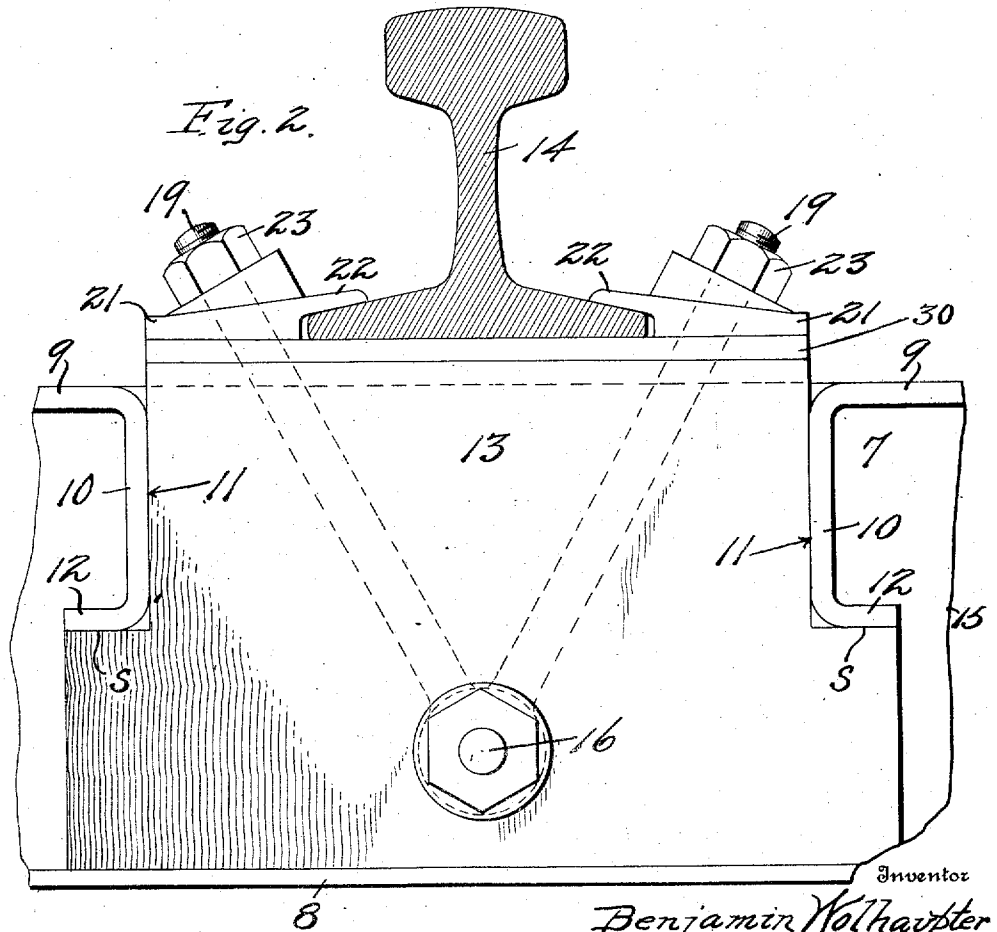
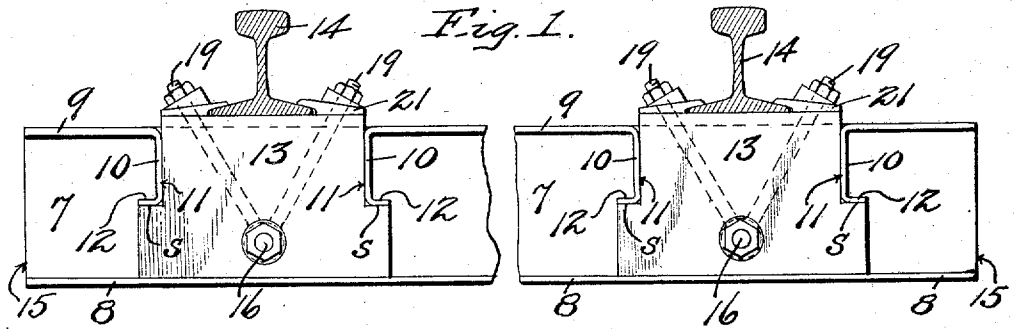


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RAIL TIE AND FASTENING.
APPLICATION FILED JULY 27, 1909.

957,022.

Patented May 3, 1910.

3 SHEETS—SHEET 1.



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3 SHEETS-SHEET 2.

