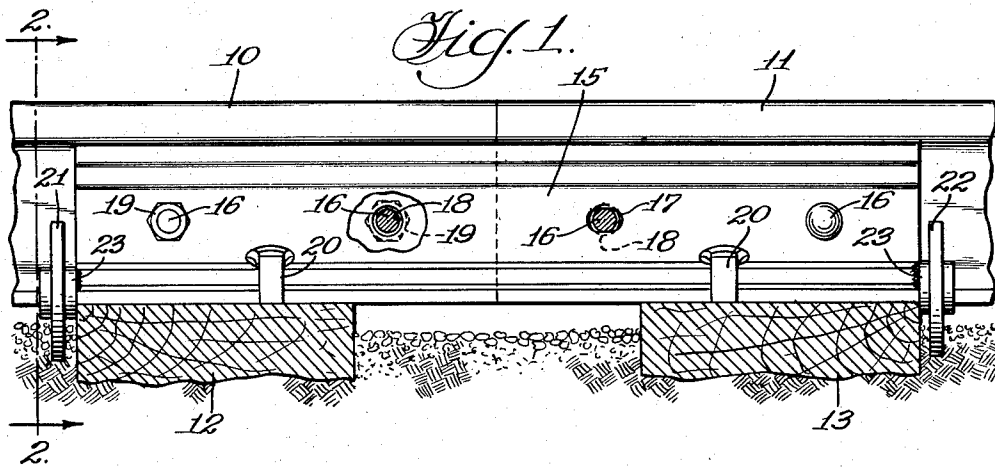
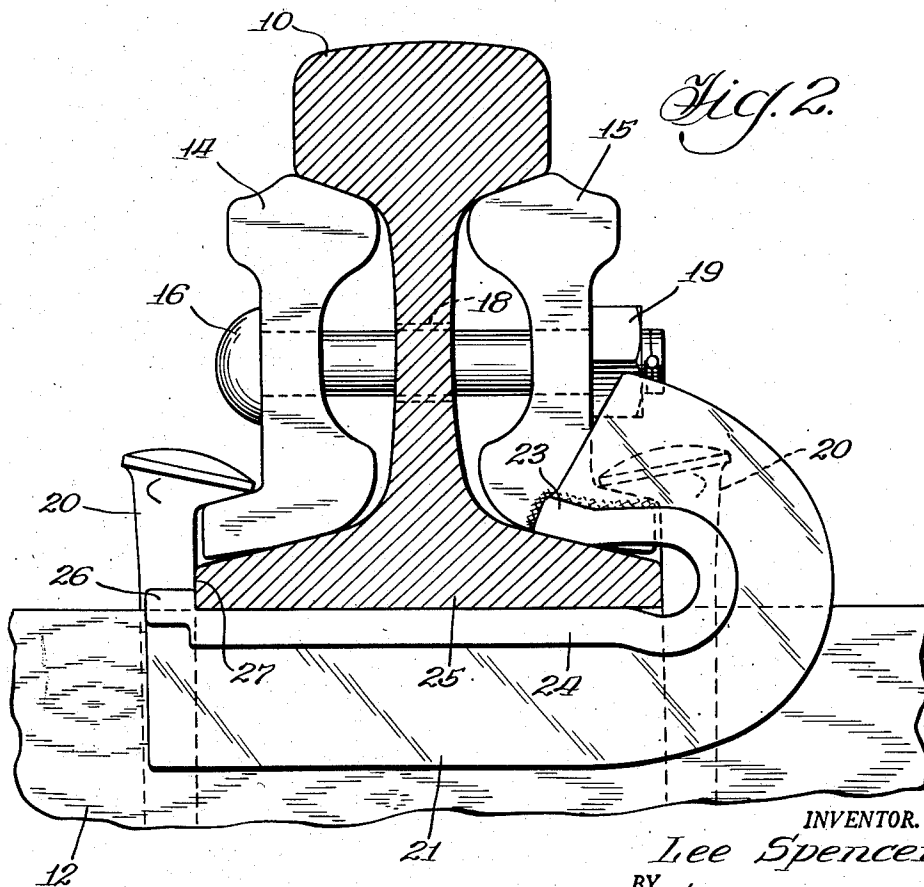
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RAIL JOINT ASSEMBLY

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RAIL JOINT ASSEMBLY

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4 Claims. (Cl. 238—164)

This invention relates to rail joint assemblies and it has for its object the provision of a construction and arrangement of rail joint bars and associated parts by which the rails of a track are held permanently in end to end engagement with each other without the necessity for heat welding of the rails together. I have found that, when new rails are laid in a track with the square flat ends of the rails in spaced relationship to each other, the passage of a single train over the track serves to batter and pound down the ends of the rails so as to provide substantial beads extending beyond the flat faces of the rails into the spaces between the rails and so as to provide a pronounced depression at each of the joints. When such beads are ground away in order to restore the spacing between the rails, new beads are soon formed, with enlarged depressions between the rails. The formation of beads at the ends of the rails, with the bead of one rail in contact with the bead of the adjacent rail, completely defeats the purpose for which the spacing was provided originally between the rails, since the expansion of the rails longitudinally in hot weather is prevented just as effectively by the beads as it would be by the rails themselves if such spacing had not been initially provided.

In view of the futility of the provision of spaces between the ends of the rails from the standpoint of expansion of the rails, and of the fact that the spacing of the rails is decidedly objectionable from the standpoint of smoothness of operation of trains along the rails, and in view of the very substantial expense of the operation of preparing strong smooth heat welded joints between the ends of the rails, it has been the object of my invention to provide improved means for holding contiguous rails permanently in end to end engagement with each other.

