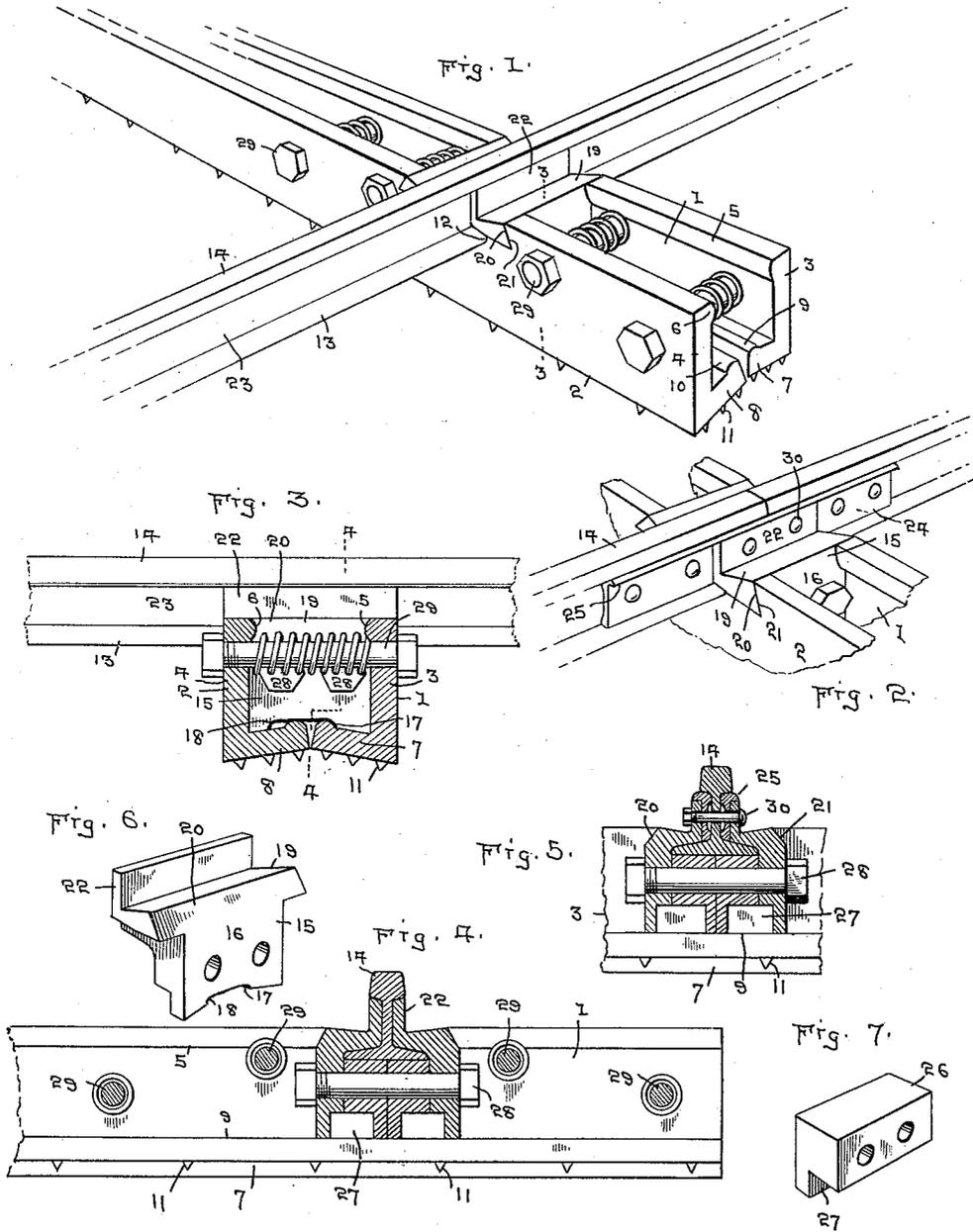


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 RAIL TIE AND FASTENING MEANS THEREFOR.  
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1,149,649.

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# UNITED STATES PATENT OFFICE.

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RAIL-TIE AND FASTENING MEANS THEREFOR.

1,149,649.

Specification of Letters Patent. Patented Aug. 10, 1915.