Fig. 3

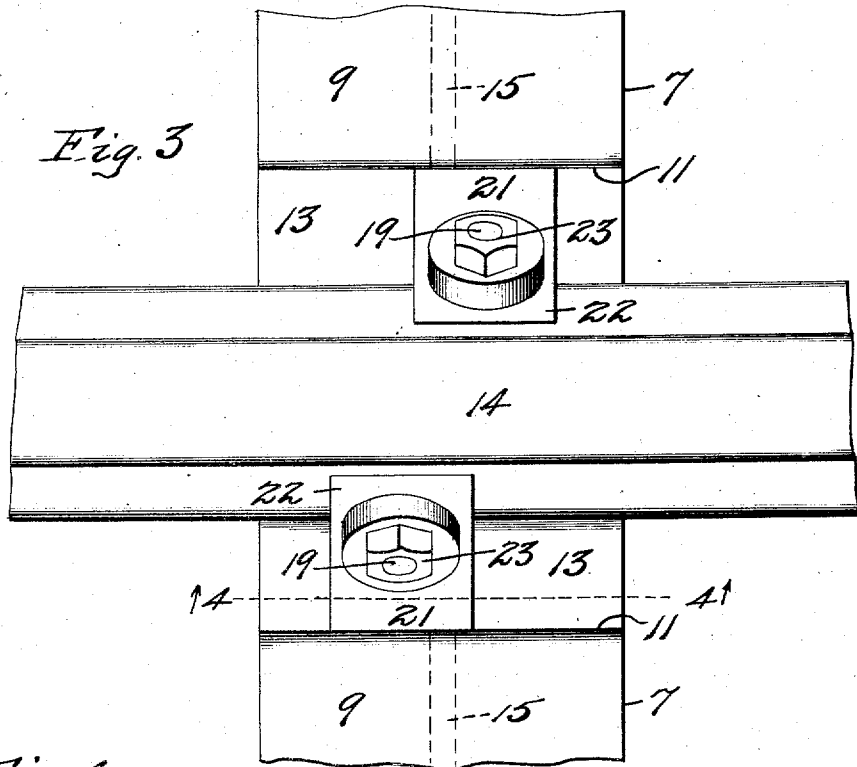
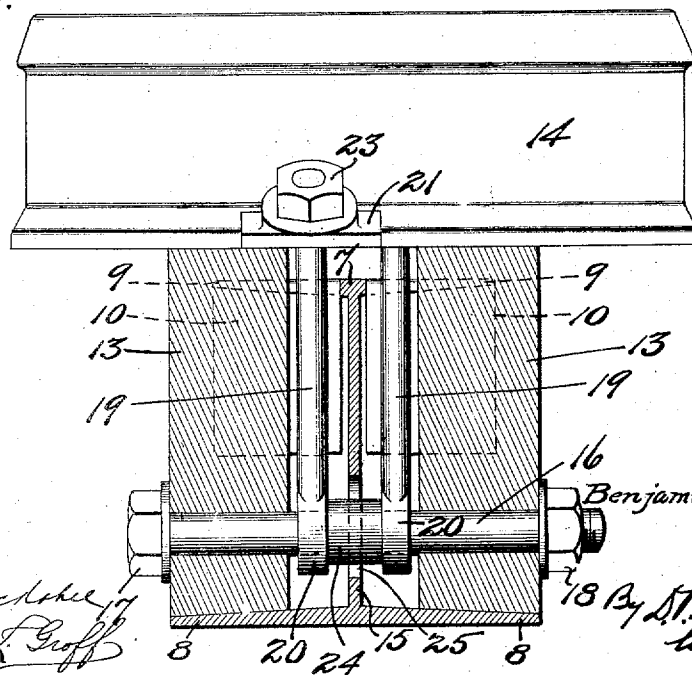


Fig. 4



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Fig. 5.

