May 24, 1927. 1,629,791

Z. T. HOSKINS

RAIL JOINT

Filed Sept. 22. 1924

Fig. 1.

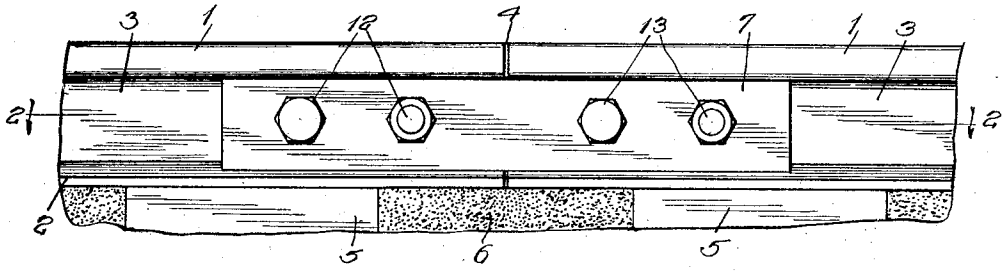


Fig. 2.

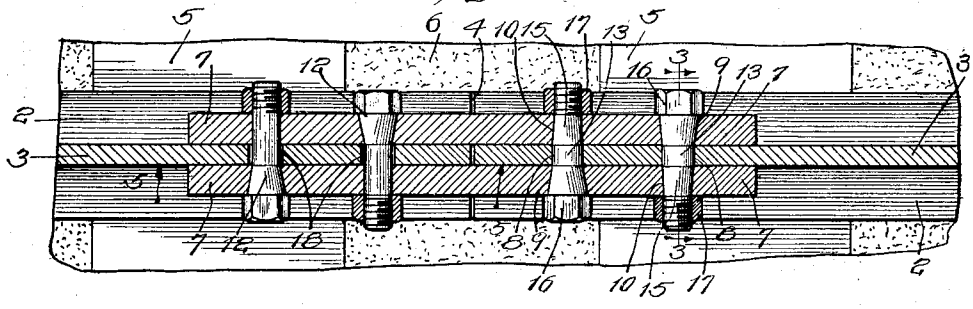


Fig. 3.

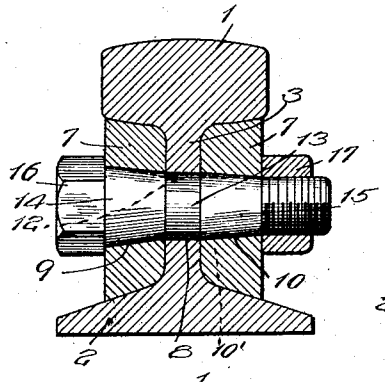


Fig. 4.

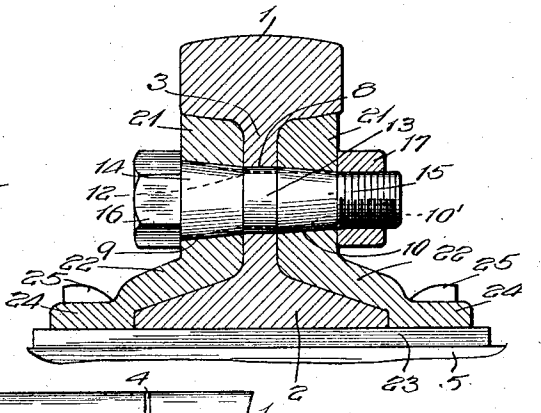
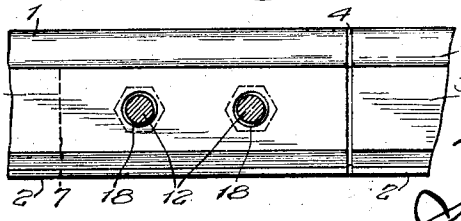


Fig. 5.



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Patented May 24, 1927. 1,629,791

UNITED STATES PATENT OFFICE.

