(No Model.) 2 Sheets—Sheet 1.

T. M. BRINTNALL.

METALLIC TIE AND FASTENER.

No. 511,317. Patented Dec. 19, 1893.

Fig. 1.

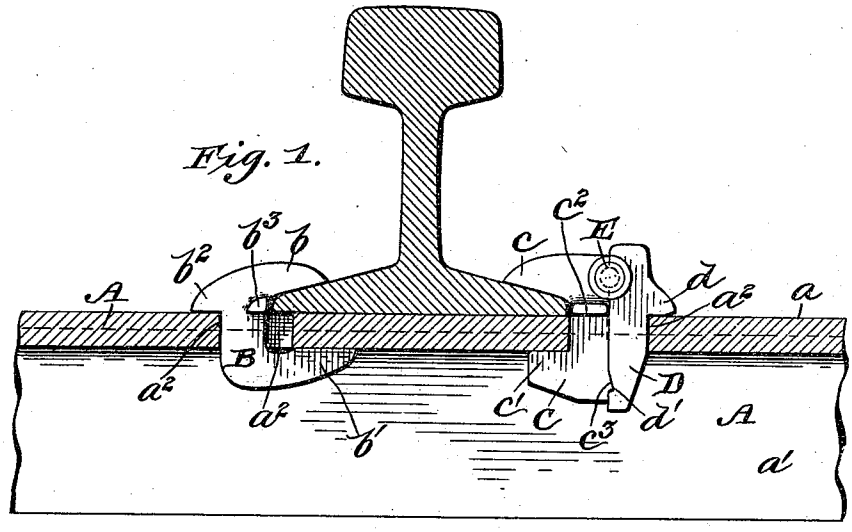


Fig. 2.

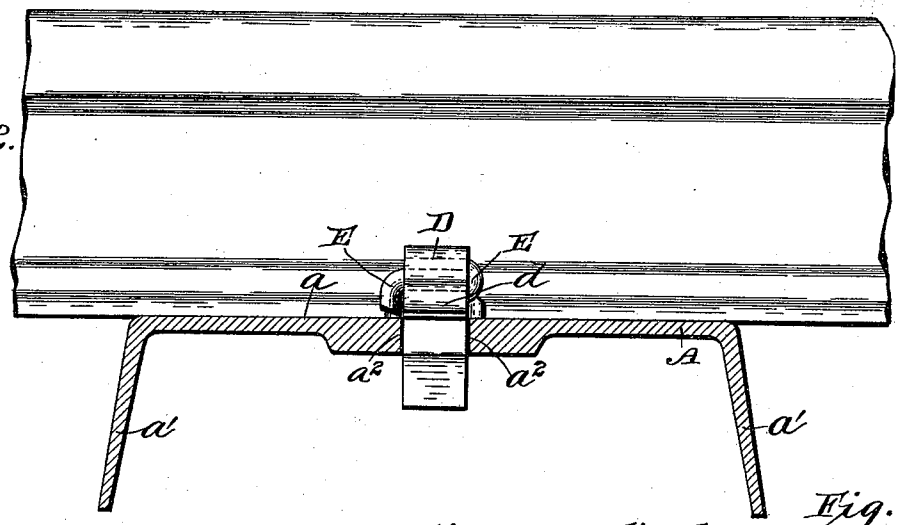


Fig. 3.

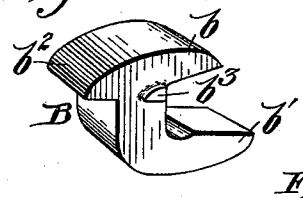


Fig. 4.

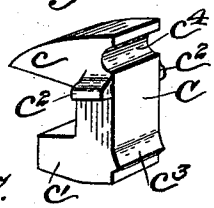


Fig. 5.

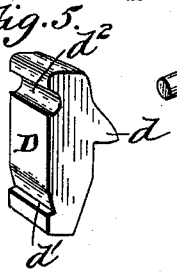


Fig. 6.

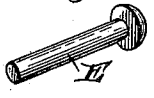
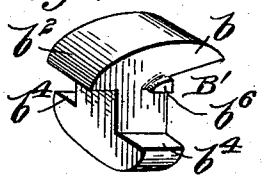


Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

T. M. BRINTNALL.

METALLIC TIE AND FASTENER.