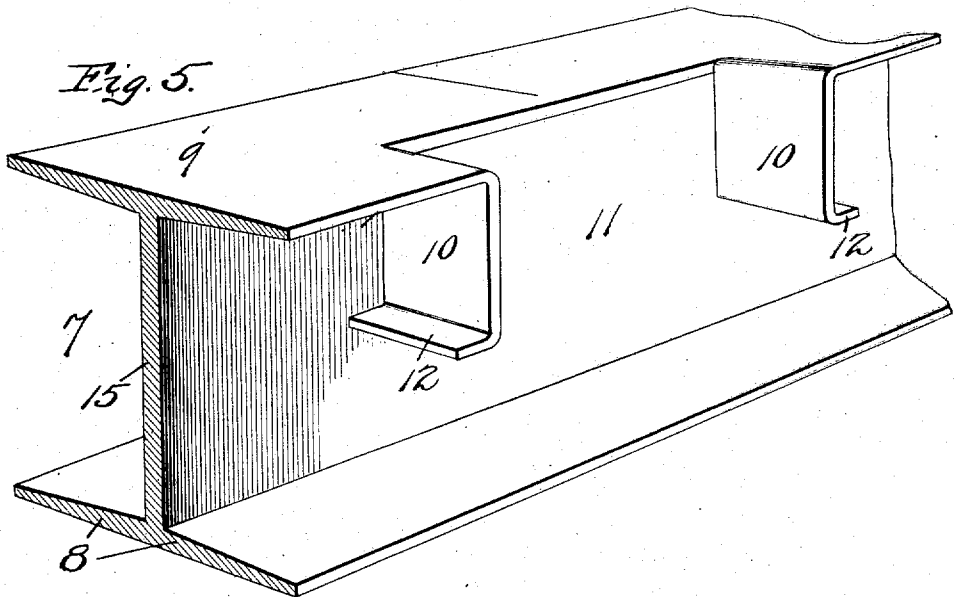
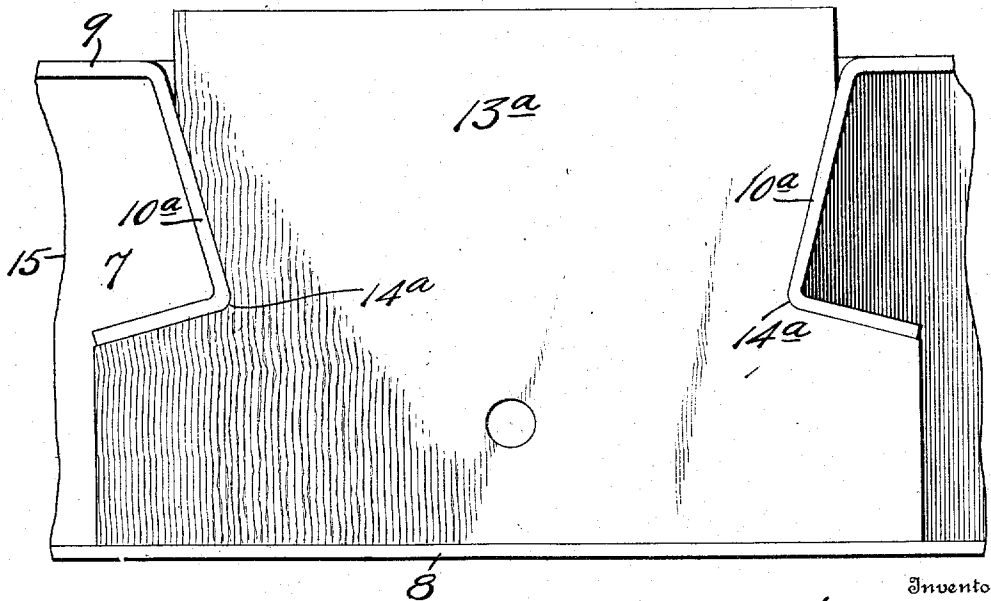


Fig. 6.



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UNITED STATES PATENT OFFICE.

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RAIL TIE AND FASTENING.

957,022.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BENJAMIN WOLHAUPTER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Rail Ties and Fastenings, of which the following is a specification.

The present invention relates to railway tie structures, and the means for mounting the rails thereon and fastening such rails thereto.

The primary object is to provide a structure of the above character, in which the body of the tie is composed of a well known type of metal beam, and to employ in connection therewith rail-bearing cushions, which will have all the desirable features of a wooden tie, thus producing a practicable tie that can be cheaply manufactured, is comparatively inexpensive, and is very durable, the parts subjected to wear and affected by the deleterious influences of the elements, being so arranged that they can be easily and expeditiously removed and replaced by new ones whenever desired.

A further object is to provide means for fastening the rails to the tie, said means being adjustable to rails having bases of different widths and giving means for moving a rail for adjusting the flange, and being associated with the means that secures the rail bearing cushions in place, so that a very simple combination is produced, in which the strains upon the fastening means only serve to urge the parts into more closely interlocked relation.