Application filed November 30, 1914. Serial No. 874,805.

*To all whom it may concern:*

Be it known that we, CLAY L. HOFFMAN, WALTER F. KOEGELE, and ROBERT F. BAYERL, citizens of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented certain new and useful Improvements in Rail-Ties and Fastening Means Therefor; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in rail ties and more particularly to that class wherein all of the parts of the tie and fastenings are constructed of metal, and our object is to provide a tie for receiving rails embodying in construction the same resilient features as is obtained in a wooden tie.

A further object is to so construct the body of the tie as to prevent the same from lateral movement upon the road bed.

A further object is to provide means for securely locking the rail in connection with the tie to prevent spreading of the rails. And a further object is to so construct the parts as to reduce the weight of the various parts of the tie without detracting from the strength thereof.

Other objects and advantages will be hereinafter set forth and more particularly pointed out in the accompanying specification.

In the accompanying drawings which are made a part of this application, Figure 1 is a perspective view of a portion of the tie, showing the manner of securing a rail thereto. Fig. 2 is a similar view showing the manner of securing the meeting ends of the rails to the tie. Fig. 3 is a transverse sectional view through the tie as seen on lines 3—3 of Fig. 1. Fig. 4 is a sectional view as seen on lines 4—4 of Fig. 3. Fig. 5 is a sectional view longitudinal of the tie and transversely of the rail of the form shown in Fig. 2. Fig. 6 is a perspective view of one of the rail retaining members, and Fig. 7 is a perspective view of one of the spacing blocks employed in supporting the base of the rail.

Referring to the drawings in which similar reference numerals designate correspond-

ing parts throughout the several views, 1 and 2 indicate the sections of the tie which are substantially L-shaped in cross section, the side sections 3 and 4 thereof having at their inner upper edges, reinforcing ribs 5 and 6 respectively, while the base members 7 and 8 are likewise provided on their upper inner edges with similar ribs 9 and 10.

The base members 7 and 8 are extended upwardly or inclined from their outer edges, thus providing a cavity below the base of the tie in which will pack the soil or ballast of the road bed and form a rib, which, when properly settled, will prevent the tie from lateral movement, the tie being further held firmly in engagement with the soil by placing prongs or the like 11 on the lower faces of the two base members. The upper edges of the side sections 3 and 4 are provided adjacent their ends with depressions or cutaway portions 12, and in said depressions is seated the base 13 of the rail 14, said base resting upon the walls of the side sections. In order to securely clamp the rail in position on the tie and prevent the same from lateral movement, we provide the rail retaining members 15, one for each side of the rail, the body 16 of the retaining member extending between the side sections 3 and 4 and having its lower end resting upon the base members 7 and 8. The lower face of the base member is tapered adjacent its edges as at 17 to correspond with the taper of the upper faces of the base members 7 and 8, said lower edge also having an elongated recess 18 for the reception of the ribs 9 and 10.

The upper end of the retaining member is provided with a cross head 19, the outer face 20 of which is beveled to engage and interlock with the overhanging edges 21 of the side sections 3 and 4, the inner edge of the cross head terminating in an upwardly extending flange 22, which is adapted to engage the web 23 of the rail or the fish plate 24, as shown in Fig. 2 of the drawings, the upper edge of the flange engaging the under face of the rail head, as shown in Fig. 4 or the under face of the lip 25 on the fish plate, as shown in Fig. 5, thus extending a portion of the cross head over the upper faces of the base of the rail.

That portion of the base of the rail between the side sections is provided with a

suitable support through the medium of the supporting blocks 26, which blocks extend transversely of the tie and are located between the two rail retaining members, the lower ends of said blocks and the lower ends of the retaining members being cutaway, as shown at 27 for the purpose of reducing the weight of said members.

In applying a tie and its several parts to use, the sections 1 and 2 are placed below the rail and the section 1 set up in position, when the supporting blocks 26 are introduced below the rail and the retaining members placed in position and engaged with the overhanging edge walls 21 of the side section 1, the retaining members and blocks being securely locked together by introducing bolts 28 transversely through the retaining members and blocks. The base member 8 of the section 2, is then entered below the projecting portions of the retaining members 15 a sufficient distance to enter the rib 10 in the elongated recess 18, when the side section 4 is swung upwardly until the overhanging edge 21 of said side wall comes in alinement with the bevel face 20 of the cross head 19 when said section 2 is moved bodily inwardly until it is properly seated below the rail. The two sections of the tie are then secured together by disposing bolts 29 transversely through the side walls of the sections 1 and 2. The bolts 29 are surrounded by springs 29', which springs exert tension on the side walls and take up any vibration that may occur in the tie.

