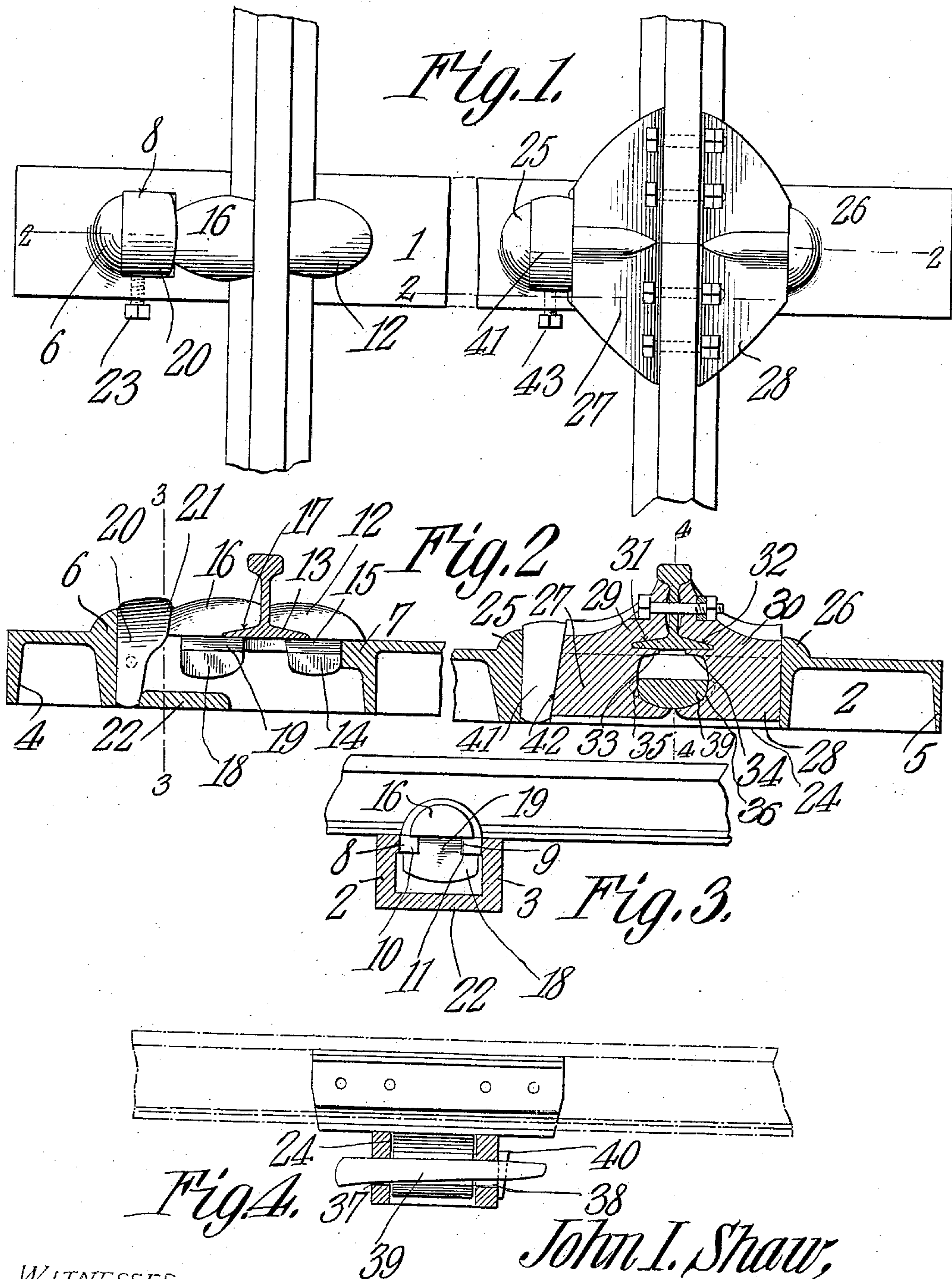


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PATENTED AUG. 13, 1907.

J. I. SHAW.
METAL TIE AND RAIL FASTENER.
APPLICATION FILED MAY 28, 1907.



WITNESSES:

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METAL TIE AND RAIL FASTENER.

No. 863,458.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed May 28, 1907. Serial No. 376,144.

To all whom it may concern:

Be it known that I, JOHN I. SHAW, a citizen of the United States, residing at Novinger, in the county of Adair and State of Missouri, have invented a new and useful Metallic Tie and Rail Fastener, of which the following is a specification.