While the invention may be embodied in various ways, the forms of construction that are at present considered preferable are illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the novel tie and rail fastenings, with the central portion of the tie broken away. Fig. 2 is a detail view on an enlarged scale of one end portion of the same, showing the rail-bearing cushion in place. Fig. 3 is a top plan view of Fig. 2. Fig. 4 is a cross sectional view. Fig. 5 is a detail perspective view illustrating the manner of constructing the frame bar. Fig. 6 is a side elevation of a slightly modified form of construction.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment disclosed in Figs. 1-5 inclusive, a frame bar 7 is employed that is formed of an I-beam of the usual type. The lower oppositely outstanding flanges 8 of this I-beam constitute a supporting base, while the upper flanges 9 have portions cut-away and downturned, as illustrated at 10 to produce pockets 11, the downturned portions constituting the walls of said pockets. These downturned portions terminate short of the lower flanges 8, and preferably have downturned terminals 12.

Arranged in the pockets 11, and resting upon the lower flanges 8, are rail-bearing cushions 13, preferably of wood. These cushions extend upwardly through the cut-away portions of the flanges, and project above the frame bar or I-beam 7, so that they will support the rails, as 14 in spaced relation to the frame bars. The lower portions of the cushions are shouldered at 15 so as to extend beneath the downturned terminals 12 of the walls 10. Consequently said cushions are interlocked with the walls and are prevented from any tendency to move upwardly in the pockets. It will be observed that a set of cushions is employed for each rail, and that the cushions of each set are disposed on opposite sides of the upright web 15 of the beam or frame bar. They are secured in place by transversely disposed tie bolts 16 that pass through the same and through the web, each bolt having a suitable head 17 on one end and a nut 18 threaded upon its opposite end. It will be noted that the cushion blocks are spaced from the web 15. This may be accomplished by any suitable means. In the present structure, the wedging of the blocks against the inclined flanges, opposes the tension of the tie bolts.

For the purpose of securing the rails in place, rail-fastening means are employed that are in the form of bolts 19 interposed between the central web 15 and the rail-bearing cushions 13, said cushions being spaced from the web for the purpose, as illustrated in Fig. 4. The lower ends of the bolts 19 have eyes 20, through which the tie bolt 16 passes, while their upper ends have mounted thereon, rail-clamps 21, which rest flat on top of the rail-bearing cushions, and are provided with overhanging flanges or lips 22 that engage over the rail bases. The nuts 23, threaded upon the upper ends of the eye bolts 19, bear upon the clamps to hold them in operative position. The eyes 20 of the

bolts are preferably spaced apart by a collar 24 interposed between them and mounted on the tie bolt 16. This collar passes through the web 15, the opening 25 being sufficiently large so that the collar is out of contact therewith.

There are many decided advantages for the structure disclosed. In the first place, it will be obvious that the same is exceedingly simple, and can be manufactured at small cost. All the parts, with the exception of the rail-bearing cushions are of metal, and are elementary in their character. The rail-bearing cushions being of wood and constituting the supports for the rails, the device has all the advantages of the wooden tie. These cushions moreover are so arranged that they can be easily removed and replaced by new ones.

In this device, it is to be observed that the cushions are supported on the lower flanges so that the load is carried to the lowermost portion of the frame bar and thus gives the maximum depth for the cushion.

The structure, as disclosed, is particularly useful in connection with rails that are employed as parts of electrical circuits, inasmuch as the rail-bearing cushions constitute insulators, and the rail-fastening means being mounted solely on said cushions, are insulated from the frame bar.

A slightly modified form of construction is illustrated in Fig. 6. The only difference from the structure already described, resides in the arrangement of the pocket side walls 10^a, which are convergently disposed and the rail-bearing cushions 13^a are provided with notches or recesses 14^a to receive the same.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention. In this connection, as an example of a detail that may be resorted to without departing from the invention, it may be noted that instead of having the rails and rail clamps resting directly on top of the rail bearing cushions, a metallic tie plate 30 may be interposed between these elements as suggested in Fig. 2 of the drawings.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. A tie comprising a frame bar composed of an I-beam having openings in its upper flange, and rail bearing cushions resting on the lower flange of the beam and registering in said openings in the upper flange.

2. A tie comprising a frame bar composed of an I-beam having its upper flange cut away to provide openings therein, and wooden rail-bearing cushions resting on the lower flange of the beam and projecting through and registering in said openings in the upper flange.