No. 511,317. Patented Dec. 19, 1893.

Fig. 8.

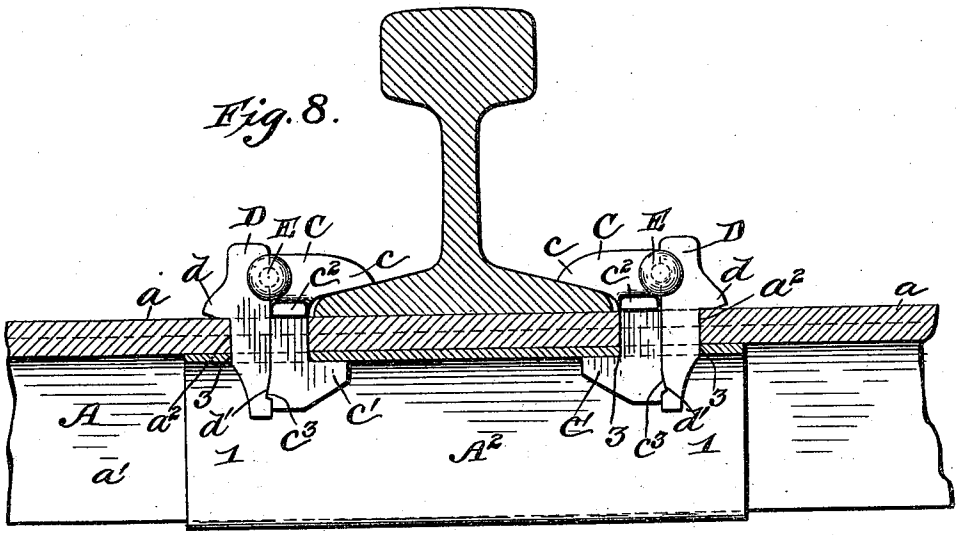


Fig. 9.

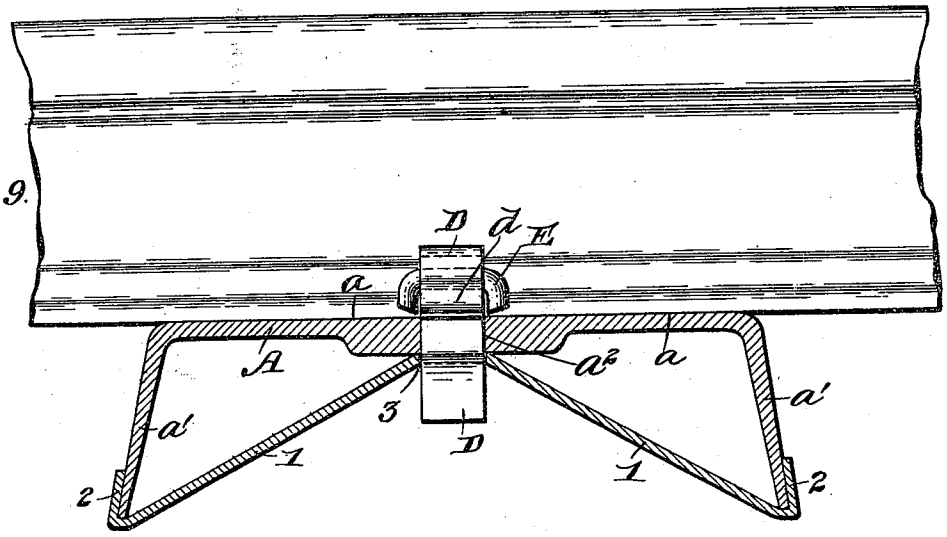
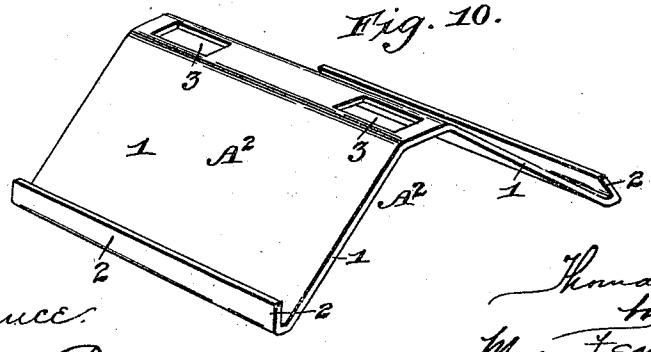


Fig. 10.



