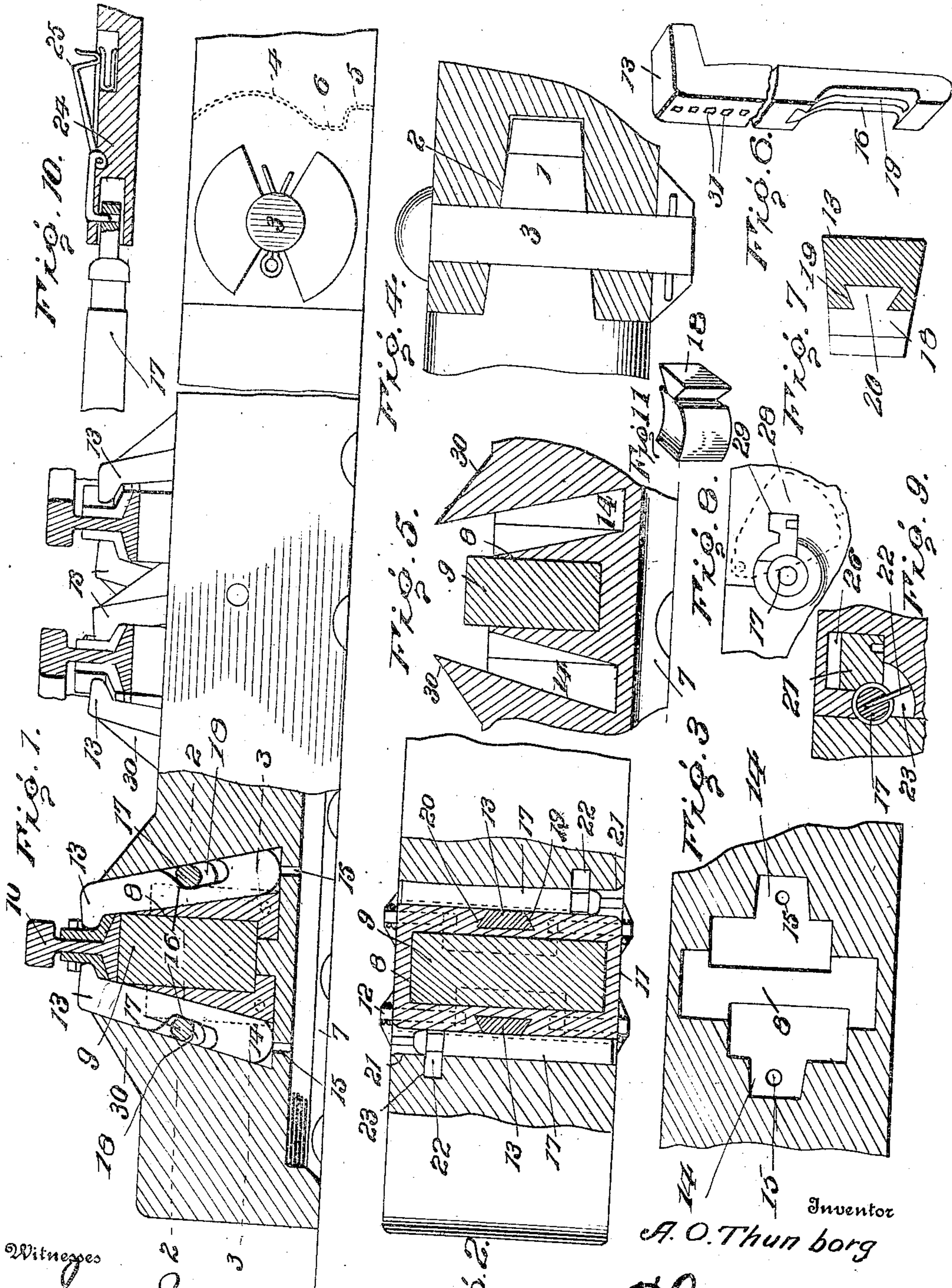


No. 898,287.

PATENTED SEPT. 8, 1908.

A. O. THUNBORG.  
RAILWAY TIE.  
APPLICATION FILED JULY 3, 1907.



Witnesses

*[Handwritten signatures of witnesses]*

By

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# UNITED STATES PATENT OFFICE.

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## RAILWAY-TIE.

No. 898,287.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed July 3, 1907. Serial No. 382,081.

