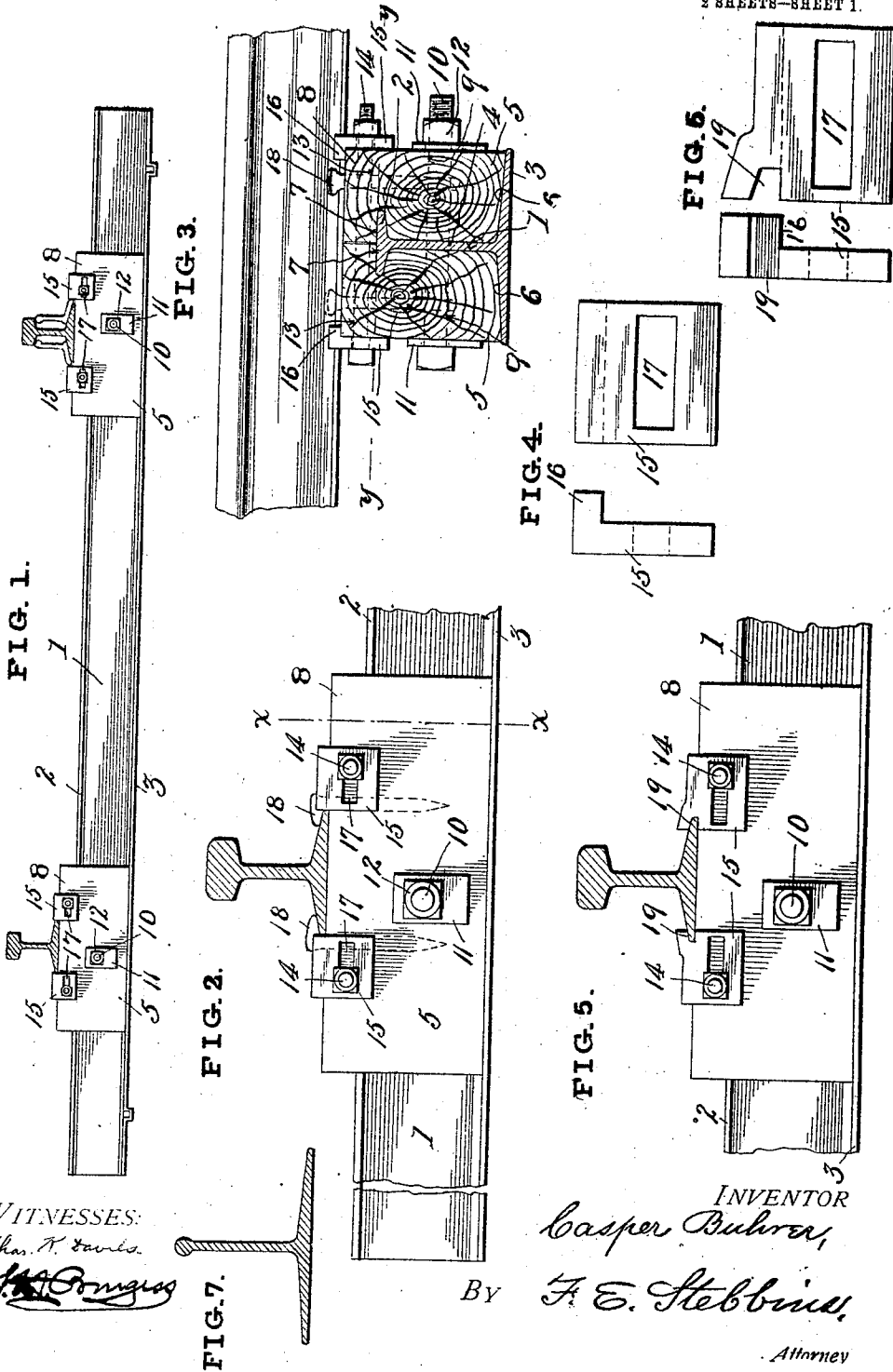


No. 819,846.

PATENTED MAY 8, 1906.

C. BUHRER.
METALLIC RAILROAD TIE AND RAIL FASTENING.
APPLICATION FILED JULY 12, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

Chas. H. Davis.

J. H. Rogers

BY

INVENTOR
Casper Buhrer,

F. E. Stebbins,

Attorney

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2 SHEETS—SHEET 2

FIG. 9.