When a fish plate is used for securing the meeting ends of the rails together, as shown in Figs. 2 and 5, bolts 30 are extended transversely through the flanges 22, and the interposed portions of the rails and fish plates, thus more securely bracing the rails at this point, said fish plates having recesses 32 in their inner faces through which may pass suitable wires or the like (not shown).

By constructing the tie in the manner shown, it will be readily seen that it can be very cheaply manufactured and rendered strong and durable in construction although comparatively light in weight. It will likewise be seen that in view of the few parts of the device, it can be readily and quickly placed below and attached to the rails so that when the parts of the device are properly secured together, it will be impossible for the rails to spread, although the tie will have a slight yielding action similar to a wooden tie. It will likewise be seen that by placing the base sections of the tie at an incline, portions of the road bed will be tightly pressed in the cavity thus formed and serve to hold the tie against lateral movement, such movement being further guarded against by the placing of the prongs on the lower face of said base member. And it will further be seen that by using our form of

tie and its fastenings for the rail, all spikes, rail chairs, and other bracing members required in connection with the usual form of wooden tie, will be entirely dispensed with.

What we claim is:—

1. In a tie construction, the combination with a pair of members having reinforcing ribs and depressions in their upper edges, the walls at the ends of said depressions being at an angle, of retaining members having cross heads at their upper ends, one face of the cross heads being inclined to cooperate and interlock with the inclined walls of the depressions, flanges extending upwardly from said cross heads, supporting blocks, and means to lock said retaining members and supporting blocks in engagement with a rail.

2. In a tie construction, the combination with a tie comprising a pair of sections substantially L-shaped in cross section, the base portions of said sections being inclined upwardly from their outer edges, reinforcing ribs on said members, and prongs on the lower faces of said base sections, of retaining members, each comprising a body portion having an elongated recess in its lower end, a cross head at its upper end adapted to interlock with the parts of the tie members, a flange extending upwardly from one edge of the cross head, supporting blocks, means to lock the retaining members and blocks in engagement with the rail, and additional means to secure the two sections of the tie together.

3. In a rail tie, the combination with a pair of substantially L-shaped members having depressions in their upper edges, the base sections of said members being inclined to form a cavity below the tie when the two sections are secured together, and reinforcing ribs on said members, of retaining members each comprising a body portion having an elongated recess in its lower end, said end section being inclined to cooperate with the inclination of the base sections of the tie members, a cross head at the upper end of the retaining member, the ends of which are adapted to interlock with the end walls of the depressions in the tie members, a flange extending upwardly from one edge of the cross head adapted to engage parts of a rail, supporting blocks, the lower ends thereof and the lower ends of the retaining members having portions cutaway, and means to lock the retaining members and blocks in engagement with the rail.

4. In a tie structure for rails, a tie composed of two sections, each comprising a side and base wall, said base wall being inclined upwardly whereby when the two members are secured together a cavity will be formed below the tie, prongs depending from said base sections, reinforcing ribs on said side and base sections, and means interlocking

with the side walls of the tie and a rail to secure said rail to the tie and prevent lateral movement thereof.

5 In a tie construction, the combination  
with a tie formed of two sections having de-  
pressions therein, of retaining members,  
each comprising a body portion having an  
elongated recess in its lower end, a cross  
10 head at its upper end, the ends of said cross  
head extending beyond the edges of the body  
portion and interlocking with the end walls  
of the depressions in the tie members, a lat-  
erally extending portion on the cross head,

a flange extending upwardly from the lat-  
erally extending portion, and means to lock 15  
the retaining members in engagement with  
a rail.

In testimony whereof we have signed our  
names to this specification in the presence  
of two subscribing witnesses.

CLAY L. HOFFMAN.  
WALTER F. KOEGELE.  
ROBERT F. BAYERL.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."