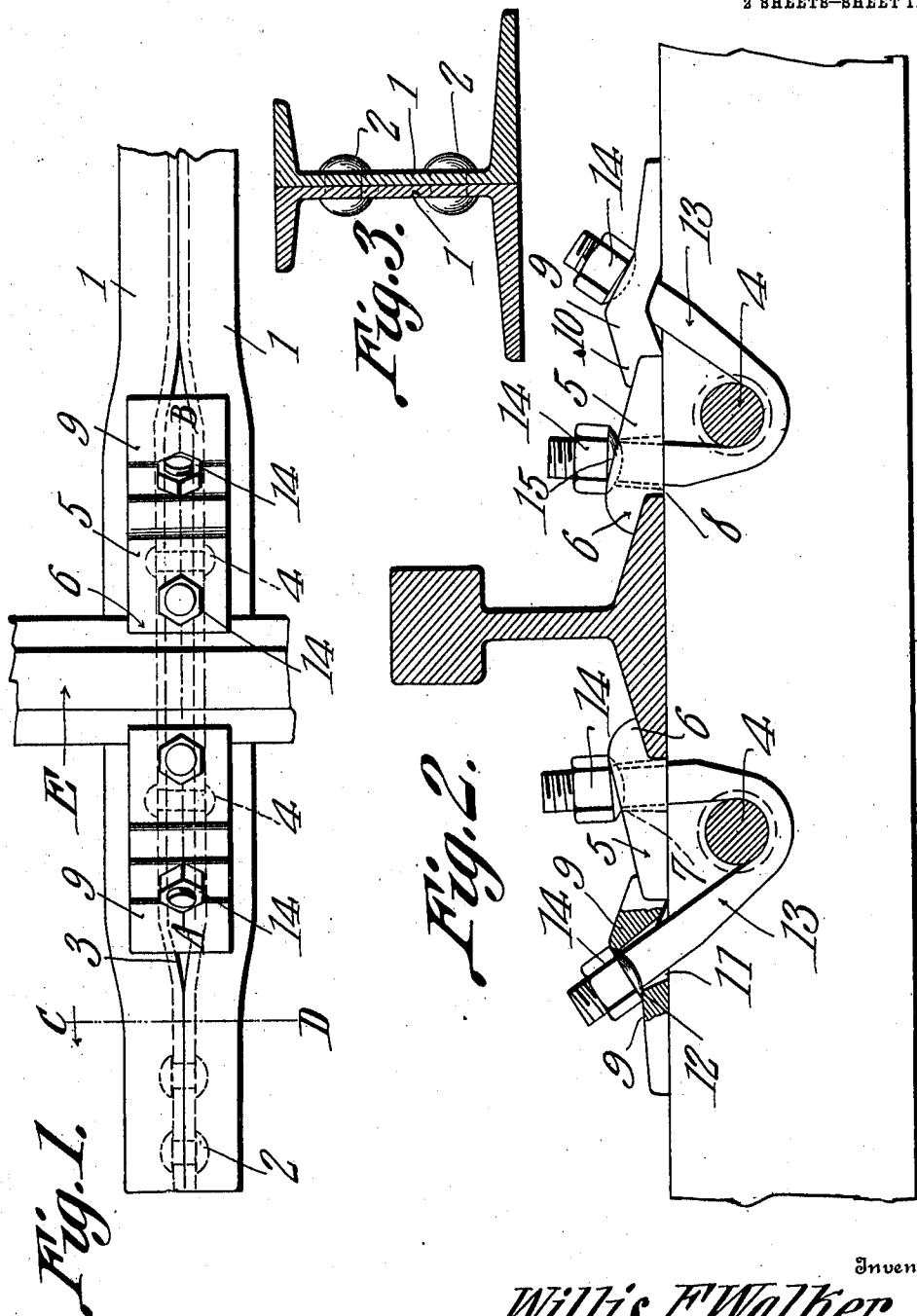


982,452.