ZACHARY T. HOSKINS, OF CHICAGO, ILLINOIS.

RAIL JOINT.

Application filed September 22, 1924. Serial No. 739,098.

My invention belongs to that general class of devices known as rail joints, and relates more particularly to a simple and efficient type of joint adapted for use on railways, whether street or otherwise. The same is particularly desirable in installations where it has heretofore been customary to weld the abutting rail ends, and is adapted for new or reconstruction work. The invention has among its objects the production of a rail joint of the kind described which is simple, efficient, durable, economical and satisfactory for use wherever found applicable. It also has particularly as an object the production of a construction of the kind described which may be applied in the re-construction of old work or re-building, and in which old materials may be utilized or reconstructed for the purpose. Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosures herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a side elevation of a portion of two abutting rails and joint;

Fig. 2 is a sectional view taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken substantially on line 3—3 of Fig. 2;

Fig. 4 is a similar sectional view illustrating a modified type of plate; and

Fig. 5 is a sectional view taken substantially on line 5—5 of Fig. 2.

Referring to the drawings, in which the preferred embodiment of my invention is shown, 1—1 represents two rails with their ends brought together or abutting, it being understood that the rail itself may be of the desired size, shape and material and for any use for which it is applicable. In the particular rail illustrated, 1 represents the tread, 2 the base, and 3 the usual connecting web between the two, the rails being laid with their ends abutting as indicated at 4 in Fig. 1. I have illustrated ties 5—5 and also concrete or the like 6 arranged between the ties, it being understood that the roadbed construction such as the ties, etc., may be as desired, the particular roadbed forming no part of the present invention. It may likewise be mentioned that the rails may rest on a tie plate or crop ties, and that the rails may be attached to the ties or roadbed in any of the well known manners. I have not considered it necessary to illustrate the various types of ties, tie plates or spikes, bolts or the like for securing the rails on the roadbed. Arranged on each side of the abutting rails and bridging the joint between the two is a plate 7, the plates and rail ends being secured together by bolts. The plates 7 may be of any suitable size, shape and material, and may be modified in details as will be hereinafter described.

I have shown the parts secured together by a plurality of bolts passing through each rail end and the plates, the construction being such that all of the bolts tightly fit the plates, with those passing through one rail closely fitting the rail, while in the other rail there is play between the bolts and rail. As shown, the bolts are represented as at 12 and 13, the bolts 13 closely fitting the holes in the plates and rail. I provide a tapered bolt, the holes being tapered as shown at 9 and 10, and the bolt being tapered as indicated at 14 and 15, the portion through the rail, however, being straight or untapered in the preferred embodiment. The bolt is provided with a head 16 at one end and with a nut 17 at the threaded or opposite end, it being understood that lock nuts, washers, or any equivalent may be provided for locking the nut against turning. I have shown the tapers on the bolt and in the plates as somewhat more exaggerated than the same might be, in order to clearly illustrate the construction, but it should be noted that this taper may be as desired. The opposite bolts 12 passing through the other rail and the rail holes thereat are preferably so proportioned that there is a slight space 18, or, in other words, the hole is larger than the bolt at this point. While the holes may be slotted, ordinarily this is not preferred as it adds expense to the installation. Generally, I prefer to have the holes in the two rail ends the same and make the bolts 12 of reduced diameter where they pass through the rail ends, so that it is not necessary to lay the rails in any particular way.

In Fig. 3 I have shown in the full lines the bolt 13, and in the same figure I have

substantially shown in the dotted lines the bolt 12, so that the relative sizes of the two bolts are illustrated. The plate holes are of course designed to fit the bolts. While the plate at the threaded end of the bolt 12 may be straight, if tapered, as shown in Fig. 4, a bushing may be inserted at 10′ so that the bolt has a tight fit in the plate. It is believed that the construction will be obvious by reference to this figure. As most clearly shown in Fig. 2, I generally prefer to arrange the bolts with the heads on one side alternating with the heads on the other side.