*To all whom it may concern:*

Be it known that I, AUGUST O. THUNBORG, citizen of the United States, residing at Webster, in the county of Burnett and State of Wisconsin, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

This invention is primarily designed to provide a metal cross tie for railways involving a novel construction and utilizing a fibrous block, as a seat for the rail, thereby avoiding the wear and tear to rolling stock incident to non-yielding ties such as constructed of metal, concrete or like rigid material.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side view of a railway cross tie embodying the invention, an end portion of the tie being in section and showing a detachable chair in which the fibrous block is seated. Fig. 2 is a horizontal section on the line 2—2 of Fig. 1. Fig. 3 is a horizontal section on the line 3—3 of Fig. 1. Fig. 4 is a detail view of the joint formed between sections of the tie, the end of the section having the tongue being in full lines and the end of the section having the recess to receive the tongue being in horizontal section. Fig. 5 is a vertical longitudinal section of a modified form of tie, showing the opening or seat for the fibrous block formed directly therein. Fig. 6 is a detail perspective view of a key. Fig. 7 is a horizontal section of the key showing the interlocking connection between the shim piece and key. Fig. 8 is a detail view in elevation of a portion of the tie showing the end of a pin and the opening and notch cooperating with the pin, the dotted lines indicating the cover for closing the opening and notch. Fig. 9 is a sectional view showing the pin, the bit thereof, the recess receiving said bit and the block closing the notch through which the bit passes. Fig. 10 is a detail view of an end portion of a pin, showing a portion of the key and the spring actuated catch therewith. Fig. 11 is a detail view in perspective of one of the shims.

Corresponding and like parts are referred to in the following description and indicated

in all the views of the drawings by the same reference characters.

Each end of the tie is of similar or like formation, hence one end only is shown in the accompanying drawings and described at length hereinafter. In some instances the tie may be of sectional formation, the sections being jointed about as shown in Fig 4, one section having a tapered tongue 1 and the mating section having a correspondingly tapered recess 2 in which the tongue 1 is fitted and secured by means of a pin 3 passed through registering openings in the overlapped parts comprising the joint. The tongue 1 has a terminal curved portion 4, a lip 5 and an intermediate straight portion 6. The recess 2 has its inner wall of a shape corresponding to the extremity of the tongue 1. The shoulders at the base of the tongue 1 are slightly curved and the extremities of the parts bordering upon the recess 2 are correspondingly curved to make a close joint. The joint between the sections is such as to admit of a limited play only of the sections so that they may accommodate themselves to rolling stock when the tie is placed upon a roadbed of earth. When the roadbed is of metal or wood, such as results from building a railway across a trestle, bridge or other structure, the cross tie will be of solid formation, that is free from joints. To prevent endwise or lateral movement of the tie, the same is provided with pendent flanges 7 which are notched or serrated in their lower edges to form a series of projections, which become embedded in the surface of the road and fix the position of the tie.

A depression 8 is provided near the end of the tie and extends transversely thereof and is designed to receive a fibrous block 9, the latter being preferably of wood and fitted in the depression 8 which forms a seat therefor and projecting a short distance above the top surface of the tie to receive the rail 10 which is placed thereon. The block 9 is arranged with its fibers running in a vertical direction, this being found to give the best results. The purpose of the fibrous block is to absorb vibration and prevent excessive jolt and wear upon the rolling stock. The depression or seat 8 may be formed directly in the tie or in a chair 11 fitted in an opening formed in the tie. In the event of the depression or seat being formed in a chair 11, the latter is



held in the opening of the tie by pins or fastenings 12 passed through openings formed in the sides of the tie and entering openings formed in the sides of pendent portions of the chair. The rail 10 is held to the tie by means of keys 13, the latter being passed through vertical openings 14 formed in the tie at opposite sides of the depression or seat 8. The openings 14 do not extend through the bottom of the tie, but in order to provide for escape of water, dirt or the like, clearance openings 15 lead from the lower ends of the key openings 14 in the bottom of the tie. Each key 13 is provided at its upper end with a head to extend over the foot of the rail in substantially the same manner as the ordinary spike. A recess 16 is formed in the outer side of each key near its lower end and receives the pin 17 by means of which the key is held to the tie.

In order to provide for wear of the block 9 and also to allow for variations of construction when assembling the parts, shim pieces 18 are provided and are placed between the lower ends of the recesses 16 and the pins 17. The shim pieces 18 vary in thickness in order to allow for different spaces between the pins 17 and the lower ends of the recesses 16 after the parts have been assembled. The shim pieces 18 are held to the keys 13 by positive interlocking means. For this purpose a dove-tail groove 19 is formed in the recessed portion 16 of each key and the shim pieces are provided with dove-tail projections 20 of a size to snugly fit the dove-tail groove 19. The groove 19 is closed at its lower end and opens at its upper end through the outer sides of the key. As a result of this construction, the shim pieces are retained in place at the lower ends of the recesses 16.