2 SHEETS—SHEET 1.



Witnesses

Robert A. Lewison

Inventor

Willis F. Walker.

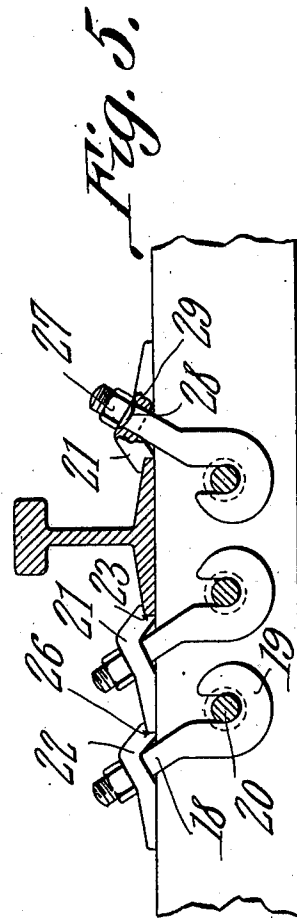
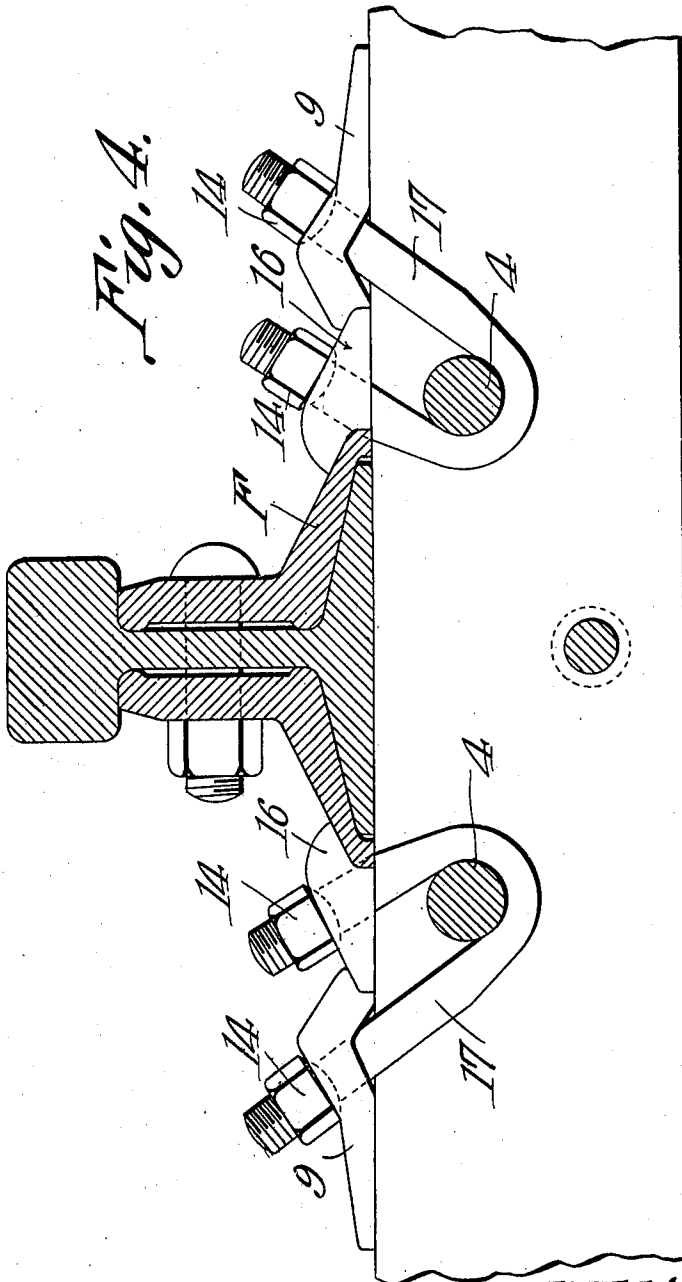
W. C. Knowlton
Attorney

W. F. WALKER.
RAILWAY TIE AND FASTENER.
APPLICATION FILED FEB. 3, 1910.

982,452.

