(No Model.)

T. RATCLIFF.

RAILROAD TIE.

No. 562,974. Patented June 30, 1896.

Fig. 1.

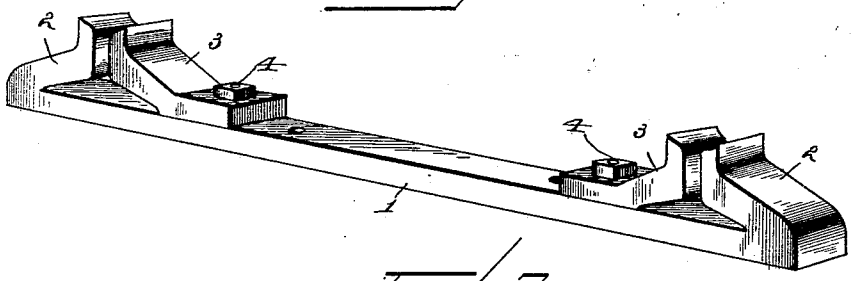


Fig. 2.

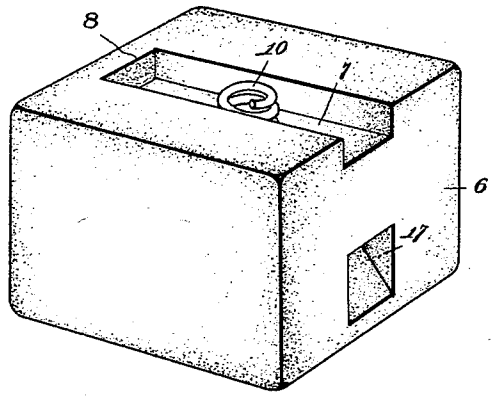
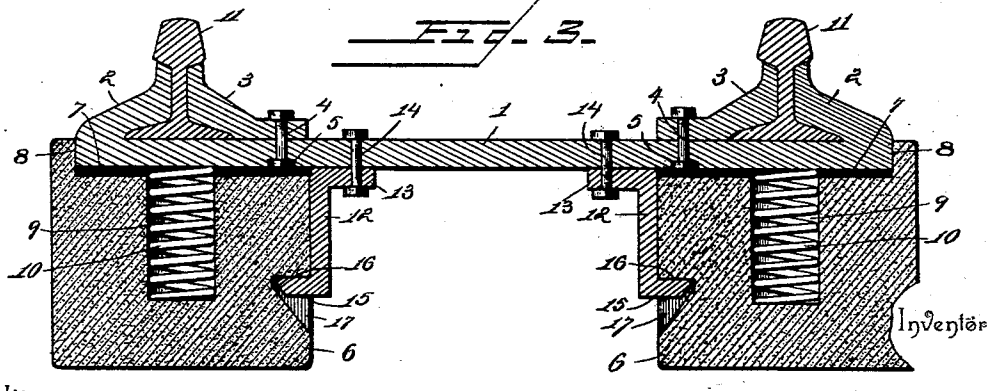


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS RATCLIFF, OF JEWETT, ILLINOIS.

RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 562,974, dated June 30, 1896.

Application filed June 11, 1895. Serial No. 552,457. (No model.)

To all whom it may concern:

Be it known that I, THOMAS RATCLIFF, a citizen of the United States, residing at Jewett, in the county of Cumberland and State of Illinois, have invented a new and useful Railroad-Tie, of which the following is a specification.

This invention relates to an improvement in railroad-ties.

The object of the present invention is to provide a simple and efficient form of metallic tie for railways and to support the same at opposite ends by means of anchor-blocks of natural or artificial stone.

A further object of the invention is to support the ends of the ties in such manner that they will be allowed to yield vertically with relation to the anchoring or supporting blocks and to connect the ties with the blocks in such manner as to permit said ends to yield and at the same time render said ties capable of being readily removed and replaced when desired.

To accomplish the above objects, the invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally embodied in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a metallic railway-tie constructed in accordance with this invention with the chairs shown applied thereto. Fig. 2 is a similar view of one of the anchoring or supporting blocks. Fig. 3 is a vertical longitudinal section through the metallic tie, showing also the anchoring or supporting blocks, angle-irons, rails, &c., in section.