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UNITED STATES PATENT OFFICE.

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METALLIC TIE AND FASTENER.

SPECIFICATION forming part of Letters Patent No. 511,317, dated December 19, 1893.

Application filed August 3, 1893. Serial No. 482,304. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. BRINTNALL, a citizen of the United States, residing at Medina, in the county of Medina and State of Ohio, have invented certain new and useful Improvements in Metallic Ties and Fasteners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a metallic tie and fastener for railroad rails, and the objects of the same are to provide a simple and effective improved means for readily securing the rail to the tie which can be removed when necessity requires and which will always be under the observation of a track walker, the construction and arrangement being such that provision is made for the expansion and contraction of the rail independently of the fastenings and the tie, and the tie will be strongly braced, and the invention consists in certain novel constructions, combinations and arrangements of parts as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal section of a metallic tie and a cross section of a railroad rail secured by one of its flanges to the same by my improved fastening and by its other flange by an automatic U shaped clamp. Fig. 2 is a cross section of a tie and a side elevation of a railroad rail showing my improved fastener applied to the same. Fig. 3 is a perspective view of an automatic U clamp for securing one flange of a rail. Fig. 4 is a perspective view of my improved channel block. Fig. 5 is a perspective view of my improved dog spike. Fig. 6 shows a key which is employed with the channel block and dog spike. Fig. 7 is a modified form of automatic clamp shown in Fig. 3. Fig. 8 shows a longitudinal section of a metallic tie and a cross section of a rail, the fasteners being shown in elevation, and also a longitudinal section of a truss brace for strengthening the tie. Fig. 9 is a cross section of a tie and truss brace and a side elevation of a railroad rail with my improved fastener applied to the same, and Fig. 10 is a perspective view of a novel truss brace.

A in the drawings represents a metallic channel tie having a horizontal top portion a and divergent, downwardly extending side portions a', and being thus constructed is light, strong and cheap.

A^2 represents an angular truss brace having outwardly and downwardly diverging sides 1, 1 which are bent upward at 2, 2 to receive the lower edges of the tie, and a horizontal top portion provided with openings 3, 3 through which the rail fastenings are passed, as shown. I consider this truss brace an important feature of my invention as it renders the tie very strong and can be secured to the same without any other auxiliary means other than the rail fastenings. The top portion of the tie is provided with holes a^3 through which the fastenings are passed for securing the rails to the tie. In securing a rail, the distance between the fastening holes is such that when the fasteners are properly applied in the same, the base of the rail will not quite fill the space from the inner face of one fastening to the inner face of the other fastening so that the rail will be free to expand and contract independently of the tie and the rail fastenings. The automatic fastening for one side of a rail may consist of an approximately U shaped channel block clamp having an upper and a lower gripping jaw b, b' and an outwardly extending shoulder b^2, the jaw b being of less length than the jaw b' as shown. The clamp is also provided with side lugs b^3 for preventing the fastening falling through the hole in the tie.

In Fig. 7 I have shown a modified form of this automatic fastener. In this clamp B' the forwardly extending under jaw is dispensed with and the shank of the clamp is formed at its lower end with laterally extending shoulders b^4 and a rearwardly extending shoulder and also with lugs b^6, the same as in Fig. 3. This clamp might be described as a double T having its lower head turned at right angles to its upper head. In applying this double T clamp to the tie, a T shaped opening is cut in the top of the tie, the lower

head of the clamp is slipped through the head of the T shaped opening, and then the shank of the clamp is slid into the shank of the opening and the tie shoved over so that the base of the rail will cover the head of the T shaped opening and the head of the clamp will bear upon the flange of the rail.

In Fig. 4 I have shown my improved approximately U shaped channel block C which is formed with outwardly extending upper and lower gripping jaws c, c' and side lugs c^2, which latter prevent the said channel block from falling through the opening in the tie when it is first applied in said opening and before the dog spike is placed in position in contact with the same. The channel block is provided on its back near its lower end with a lug or shoulder c^3 running preferably across the same, and near its upper end with a groove c^4 which are used in securing the channel block in place in connection with a dog spike D and a key E as will be hereinafter described. The dog spike D is preferably formed with an outwardly extending shoulder d, and on across its back near its lower end with a groove d' and near its upper end with a groove d^2. The lower end of the dog spike is preferably reduced in thickness to give it a spring action when securing it in place and for assisting in holding it by spring pressure in contact with the channel block after it has been adjusted to its proper position.