3. A tie, comprising a frame bar composed of an I-beam having its upper flanges cut-away and downturned to form pockets having side walls, and rail-bearing cushions located in the pockets between the side walls.

4. A tie, comprising a frame bar composed of a web having an upper flange, portions of which are cut-away and downturned, and a rail-bearing cushion located between and interlocked with the downturned portions.

5. A tie, comprising a frame bar composed of an I-beam, the upper flanges of which are cut-away and downturned to form side walls, and coacting rail-bearing cushions resting on the lower flanges, interposed between and interlocked with the side walls, and projecting through the cut-away portions of the upper flanges.

6. In a tie, the combination with a frame bar comprising an I-beam, the upper flanges of which are cut-away and downturned to form pockets, of rail-bearing cushions mounted on the lower flanges of the I-beam and extending upwardly in the pockets above said beam, a transverse tie bolt passing through the cushions and the web of the I-beam, and rail-fastening bolts mounted on the tie bolt on opposite sides of the web and between the same and the cushions.

7. In a tie, the combination with a frame bar comprising an I-beam, of rail-bearing cushions located on opposite sides of the I-beam and resting on the lower flanges thereof, a transverse tie bolt passing through the cushions and web, and rail-fastening bolts secured to the tie bolt, all of the said bolts being arranged out of contact with the I-beam.

8. In a tie, the combination with a frame bar having a web, of a rail-bearing cushion located alongside the web, a tie bolt passing through the cushion and web, and rail-fastening bolts having eyes through which the tie bolt passes, all of said bolts being arranged out of contact with the frame bar.

9. A tie, comprising a frame bar composed of a web having an upper flange, portions of which are cut away and downturned, a rail-bearing cushion located between and interlocked with the downturned portions, and means for securing the rail-bearing cushion in place.

10. A tie, comprising a frame bar composed of a web having an upper flange, portions of which are cut away and downturned, a rail-bearing cushion located between and interlocked with the downturned portions and extending above the top edge

of the beam, and means for securing the cushion in place.

11. A tie, comprising a frame bar composed of an I-beam having its upper flanges cut away and downturned to form pockets having side walls, and rail-bearing cushions located in the pockets between the side walls and extending above the top edge of the beam.

12. A tie, comprising a frame bar composed of a web having an upper flange, portions of which are cut away and downturned, and a rail-bearing cushion located between and interlocked with the downturned portions and extending above the top edge of the beam.

13. A tie, comprising a frame bar composed of an I-beam, the upper flanges of which are cut away and downturned to form side walls, and coacting rail-bearing cushions resting on the lower flanges, interposed between and interlocked with the side walls, and projecting through the cutaway portions of the upper flanges and extending above the top edge of the beam.

14. A tie, comprising a frame bar composed of an I-beam, a rail-bearing cushion resting on the lower flanges and interlocked with the upper flange of said beam, a transverse bolt passing through the cushions and web of the I-beam, and rail-fastening bolts secured to the transverse bolt, said transverse bolt and rail-fastening bolts being out of contact with the I-beam.

15. A tie, comprising a frame bar composed of a web having an upper flange, portions of which are cut away and downturned, a rail-bearing cushion located between and interlocked with the downturned portion, a transverse bolt passing through the cushion

and the web of the frame bar, and rail fastening bolts secured to the transverse bolt.

16. A tie, comprising a frame bar composed of a web having an upper flange, portions of which are cut away and downturned, a rail-bearing cushion located between and interlocked with the downturned portions, a transverse bolt passing through the cushions and the web of the frame bar, and rail-fastening bolts secured to the transverse bolt, said transverse bolt and rail-fastening bolts being out of contact with the I-beam.

17. In a tie, the combination with a frame bar comprising an I-beam, of rail-bearing cushions located on opposite sides of the I-beam and resting on the lower flanges thereof and extending above the top of the beam, a transverse tie bolt passing through the cushions and web of the frame bar, and rail-fastening bolts secured to the transverse bolt, said transverse bolt and rail fastening bolts being arranged out of contact with the frame bar.

18. A tie, comprising a frame bar composed of an I-beam, a rail-bearing cushion resting on the lower flange and interlocked with the upper flange of said beam, and extending above the top edge of the beam, a tie bolt passing through the cushions and web of the I-beam, and rail-fastening bolts secured to the tie bolt, all of said bolts being out of contact with the I-beam.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

BENJAMIN WOLHAUPTER.

Witnesses:

CARRIE M. NETTER,
WALTER H. DUKE.