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

Referring to the accompanying drawings, 1 designates a metallic railway-tie, which may be of any preferred form in cross-section, being shown rectangular and solid. At each end the tie 1 is provided with inwardly-converging chairs 2, formed integrally with the main body of the tie and adapted to rest against the outer faces of the rails for supporting the same in a manner well understood.

3 indicates a pair of removable chairs, which are made of a form adapting them to bear against and support the inner faces of the rails and to embrace the adjacent base-flange of each rail. The chairs 3 and the tie proper are formed with vertically-alining perforations for the reception of a connecting-bolt 4, having the head 5 at its lower end resting within a countersunk socket in the lower face of the tie, so as to be flush therewith, the upper end of said bolt receiving the usual nut and nut-lock above the chair 3. By this construction the lower surface of the metallic tie is left smooth and free from obstructions.

The ends of the tie above described are supported upon anchoring or supporting blocks 6, which may be formed out of natural stone or molded from any of the usual compounds from which artificial stone is produced. Each anchoring-block is preferably made substantially in the form of a cube, its lower face being flat, adapting it to rest firmly upon the ground or to be embedded therein and surrounded by suitable ballast, if desired or found necessary. Each anchoring or supporting block 6 is provided in its upper face with a transversely-extending groove or depression 7, terminating a short distance from the outer corner or edge of said block and forming a shoulder 8, against which the end of the metallic tie may abut. Each of said blocks is further provided with a vertically-extending cylindrical socket 9, in which is arranged a stout spiral spring 10, the lower end of which is supported upon the base of said socket and the upper end of which extends upwardly slightly above the base of the groove or depression 7 above referred to. It will be observed by reference to Fig. 3 that the lower face of the tie bears directly upon the upper ends of said springs in opposite blocks 6 at or near each end of said tie, and that the springs are arranged in such position that they will lie directly beneath the rails 11 or in vertical alinement therewith.

The tie is secured to opposite anchoring or supporting blocks by means of a pair of angle-irons 12, one for each block. Each angle-iron comprises a vertical portion, to which the numeral 12 is applied, and an upper horizontal portion or extension 13, which is perforated to receive a connecting-bolt 14, which passes upwardly through a corresponding perforation in the metallic tie, by means of which

said tie and angle-iron are firmly connected. The angle-iron also comprises a lower horizontal portion or extension reversely disposed to the upper extension 13, said lower horizontal portion (indicated at 15) being adapted to enter and engage against the upper horizontal wall 16 of a socket or depression 17 in the inner face of the anchoring or supporting block 6. The socket or depression 17 is made of a size which will permit the extension or horizontal portion 15 of the angle-iron to ride up and down therein as the tie is depressed by the train passing over the same.

From the foregoing description it will be apparent that the tie will be firmly supported by means of the anchoring or supporting blocks, and also that the tie will be capable of yielding slightly as the train passes over it for relieving the jar upon said train, which might be caused by a too solid foundation and the motion of the train running over the same. It will be noted, however, that the rails do not depend entirely upon the ties for their support, but are adapted, when depressed, to rest directly upon the supporting-blocks 6. It will also be seen that the angle-irons form a reliable connection between the tie and supporting-blocks and also admit of the yielding action of the tie referred to.

It will be apparent that the springs may be dispensed with if desired, and that other changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a railway-tie, the combination with the tie proper having the rail-supporting chairs, of an anchoring or supporting block having a groove or depression therein for receiving one end of said tie, a supporting-spring arranged within a socket in said block and adapted to bear against the lower face of the tie for upholding the same normally out of contact with the block and allowing the tie to yield vertically, and means for securing the tie to the supporting-block in such manner as to admit of the vertical movement of said tie, substantially as described.

2. An anchoring or supporting block for railway-ties made from natural or artificial stone and formed in its upper face with a groove or depression for the reception of the tie and also formed with a socket in the base of said groove or depression adapted to receive and in combination with a spring for supporting the tie, substantially as specified.

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

THOMAS RATCLIFF.

Witnesses:
C. HEYWOOD,
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