Patented Jan. 24, 1911.

2 SHEETS-SHEET 2.



Witnesses

E. F. Walker
Robert F. Lawson

Inventor
Willis F. Walker

By *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

WILLIS F. WALKER, OF SEISHOLTZVILLE, PENNSYLVANIA.

RAILWAY-TIE AND FASTENER.

982,452.

Specification of Letters Patent.

Patented Jan. 24, 1911.

Application filed February 3, 1910. Serial No. 541,726.

To all whom it may concern:

Be it known that I, WILLIS F. WALKER, a citizen of the United States, residing at Seisholtzville, in the county of Berks and State of Pennsylvania, have invented a new and useful Railway-Tie and Fastener, of which the following is a specification.

This invention relates to rail fasteners for use in connection with metallic railway ties such as shown, more especially, in an application filed by me on January 22, 1910, Serial No. 539,469. The said tie is made up of opposed channel members riveted or otherwise secured together and which are laterally off-set or spaced apart at the points where the rails are to be supported, certain of the rivets or other fastening devices being extended through the spaces thus formed between the tie members. Those rivets which are located within the spaces constitute anchoring devices for holding the rail fasteners constituting the present invention.

One of the objects of the present invention is to provide novel forms of fasteners including bolt members which are capable of angular adjustment with reference to the tie, and longitudinally thereof to permit the use of said members in connection with rails of different weights and widths and also to permit such use either in connection with a rail alone or at points on the rail where fish plates or other connections are located.

A further object is to provide fasteners having reinforcing means especially designed to be placed at curves and other places along the track where the rails are subjected to more than ordinary lateral pressure.

Another object is to provide a fastening member of a resilient nature and which exerts a constant pressure against the nut used in connection with the bolt member so as to prevent said nut from working loose, said nut being capable of angular adjustment or movement upon the fastening member to allow for the various angular positions of the bolt member.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings:—Figure 1 is a plan view of a portion of a tie having the improved rail fastening devices thereon; Fig. 2 is an enlarged section on line A—B Fig. 1; Fig. 3 is a section on line C—D Fig. 1; Fig. 4 is a view similar to Fig. 2 but showing the fastening bolts bent back to receive fish plates between them; and Fig. 5 is a view on a reduced scale, and similar to Fig. 2, and showing modified means for fastening the rails to the tie.

Referring to the figures by characters of reference 1, 1 designate opposed channel members secured together at desired points by means of rivets 2 or the like, said members being off-set laterally or bulged apart at those points where the rails E are designed to rest thereon. Longitudinal spaces 3 are thus formed between the off-set portions of the tie members and certain of the rivets extend transversely through these spaces and constitute anchoring devices as indicated at 4. By off-setting the tie members in the manner described the tie is given a certain degree of elasticity and is, moreover, prevented from creeping longitudinally upon the roadbed.

The fastening devices employed for attaching rails to the tie preferably consist of rail engaging blocks 5 designed to rest flat upon the tie and to bridge the spaces 3 each of these blocks having a lip 6 at one end designed to lap and bear upon one of the base flanges of the adjoining rail E. The upper face of each block 5 has a concavity 7 located at the end of an opening 8 designed to receive the block fastening means.

Each of the blocks 5 is provided with a resilient backing or reinforce preferably in the form of a transversely arched plate 9 bearing at its ends upon the tie and bridging the space 3, one end of said plate being provided with a transversely extending recess 10 for the reception of one end of a block 5. An opening 11 extends through the elevated portion of the plate 9 and is provided at its upper end with a concavity 12.