It is another object of my invention to improve devices and methods of this type in sundry details as hereinafter pointed out. The preferred means by which I have accomplished my several objects are illustrated in the accompanying drawing, in which

Fig. 1 is a side face view of the end portions of two railroad rails held together by my improved joint means, with two of the cross ties of a track shown in cross section; and

Fig. 2 is a cross sectional view, taken on a substantially enlarged scale at the line 2—2 in Fig. 1.

Referring now to the several figures of the drawing, in which corresponding parts are indicated by the same reference characters, 10 and 11 indicate two rails in end to end engagement with each other on cross ties 12 and 13. At opposite faces of the rails 10 and 11, I have provided joint bars 14 and 15 engaging at their upper edges the bottom faces of the heads of the rails and at their lower edges the top faces of flange portions of the rails, the bars 14 and 15 at opposite faces of the rails being connected together by heavy bolts 16 passing through elongated slots 17 in the bars and through oversize openings 18 in the webs of the rails. The face portions of the rails with which the edges of the joint bars have engagement are arranged in divergent position outwardly with respect to each other at each face of the rail so that the bolts 16 and the nuts 19 secured by screw-threads thereon are adapted to draw the bars into tight gripping engagement with the rails so as to resist very strongly any tendency for the rails to move lengthwise out of engagement with each other. Suitable spikes 20 are driven into the cross ties 12 and 13 for holding the rails and the joint bars in position in the track.

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For assisting in holding the rails from longitudinal movement with respect to each other, I have provided rail anchors 21 and 22 in position on the flanges of the rails in engagement with the end faces of the joint bars and the side faces of the cross ties. These rail anchors, as illustrated herein, are of a well known type comprising a metal bar, preferably of T-shape cross section, bent into hook form to provide upper and lower jaws 23 and 24 adapted to be driven into gripping engagement with the top and bottom surfaces of the rail base 25. The end of the anchor device which is remote from the hook is provided with a locking shoulder 26 adapted to engage a vertical face 27 of the rail base to hold the anchor in its applied position. The anchors are driven to their applied position on the base portion of the rail so as to abut against the opposite ends of a joint bar. In the present illustration the construction of the joint bars 14 and 15 are such that the rail anchors 21 and 22, when driven to their applied positions, have abutting engagement with only one joint bar. However, when joint bars are of the type having flanges which extend downwardly along the opposite edges of the rail base, the rail anchor devices will engage both joint bars at each rail joint. The arrangement herein illustrated is such that the rail anchors 21 and 22 by their grip on the flanges of the rails hold the joint bars very strongly against movement longitudinally of the rails and thus exert a very strong force for keeping the rails from movement longitudinally out of engagement with each other. For the purpose of increasing the holding power of the anchors, I have welded the top jaw portions of the anchors to the ends of the joint plates at 23, as is clearly shown at the inner faces of the anchors in Fig. 1. Such welds hold the anchors united with the joint bar 15, but do not interfere with the removal of the joint bars when it is desired to replace a rail or to make other repairs which require the removal of the joint bars.

By the use of my improved construction, the end faces of the rails 10 and 11 are held rigidly in engagement with each other from the time when the rails are first put into position, thus preventing any tendency for the disfigurement of the end portions of the rails by the pounding of car wheels thereon. I have found that my improved joint means is very effective for its purposes as above described, serving for long periods of heavy traffic conditions to prevent movement of the rails longitudinally so as to open up gaps between the rails. I have found that ordinarily the security of the holding of the rails in snug tight engagement with each other increases rather than decreases with use, this result being attained by the production of what is known as a cold welded joint between the rails. With the end faces of the rails pressed strongly against each other so as to prevent separation, the conditions to which the metal of the rails at their ends is subjected, including the pounding and the vibration brought about by the passage of heavy trains over the joints, cause a gradual coalescing of the abutting end faces of the rails. Whether or not a strong welded joint is thus produced, it is at least a fact that the rails are held effectively against movement out of engagement with each other so as to protect the rails from the formation of projecting beads thereon.

While I prefer to employ the form and arrangement of the parts as illustrated in the drawing and as above described, the invention is not to be limited thereto, except so far as the same may be specifically claimed, it being understood that changes might well be made in the construction without departing from the spirit of the invention.

I claim:

1. In a rail joint assembly, the combination of two rails in end to end abutting engagement with each other, joint bars at opposite faces of said rails, means for pressing said joint bars transversely into gripping relationship to said rails, and other means positioned in bonded abutting engagement with one of said joint bars and having direct resilient clamping contact with the top and bottom surfaces of a base portion of one rail to hold the last mentioned joint bar and the last mentioned rail from relative movement longitudinally of each other.

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2. In a rail joint assembly, the combination of two rails in end to end abutting engagement with each other, joint bars at opposite faces of said rails, means for pressing said joint bars transversely into gripping relationship to said rails, and means removably mounted on said rails to frictionally grip the top and bottom surfaces of a base portion thereof and in abutting engagement with transverse vertical surfaces of one of said joint bars to hold it from movement longitudinally of the rails.

3. In a rail joint assembly, the combination of two rails in end to end abutting engagement with each other, joint bars at opposite faces of said rails, means for pressing said joint bars transversely into gripping relationship to said rails, and rail clamping means frictionally mounted on said rails in direct contact with the top and bottom surfaces of a base portion thereof at both ends of said bars adapted by engagement with the ends of the joint bars to hold said bars from movement longitudinally of the rails.

4. In a rail joint assembly, the combination of two rails in end to end abutting engagement with each other, joint bars at opposite faces of said rails, means for press-

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ing said joint bars transversely into gripping relationship to said rails, and rail anchor devices fixedly mounted on the flanges of said rails and arranged in abutting engagement with the ends of one of said joint bars and rigidly welded thereto to hold it from movement longitudinally of the rails.

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