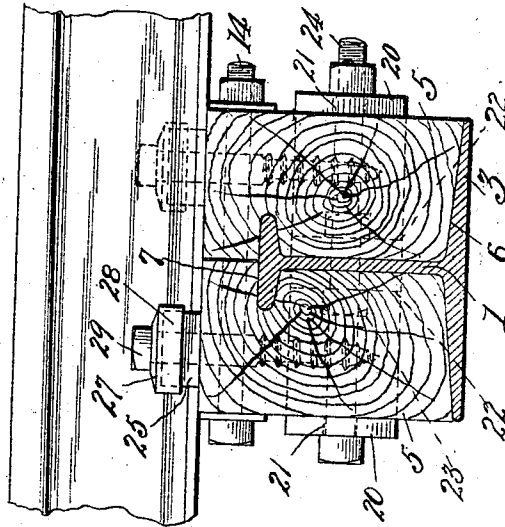
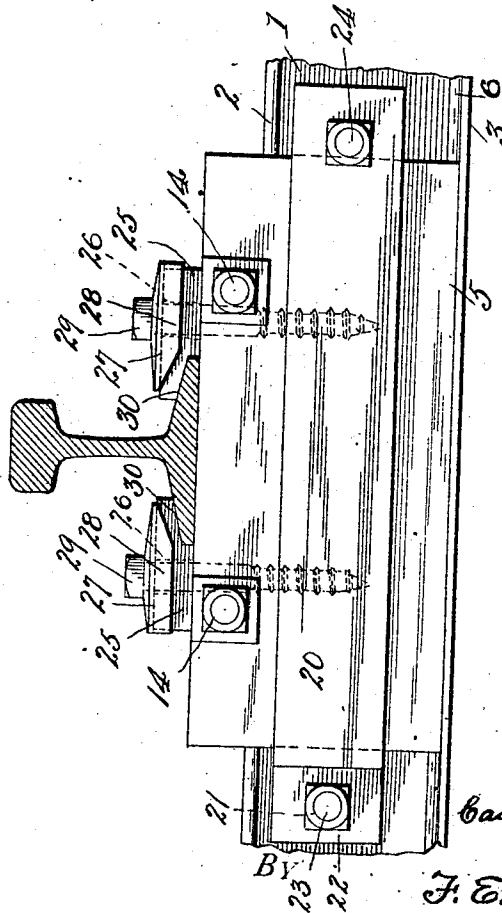


FIG. 8.



WITNESSES:
Chas. K. Davis.
W. F. Morton.

INVENTOR
Casper Buhrer

By F. E. Stebbins.
Attorney

UNITED STATES PATENT OFFICE.

CASPER BUHRER, OF SANDUSKY, OHIO.

METALLIC RAILROAD-TIE AND RAIL-FASTENING.

No. 819,846.

Specification of Letters Patent.

Patented May 8, 1906

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To all whom it may concern:

Be it known that I, CASPER BUHRER, a citizen of the United States, residing at Sandusky, in the county of Erie and State of Ohio, have invented new and useful Improvements in Metallic Railroad-Ties and Rail-Fastenings, of which the following is a specification.

The object of my invention is the production of a metallic railroad-tie which shall be provided with supports and preferably cushioned for receiving the track-rails, said supports or cushioned supports when used to be of such construction and formation that they can be detached and new ones substituted without removing the tie from the road-bed.

Heretofore in the use of metallic ties and where the rails rested directly upon them and especially when the track-ballast or earth was frozen in winter the construction has proven too rigid, so that the rails have worn excessively and in some instances perhaps become broken by the blows and weight of trains passing over the same. My purpose is to obviate the objections appertaining to such rigid constructions by providing cushions which will allow the rails to yield slightly under impact and when supporting trains of normal weights.

A further object is the provision of suitable rail-fastenings in connection with the improved tie.

My invention consists in certain novelties of constructions and combinations and arrangements of parts, as hereinafter set forth, and specified in the claims.

The accompanying drawings illustrate several examples of the physical embodiment of my improvements and two kinds or modifications of rail-fastenings constructed according to the best modes I have so far devised for the practical application of the principles.

Figure 1 is a view of one tie in side elevation with the rails resting thereupon and in section. Fig. 2 is an enlarged view of the end of the tie, showing the support and cushion in side elevation and with the rail in section. Fig. 3 is a section of Fig. 2 taken on line *x x*. Fig. 4 shows one construction of adjustable clip. Fig. 5 is an illustration of the application of another species of adjustable clip. Fig. 6 shows the clip removed. Fig. 7 shows a bulb iron or steel beam. Figs. 8 and 9 show the preferred means for uniting the wooden blocks to the metallic beam and

the preferred means for securing the rails to the ties.