A substantially V-shaped bolt 13 is employed for securing each block 5 and its reinforce 9 in position on the tie. This bolt has its angle portion extended under the adjoining anchoring device 4 and the end portions of the bolt are screw threaded and extend through the openings 8 and 11 respectively. Nuts 14 are mounted on the thread-

ed ends and are provided with convex lower faces 15 designed to fit snugly within the concavities 7 and 12 respectively so as to thus present increased areas to the block 5 and its reinforce 9 and therefore be held against unscrewing after having once been tightened upon the bolt. The nut bearing on the reinforce 9 is designed, when tightened, to spring said reinforce toward the tie, and as this reinforce possesses a certain amount of elasticity, it will be apparent that the same will press constantly against the nut thereon and thus hold the fastening members tightly together so that they will not loosen as the result of vibrations produced by cars passing over the rails. Reinforcing plates such as have been described can of course be used upon all the ties and they will be found especially desirable at curves and other points where the rails are subjected to more than the usual lateral pressure.

At those points where fish plates are located, it is of course necessary to arrange the blocks 5 at greater distances apart than where the blocks directly engage the base flanges of the rails. In Fig. 4 the fastener has been shown in engagement with fish plates F, it being merely necessary, at such points, to provide shorter blocks 16 and to bend the end portions of the bolts 17 toward each other so as to form more acute angles than where the parts are arranged as shown in Fig. 2. This adjustability of the fastener is deemed of considerable importance because it not only enables it to be fitted to a rail and to fish plates upon the rail, but also permits it to be used in connection with rails of different sizes and weights. The arched reinforcing plate serves to exert a constant pressure of the bolt against its anchoring device and, moreover, constitutes a nut lock to prevent displacement of the nut 14 relative to the bolt.

Instead of utilizing bolts such as shown in Figs. 2 and 4, fastening bolts of the form illustrated in Fig. 5 may be provided. Each of these bolts consists of a shank 18 having a hook 19 for engaging one of the anchoring devices 20 in the space in the tie, there being three of these bolts employed, two of them engaging transversely arched rail engaging plates 21 while the remaining bolt engages a transversely arched reinforcing plate 22. All of the plates are of substantially the same contour, the plates 21 having end recesses 23 for the reception of the side edges of the base flanges of the rails while the plate 22 has a corresponding recess 26 for the reception of the outer end of the adjoining plate 21. These plates 21 and 22 are of the same construction as the plates 9 heretofore described and the nuts 27 are formed with rounded or convex faces 28 designed to rest within the concavities 29. Obviously

each of these plates 21 and 22, by reason of its resilient nature, serves as a nut lock to prevent the nuts from loosening on the bolts.

In Fig. 5 only three plates 21 and 22 have been shown, it being designed to place the plate 22 at the outer side of the curve or other point where the rail is subjected to excessive lateral pressure. In a straight track the reinforcing plates 22 can be located adjacent the outer sides of the rails so as to assist the outer plates 21 in holding the rails against spreading. By swinging the bolts about the anchoring devices 20 the plates can be adjusted toward or away from each other so as to properly engage rails of different sizes.

It is to be understood that the plates 21 and 22 as well as the plates 5 and 9, can be arranged in any other desired relations than those shown so as to meet excessive strains and to hold the rails proper distances apart under all conditions.

While this invention, which relates particularly to the rail fastening means, has been shown and described with reference to the peculiar construction of tie which is covered in the co-pending application hereinbefore noted, it is to be understood that said rail fastening means may be employed in connection with any construction of tie in which the fastening bolt may be pivotally anchored to the tie, so as to permit of the angular adjustment heretofore referred to. It will be noted that, whether the fastening bolt used in this connection consists of two connected members as shown in Figs. 1 to 4 of the drawings or of the separated members illustrated in Fig. 5 of the drawings, said bolt members are capable of angular adjustment with reference to the tie, and longitudinally thereof to permit of the use of said members in connection with rails of different weights and widths, and, also, whether used in connection with the rails alone or at those portions of the rail where fish plates are located. In addition thereto the bolt members are capable of relative angular adjustment in addition to the bodily angular adjustment, as shown plainly by comparison of Figs. 2 and 4 of the drawings, this relative adjustment of the bolts being effected, in the form shown in Figs. 2 and 4, by bending the members to permit of their being used under varying conditions as heretofore explained.