When the joint is made as described, obviously the plates are substantially a part of one rail and embrace and firmly secure the other rail end thereto but in such a manner that slight relative movements of the rails are permitted during expansion or contraction thereof. However, the parts are securely and tightly fastened together so that there is a good bond between the rail ends, making the joint particularly adapted for electrical railway systems wherein the rails may be used as a return conductor.

By employing the construction shown, it is possible to join practically any types of rails together so that the same is particularly convenient on repairing broken welded joints, as well as in new construction. It is not necessary to any way change the rails to provide special styles of openings or bolt holes, and even old tie plates may be reamed out and reconstructed even on the job, thereby saving material and permitting the reapplying of old material in my new type of joint.

In Figure 4, I have merely illustrated a modified type of plate 21, provided with the base flanges 22 resting on the base of the rail. I have shown in this figure the tie plate 23 arranged under the rail and with the plates extended as at 24 and resting on the plate, 25 being any suitable securing means passing through the portion 24 and plate 23 into the tie or other support, (the fastening means 25 is not shown in full) it being understood that bolts, spikes or any equivalent means may be employed. By the employment of my improved method of fastening, the plates 23 and flange 24 may be secured to the tie without danger of the contracting or expanding rails pulling the fastening from the tie. I do not wish to be understood, however, that the two types of plates shown are the only possible designs. When the rails are joined, as herein described, they are maintained in perfect alignment without any sagging of one relative to the other. In the case of expansion or contraction during weather changes, this does not in any way affect the rails as the expansion or contraction is permitted without breaking the joint or displacing the rails at either side of the roadbed relative to each other.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a rail joint of the kind described and in combination, abutting rails, a tie plate, splice bars arranged on either side thereof, and bridging the joint between the rails, the bars extended to overlie and seat on the tie plate, means for securing the bars and tie plate to the tie, said rail ends and splice bars provided with bolt holes, and bolts passing through the bars and rail ends, the bolts passing through one rail end being of slightly less diameter than the bolts passing through the other rail end, whereby said bolts are of less diameter than the holes through which they pass for permitting movement of one rail end relative the other.

2. In a rail joint of the kind described and in combination, rails having their ends abutting and plates arranged one on each side of said rails and bridging the joint between the rails, each rail end provided with a plurality of bolt holes, and said plates provided with holes registering therewith, the holes in the plates being tapered, and tapered bolts fitting in said plate and bolt holes, the portion of the bolts passing through the rail end being straight without a taper and the bolts in one rail end being of a size to provide a clearance at the bolt holes, whereby the rails may have a limited relative movement between the plates.

3. In a rail joint of the kind described and in combination, abutting rails, splice bars bridging the joint between the rails, bolts passing through the bars and rail ends, the bolts being alternately threaded through the holes from opposite sides and closely fitting all of the plate holes and the bolt holes in one rail end, but loosely fitting the bolt holes in the other rail end.

4. In a rail joint of the class described and in combination, abutting rail ends, splice bars bridging the joint between the rail ends, said rails and splice bars formed with bolt holes, and bolts passing through the bars and rail ends, the bolts passing through one rail end being of slightly less diameter than the bolts passing through the other rail end, the bolts passing through the other end having a driving fit with the holes whereby to permit movement of one rail end relative the other rail end.

5. In a rail joint of the kind described

and in combination, abutting rails, splice bars bridging the joint between the rails, said splice bars being formed to engage substantially the entire under surface of the head, the entire side surface of the web and the entire upper and side surfaces of the base, bolts passing through the bars and rail ends, the bolts being alternately threaded through the holes from opposite sides and closely fitting all of the bar holes and the bolt holes in one rail, but loosely fitting the bolt holes in the other rail end.

In testimony whereof, I have hereunto signed my name.

ZACHARY T. HOSKINS.