The keys 13, when slipped into the vertical openings 14, are retained in place by means of the pins 17 which pass through transverse openings 21 formed in the tie and engage with the shoulders formed at the lower ends of the recesses 16. The pins 17 are formed near one end with bits 22 which are adapted to enter recesses 23 in communication with the openings 21, thereby preventing displacement of the pins 17 when inserted in the openings 21 and given a partial turn to cause the bits 22 to enter the recesses 23. The entrance ends of the openings 21 are enlarged to admit of the introduction of a key 24 when it is required to remove the pins 17, said key 24 having a spring actuated catch 25 to make engagement with the pin 17 to admit of removing the latter from its opening. A notch 26 extends from the enlarged end of the opening 21 to admit of the passage of the bit 22, either when placing the pin 17 in the opening 21 or when removing it from said opening. The notch 26 is closed by means of a block 27, thereby preventing the entrance of foreign matter into the recess 23. The notch

26 extends vertically a short distance to admit of a suitable instrument being engaged with the block 27 when it is required to move the same upward to permit of the passage of the bit 22. The notch 26 and the entrance end of the opening 21 are closed by means of a cover 28 which is pivoted at its upper end to normally hang loosely and close the said notch and opening. An opening 29 leads horizontally outward from the bottom of the recess 23 to carry off water and admit of the discharge of any dust or foreign matter that may find its way into the recess 23. Lugs 30 project vertically from the tie and are adapted to engage the upper ends of the keys 13, thereby bracing the same against any lateral strain that may come upon the rails. These lugs also form fulcrum for a crowbar or other implement that may be brought into requisition to enable the withdrawal of the keys from their openings 14, should they become bound therein from any cause. A series of notches 31 are formed in the upper rear sides of the keys to receive the end or point of the crowbar when using the latter to pry the keys out of the openings 14. In the event of the tie being provided with a series of depressions or seats 8 to receive fibrous blocks 9, two or more keys 13 may be secured in place by means of a single pin 17, the latter engaging with recesses formed in the outer sides of proximal keys.

The block may be of any material desired and may be of steel or other metal or a combination thereof with wood. It should be made to project above the tie a short distance and may comprise a number of pieces, the bottom piece having a space therebelow which may be filled with a wooden block, sand or other material. This steel or metal block should not extend more than about two-eighths of an inch over the top of the chairs or seat where the rail is indicated on the tie. The combination of a steel or metal cross tie with two principal blocks made of different materials and two principal keys as locking one another and the coupling thereof, is advantageous, as will be readily understood.

Having thus described the invention, what is claimed as new is:

1. A tie having an approximately vertical opening and a horizontal opening, a key fitted into the vertical opening and having a recess in one side, a pin passed through the transverse opening of the tie and having a portion entering the recess of the key, and a shim interposed between said pin and the lower end of the recess formed in the side of the key.

2. In combination, a tie having an approximately vertical opening and a horizontal opening, a key fitted into the vertical opening and having a recess in a side thereof, a pin passed through the transverse opening of the



tie and having a portion projected into the recess of the key, a shim interposed between the pin and lower end of the recess of the key, and interlocking means between said key and shim.

3. In combination, a railway tie having a vertical opening and a horizontal opening, the latter provided near its entrance end with a recess, a key fitted into the vertical opening, and a pin passed through said horizontal opening and engaging with the key to retain the same in place and provided near its outer end with a bit to enter the said recess.

4. In combination, a railway tie having a vertical opening and a horizontal opening, the latter provided near one end with a recess, a key fitted into the vertical opening, a pin passed through said horizontal opening and engaging with the key to retain the same in place and provided with a bit to enter the said recess near one end of the horizontal

opening, and a block arranged within the tie at one side of said horizontal opening to close the entrance to said recess to exclude foreign matter after the parts have been placed in position.

5. In combination, a tie having a vertical opening, and a horizontal opening, the latter provided near one end with a recess and with a notch forming an entrance to said recess, a key fitted into the vertical opening, a pin fitted in the horizontal opening and having a bit to pass through the aforesaid notch and enter the said recess, and a block arranged within said notch and normally closing the entrance to said recess.

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

AUGUST O. THUNBORG. [L. s.]

Witnesses:

L. R. ROBERTS,  
C. J. STRANG.