Referring to the several figures, the numeral 1 designates the metallic part of the tie, consisting of a beam I-shaped in cross-section and with the upper flanges in this instance narrower than the lower flanges; 2, the upper flanges; 3, the lower flanges, the upper surfaces of which are obliquely disposed to the plane of the web of the I-beam; 4, holes in the web; 5 5, two wooden blocks of identical shape; 6, the lower surface of a block, which fits the obliquely-disposed upper surface of a bottom flange; 7, a recess in the block which receives one of the upper flanges and allows the side surface of the block to frictionally engage the web of the I-beam upon one side; 8, the portion of the block extended above the top flange of the beam; 9, in Figs. 1, 2, and 3, holes in the blocks which register with a hole 4 in the web; 10, a bolt passed through the holes 9 and 4, as shown; 11, washers; 12, a nut; 13, two holes through the blocks above the top flanges of the I-beam; 14, bolts passed through the holes and provided with nuts; 15, the adjustable clips; 16, the flange of a clip; 17, the slot in the clip, and 18, in Figs. 2 and 3, headed spikes which are driven into the wooden blocks and have their heads in engagement with the flanges of the rail or splice-plates in a well-known manner.

Referring to Figs. 5 and 6, which show another species of adjustable clip, the numeral 19 designates a recess at the junction of the flange and web of the clip, which receives the flange of a track-rail, the flange 16 being present, as in the first species of the clip, and having the end thereof bent upwardly.

Fig. 7 has a bulb at the top of the web, this form of beam being adapted for use in place of the I-beam under some conditions.

Figs. 8 and 9 illustrate the preferred means for uniting the wooden blocks and the preferred means for securing the rails to the ties. The numeral 20 designates two metallic straps or bars; 21, holes in the ends of the bars; 22, the bent ends of the bars, which ends are in contact with the web of the I-beam; 23, a bolt which passes through the bent ends of the bars and the web of the I-beam, and 24 a bolt which passes through the straight ends of the bars and the web of the I-beam. It will be observed that the two bars and bolts constitute a clamp and firmly

unite the blocks to the I-beam and serve the same purpose as the bolt 10 in Figs. 1, 2, and 3, but more effectively in holding the two blocks in place and preventing them from splitting. The preferred fastening means for the rails comprises a wooden clip 25 with a hole 26, a perforated metallic clip-cover 27, having projecting flanges 28, which lap over the edges of the wooden clip, and a lag-screw 29, which is passed through the clip and cover and is screwed into one of the blocks. The wooden clip is provided with a beveled surface 30 to lap over the flange of the rail. Any suitable number of these fastenings may be used at each end of a tie. The method of fashioning the several parts of the tie, the clamping means, and rail-fastenings and combining them is obvious from the drawings and description to any person skilled in the art and need not be set forth. It will be observed that the wooden blocks rest upon the top surfaces of the bottom flanges of the I-beam, so that said flanges take the greater part of the superimposed weight, that both forms of clip assist in holding the rails to gage, that the form of clip shown in Figs. 5 and 6 also assists in holding the rail to its seat, that the bolt 10 and the clamp in Figs. 8 and 9 prevents movement of the blocks longitudinally of the I-beam and also prevents the splitting of the wood, and that the fastening means for the rails shown by Figs. 8 and 9 securely hold the rails in their proper positions and to gage. The cushions are applied to the metallic beam shown by Fig. 7 in the same way as in Fig. 3. Various modifications may be made in the construction when so desired. For instance, both of the blocks may be made integral and slipped over the end of the beam. As the part of the wood above the line *y y* in Fig. 3 may constitute the cushion in some cases, the lower portions of the block may be replaced by blocks of different material, and, again, other material may be used for both blocks or a single integral block when the rail-supports are integral. The broad idea is the provision of rail-supports in connection with the shapes of metallic beams shown, and it is preferable that the blocks be cushioned. However, a single metallic block or two blocks cored out to secure lightness of weight may be employed, the same fitting each side of the web of the beam and with a superimposed cushion without constituting a substantial departure. Finally, the wooden and metallic blocks or blocks of other material may be secured to the metallic beam by other means which will prevent the splitting of the wood when the spikes or lag-screws are inserted.