It will be observed that the nuts which engage the bolt members are capable of angular adjustment or movement in the seats provided for them within the rail engaging or reinforcing members, to accommodate the angular positions of said bolt members and insure a proper surface bearing of the nuts in the seats provided in the said rail engaging and reinforcing members.

It is of course to be understood that

various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing any of the advantages of the invention as defined in the appended claims.

What is claimed is:—

1. The combination with a tie and non-detachable holding means extending within the tie, of fastening devices insertible into the tie and shiftable into and out of engagement with said means, said devices consisting of members adapted to be moved angularly with reference to each other.

2. The combination with a tie, of rail fastening devices including rail engaging and reinforcing means and bolt members pivotally anchored to the tie and having engagement respectively with said rail engaging and reinforcing means.

3. The combination with a tie, of rail fastening devices including rail engaging and reinforcing means and bolt members connected with the tie and having nuts respectively engaged therewith and seated respectively on said rail engaging and reinforcing means.

4. The combination with a tie, of rail fastening devices including rail engaging and reinforcing means, and bolt members connected to the tie for relative angular adjustment and having engaging nuts respectively seated upon said rail engaging and reinforcing means.

5. The combination with a tie, of rail fastening devices including rail engaging and reinforcing means and connected bolt members anchored to the tie and provided with engaging nuts respectively seated upon said rail engaging and reinforcing devices and said bolt members being capable of relative angular adjustment.

6. The combination with a tie consisting of opposed fixedly connected members having a space therebetween, of a rail engaging member, a resilient reinforcing member abutting against the rail engaging member and bearing on the tie, and means extending through said members for binding them together and against the tie.

7. The combination with a tie, of a rail engaging member, a resilient reinforcing member abutting against the rail engaging member and bearing on the tie, and means extending through said members for binding them together and against the tie.

8. The combination with a tie consisting of opposed fixedly connected members having a space therebetween, of a rail engaging member bearing on the tie and bridging said space, a resilient reinforcing member bearing

against and engaging the rail engaging member, and cooperating means within said member and within the space in the tie for binding said members together and upon the tie.

9. The combination with a tie, of a rail engaging member mounted thereon and having an aperture, a resilient reinforcing member bearing on the tie and having a recessed end engaging the rail engaging member, said reinforcing member having an aperture, and threaded means extending through said members and engaging the tie for binding the members together and upon the tie.

10. The combination with a tie having spaces therein and a transversely extending anchoring device within each of said spaces, of a rail engaging member upon the tie and bridging one of said spaces, a resilient reinforcing member upon the tie and bridging one of said spaces, said reinforcing member having a recessed end for engaging the rail engaging member, and means engaging the anchoring device and extending through said members for binding the members together and upon the tie.

11. The combination with a tie, of a rail engaging member thereon, a resilient reinforcing member abutting against the rail engaging member, a fastening bolt folded upon itself at an intermediate point and having its terminals adjustably connected to said members and means upon the tie for engaging and retaining the bent portion of the bolt.

12. The combination with a tie having a space therein, and a transversely extending anchoring device within said space, of a rail engaging member bridging the space and bearing on the tie, a resilient reinforcing member bridging said space and abutting against the rail engaging member, and a substantially U-shaped bolt extending under and retained by the anchoring device, the terminals of said bolt being adjustably mounted within the members.

13. The combination with a tie and non-detachable holding means extending within the tie, of a double bolt insertible into the tie and pivotally and detachably engaging said means, said bolt consisting of connected members bendable angularly with reference to each other.

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

WILLIS F. WALKER.

Witnesses:

C. E. DOYLE,

C. E. PREINKERT.