My present invention relates to improvements in devices employed in the mounting of railway rails, and it has for its object to provide an improved tie that may be manufactured cheaply of suitable metal and that is capable of withstanding the effects of the weather and also the strains due to passing trains, and another object of the invention is to provide devices for fastening the rails in position on the tie whereby the use of fish plates, and bolts and spikes that are liable to loosen, is obviated, and the rails are effectually secured to the tie so as to prevent vertical as well as lateral movement between the parts.

To these and other ends, the invention comprises the various novel features of construction and combination and arrangement of parts, which will be hereinafter more fully described and pointed out particularly in the appended claims.

In the accompanying drawings:—Figure 1 is a plan view of a railway tie equipped with rail fastening devices constructed in accordance with the present invention. Fig. 2 represents a longitudinal section through the tie and the fastening device shown in Fig. 1. Fig. 3 is a cross section on the line 3—3 of Fig. 2, the locking wedge being removed. Fig. 4 represents a cross section on the line 4—4 of Fig. 3, the rail being removed.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The rail fasteners are shown in the present embodiment of the invention as applied to a metallic tie which may be either cast or constructed of rolled stock, the tie shown in the drawings being composed of cast metal of substantially channel form and embodying a bed 1 which is substantially flat and forms a support for the rails and having the parallel longitudinal flanges 2 and 3, the latter being connected at their ends by transversely extending webs 4 and 5. Ordinarily, both ends of the tie will be formed alike to receive similar rail fastening devices, but in the present instance a tie is shown that is adapted to be employed at the joint of two adjacent rails, the rail fastening devices in this instance serving not only to secure the rails to the tie, but also to rigidly maintain them in alinement, taking the place of fish plates that are usually employed for the latter purpose. The fastening devices that are adapted to cooperate with those portions of the rail between its ends are shown at the left hand side in Figs. 1 and 2, the tie being provided with a pair of trans-

versely extending abutments 6 and 7 suitably spaced longitudinally of the tie, a relatively large opening 8 being provided adjacent to one of the abutments, the abutment 6, in the present instance, and a narrower or reduced slot 9 extending from the said opening and toward the other abutment, the abutment 7 in the present instance, a pair of parallel guides 10 and 11 being thereby formed at opposite sides of the slot which extend longitudinally of the tie.

The rail is adapted to rest directly on the top of the tie, as shown in Fig. 2, and arranged at one side of the rail is a locking member 12 which is recessed at 13 to accommodate one half of the base flange of the rail, and is provided with a depending lug 14 which has a reduced portion 15 adapted to operate between the longitudinal guides of the tie, the enlargements above and below the reduced portion cooperating with the upper and lower sides of the top portion of the tie and thereby operating to prevent vertical displacement of the locking member. The latter is adapted to rest against the abutment 7 as a stop for retaining it in cooperative relation with the rail, and a similar locking member 16 is arranged at the opposite side of the rail, it being provided with a recess 17 to cooperate with the base flange at that side of the rail, and having a depending lug 18 provided with a reduced portion 19 adapted to fit into the slot formed between the longitudinal guides 10 and 11 of the tie, a relative movement of the two locking members in a direction longitudinally of the guides serving to lock and unlock the rail relatively to the tie.

Any suitable means may be employed for securing the locking members in cooperative relation to the rail, the device shown in the present instance comprising a wedge 20 engaging the abutment 6 at its outer side and having an offset inclined portion 21 engaging behind the locking member 16, a cross piece 22 being preferably provided to confine the lower end of the wedge between it and the abutment 6. It is also preferable to employ a suitable device for retaining the wedge in operative position, the device shown in the present instance for accomplishing this purpose comprising a set screw 23 threaded through one or both of the flanges of the tie and engaging the wedge to retain it within the opening 8 in the tie.

The opposite end of the tie, which, in the present instance, is adapted to receive the fastening devices which serve to join adjacent rails as well as to secure them to the tie, is provided with a vertical slot 24 having transversely extending abutments 25 and 26 at its ends, and into this slot are adapted to fit shanks 27 and 28 held by the locking members 29 and 30, respectively, the latter being preferably of a length approximately equal to the length of the ordinary fish plates, and they are formed relatively large above the surface