What I claim is—

1. A railroad-tie having a metallic element comprising a web, an enlargement at its upper edge and two bottom flanges; and cushioned supports for track-rails resting upon

said flanges and extending upwardly on each side of the web to receive the track-rails.

2. A railroad-tie having a metallic element comprising a web, a flange at its top edge and two bottom flanges; and supports for track-rails resting upon said flanges and extending upwardly on each side of the web; said supports being cushioned.

3. A railroad-tie having a metallic element comprising a web, an enlargement at its top edge and two bottom flanges; and supports for track-rails resting upon said flanges and extending upwardly each side of the enlargement; said supports consisting of yielding or cushioning material.

4. A railroad-tie having a metallic element comprising a web, an enlargement at its top edge and two bottom flanges; and supports for track-rails resting upon said flanges and extending upwardly each side of the web and the enlargement; said supports consisting of wood suitably secured to the metallic element.

5. A railroad-tie having a metallic element comprising two bottom flanges, a web and an enlargement, such as a bulb or flange or flanges, at the upper edge of the web; and supports for track-rails each support made in two pieces and resting upon the bottom flanges and extending upwardly each side of the web to receive the track-rails.

6. A railroad-tie comprising a metallic element having two bottom flanges, a web and an enlargement, such as a bulb, flange or flanges, at the upper edge; and supports for track-rails resting upon said flanges; said supports being cushioned.

7. A railroad-tie having a metallic element comprising two bottom flanges, a web and an enlargement, such as a bulb, flange or flanges, at the upper edge; and supports for track-rails resting upon said flanges; said supports consisting of yielding or cushioning material extending above the top of the enlargement.

8. A railroad-tie having a metallic element comprising two bottom flanges, a web and an enlargement, such as a bulb flange or flanges, at the upper edge; and supports for track-rails resting upon said flanges; said supports consisting of two pieces of wood suitably secured to the metallic element.

9. A railroad-tie having a metallic element comprising a web a top flange and two bottom flanges; wooden supports for the track-rails located each side of the web and extending above the top flange; and means for clamping the wooden supports to the metallic element.

10. A railroad-tie comprising a metallic element with top and bottom flanges, and rail-supports each made in two pieces secured to the metallic element adjacent the top flanges and upon each side of said metallic element.

11. A railroad-tie comprising a metallic element with top and bottom flanges, and yield-

ing rail-supports secured to the metallic element on each side and adjacent the flanges.

12. The combination with an I-shaped metallic beam, of rail-supports located adjacent the ends of the beam and upon each side of the web; and means for uniting the supports to the I-beam.

13. The combination with an I-shaped metallic beam, of yielding rail-supports located adjacent the ends and upon each side thereof.

14. The combination with an I-shaped metallic beam, of wooden rail-supports located adjacent the ends and upon each side of the same; and means for holding the supports in place.

15. The combination with an I-shaped beam having the upper flanges of less width than the lower flanges, of wooden rail-supports secured to the said beam upon each side of the web.

16. The combination with an I-shaped metallic beam, of rail-supports located each side of the web and each secured in place by a clamp passed around the said supports and through the web of the beam.

17. The combination with an I-shaped metallic beam, of wooden rail-supports each support secured to the beam by a clamp passed around the supports, and bolts passed through the upper portion of each support.

18. The combination with an I-shaped metallic beam, of rail-supports each comprised

of two blocks applied to the beam upon opposite sides and extending above the top edge of the beam; and means for securing the blocks in place.

19. The combination with an I-shaped metallic beam, of rail-supports each comprised of two blocks of wood applied to the beam on opposite sides and extending above the top edge of the beam; and means for securing the blocks in place.

20. The combination with an I-shaped beam, of rail-supports each comprised of two blocks of wood located upon opposite sides of the web and resting upon the lower flanges of the beam; and means for securing the blocks in place; each of said blocks being recessed to receive the upper enlarged edge of the beam.

21. The combination with a metallic beam having bottom flanges and a web, of wooden supports at the ends; and fastening means for the rails each comprising a wooden clip, metal clip-cover, and a lag-screw.

22. The combination with a railway-tie, of fastening means for holding the rails in position, each fastening comprising a wooden clip, metal clip-cover, and a lag-screw.

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

CASPER BUHRER.

Witnesses:

LAURA H. ERNST.

GEO. E. REITER.