In applying the fasteners to the tie and securing a rail thereto, where the U shaped clamp is employed, the said clamp is dropped into one of the openings in the tie, say on the outside of the rail, so that its lower jaw will bear against the under side of the top portion of the tie and its upper jaw will rest on top of the flange of the rail. The channel block is then slipped in the opening in the tie on the other side of the rail, it being prevented from falling through by its side lugs, and the dog spike is inserted into said opening with its back against the back of the channel block and is driven down until its lower end strikes the lug near the lower end of the channel block when it is forced outward and caused to ride over said lug until the lower groove or recess coincides with said lug, when the dog spike will automatically spring into position and the lug be held in the recess in a locked condition by spring pressure. The upper grooves on the channel block and on the dog spike are relatively so arranged with respect to each other that when the channel block and dog spike are interlocked as just described, the said grooves will register with each other and form one groove for the passage of the key E as shown. The upper grooves and key serve to further secure the channel block and dog spike and to prevent any lateral displacement of the parts as the key is turned down at its outer end for this purpose and also to prevent the key working out of place and serves together with the lug and groove near the bottom of the fastener to produce a fastener which is securely locked at top and bottom below and above the top portion of the tie. Where the key is provided with a head, the other end may be bent down or riveted to prevent it falling out of place, or the head might be dispensed with and both ends be turned down as shown.

In practice I contemplate securing the rails in position on the ties as follows: Where the automatic clamp is placed in the tie on the outside of one rail and my improved fastener on the inside thereof, the other rail which rests on said tie would be secured by placing the automatic fastener on the inside of said rail and my improved fastener on the outside thereof. In the next tie the arrangement of the fasteners would be reversed so that the strength of the fasteners would be uniformly distributed along the rails, and in removing old ties and substituting therefor my metallic ties, they could be secured in place and the fasteners applied without disturbing the rails.

I may find it expedient to employ my improved fastener on both sides of a rail, and in this construction the openings in the top of the tie could vary in size to adapt the tie to curves and in which case I would provide dog spikes of different thicknesses to provide for deviations in the rails.

What I claim is—

1. A railroad rail fastener for securing one flange of a rail, comprising a channel block dog spike and a key, the channel block having an upper and a lower gripping jaw and provided on its back near its lower ends with a lug or bead and near its upper end with a groove; the dog spike provided on its back near its lower end with a recess and near its upper end with a groove; the construction and arrangement being such that the lower part of the fastener is locked by the lug and recess and the upper part of the fastener is locked by the key which is passed through the upper groove in a channel block and in the dog spike when said grooves are brought together so as to coincide and form one groove, substantially as described.

2. A railroad rail fastening for securing one flange of a rail comprising a channel block dog spike and a key, the channel block having an upper and a lower gripping jaw and provided on its back near its lower end with a lug or bead and near its upper end with a groove; the dog spike provided on its back near its lower end with a recess for engaging the lug on the channel block and near its upper end with a groove which, when the dog spike is in place, forms with the upper groove in the channel block a single groove and the lower end of the dog spike reduced in thickness to give it a spring action; whereby in applying the dog spike in place its lower end will strike against the lug on the lower end of the channel block and be forced out and cause to ride over said lug until the lug and lower recess

coincide, when the dog spike will spring into place and be held in direct contact with the channel block by a spring pressure below the top of the tie and by passing the key through the upper coinciding grooves in the channel block and dog spike, the fastener will also be locked at its upper end above the top of the tie, substantially as described.

3. A railroad rail fastener for securing one flange of a rail comprising a channel block, dog spike and a key, the channel block being provided with an upper and a lower gripping jaw and side lugs and across its back with a lug or bead near its lower end and a groove near its upper end to receive the key; and the dog spike provided with an outwardly extending shoulder and having its lower end reduced in thickness to give it a spring action and formed across its back with a recess near its lower end and a groove near its upper end to receive the key, substantially as described.

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

THOMAS M. BRINTNALL.

Witnesses:
JOSEPH W. BUELL,
E. T. FENWICK.