of the tie in order that they may obtain a relatively larger bearing surface. The proximate faces of these locking members are provided with longitudinally extending recesses 31 and 32 to receive the base flange of the rail, the longitudinally extending ribs 33 and 34 below the recesses engaging beneath the base flange and between the latter and the top of the tie to form an extensive bearing that will maintain the rail ends in alinement and prevent their sagging after they have been in service for some time, the portions of the locking members above the flange receiving recesses being arranged to engage the rail between the base flange and the head thereof, preferably in a manner similar to the ordinary fish plate. The proximate faces of the shanks 27 and 28 of the respective locking members are provided with the complementary recesses 35 and 36 which are arranged to register with openings 37 and 38 formed in the longitudinal flanges of the tie, a wedge 39 being adapted to pass through the openings in the tie and the recesses in the shanks, and operates to draw the upper portions of the locking members into coöperative relation with the top of the tie. It is preferable to provide a suitable device for retaining this wedge in place, a pin 40 being employed for this purpose in the present instance. If so desired, a relatively fixed part of the tie may serve the purpose of this wedge. The locking members are held in coöperative relation with the rail by means of a wedge 41 which has an inclined surface 42 coöperating with the adjacent locking member 29, and it is interposed between the latter and the abutment 25, a set screw or other appropriate device 43 being preferably provided for retaining it in position from one or both sides of the tie.

In equipping railroads with a complete set of ties constructed in accordance with the present invention, those ties that are placed at points other than at the rail joints are preferably provided with the locking members 12 and 16 at both ends, the tie shown in the present instance being especially adapted for use at those points where the rails join, and if so desired the gripping action of the locking members on the rails may be supplemented by passing the usual bolts through the locking members and through the usual bolt holes in the rail ends, but ordinarily the clamping action is sufficient.

Rail fastening devices constructed in accordance with the present invention may be applied to ties other than that shown, and they are capable of being readily applied and removed, and in use they serve to effectually lock the rails in coöperative relation with the tie.

What is claimed is:—

1. The combination with a tie or other suitable support having a pair of relatively fixed abutments thereon, and a pair of substantially parallel guides extending between them, of a pair of coöperatively arranged rail locking members adjustable relatively in a direction longitudinally of the guides, and a device for retaining the members in coöperative relation with the rail.

2. The combination with a tie having a pair of transversely arranged abutments and provided with a pair of guides extending between them, a relatively large opening being formed at the ends of the guides and adjacent to one of the abutments, of a pair of rail locking members having portions recessed to engage the base flange of a rail, and having reduced portions adapted to fit between the guides, one of the members engaging one of the abutments, and a wedge interposed between the other member and the adjacent abutment for locking the members in coöperative relation with the rail.

3. The combination with a tie having a pair of abutments spaced longitudinally thereof and having a relatively large opening in its upper side adjacent one of the abutments, and having a narrow slot extending from the said opening toward the other abutment and forming a pair of longitudinally extending guides, of a pair of rail locking members having recessed portions arranged above the tie and coöperating with the base flange of the rail, and having depending lugs provided with reduced portions resting in the said slot, a wedge fitting into the said opening in the tie between one of the locking members and its adjacent abutment for proximating the locking members and retaining them in coöperative relation with the rail, and a cross piece extending transversely across the lower portion of the tie and confining the lower end of the wedge between it and its coöperating abutment.

4. The combination with a tie having a pair of longitudinally spaced abutments thereon, of a pair of locking members having coöperatively arranged rail receiving portions, means for preventing a relative lateral movement of the members and the tie, and a device for compressing the members between the said abutments.

5. The combination with a railway tie having a slot formed at one end and provided with a pair of transversely arranged abutments, of a pair of rail locking members having rail receiving portions arranged above the tie and provided with shanks engaging in the said slot, a wedge interposed between one of the abutments and the adjacent locking member for compressing the members between the abutments, and a device for preventing a relative vertical movement between the members and the tie.

6. The combination with a tie composed of metal comprising a base portion and a pair of longitudinal flanges, and a pair of abutments extending transversely between the flanges, a slot being formed in the base of the tie between the abutments, and the flanges being provided with registering apertures, of a pair of rail locking members having coöperatively arranged rail receiving surfaces above the base of the tie and having shanks resting in the said slot, the proximate faces of the shanks being provided with complementary recesses, a wedge interposed between one of the abutments and the adjacent locking member, and a second wedge passing through the apertures of the tie flanges and coöperating with the recesses in the shanks of the locking members.

7. The combination with a tie or other suitable support having a slot extending longitudinally thereof and provided with a pair of transversely arranged abutments, of a pair of rail locking members having coöperatively arranged recesses formed in their proximate faces to receive the base flange of the rail and forming a pair of rail supporting ribs engaging beneath the flange, and means for locking said members in coöperative relation with the rail.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN I. SHAW.

Witnesses:

FRED F. SHAW,
JOHN E. FUGATE.