

(No Model.)

2 Sheets—Sheet 1.

J. DYSON.
RAILWAY TIE.

No. 516,001.

Patented Mar. 6, 1894.

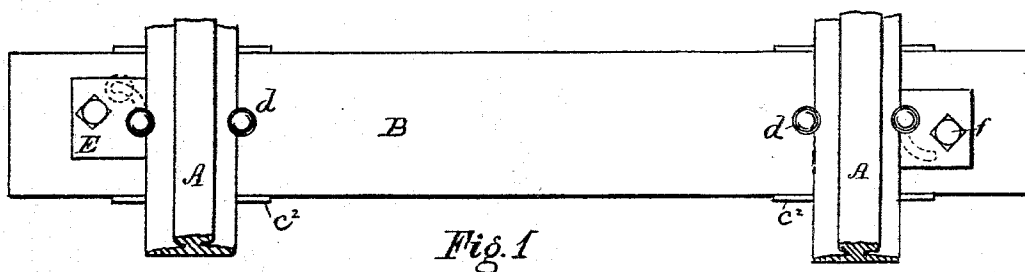


Fig. 1

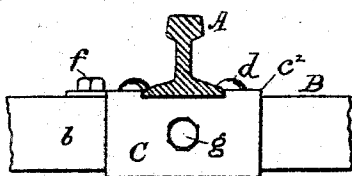


Fig. 2

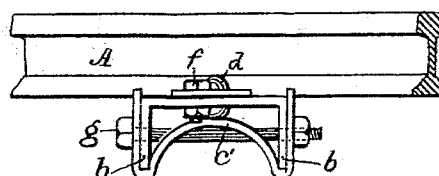


Fig. 3

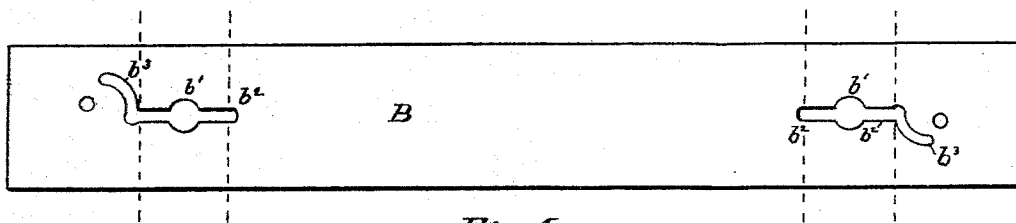


Fig. 4

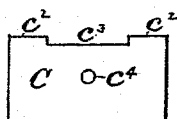


Fig. 5

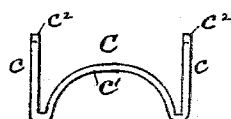


Fig. 6

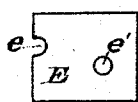


Fig. 7

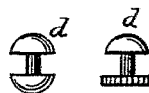


Fig. 8

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(No Model.)

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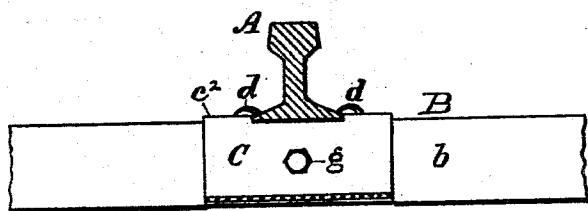


Fig. 9

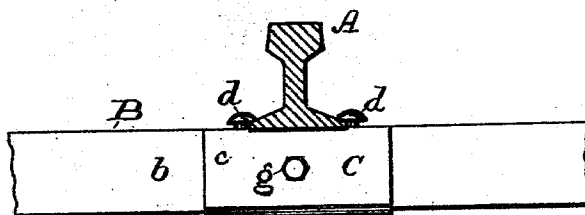


Fig. 10

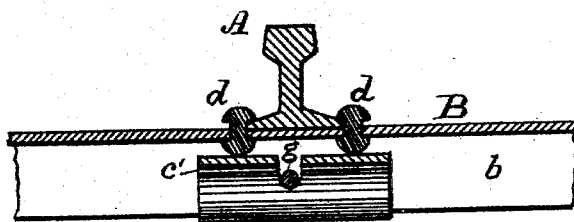


Fig. 11

Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH DYSON, OF CLEVELAND, OHIO.

RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 516,001, dated March 6, 1894.

Application filed October 11, 1893. Serial No. 487,804. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DYSON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Railway-Ties; 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 improvements in metallic railway ties; its object is to combine simplicity and economy of construction, great durability and security in use, and ease of application; and it consists in the construction, combination and arrangement of parts to secure these ends as hereinafter fully described.

In the drawings Figure 1 is a plan view of my improved railway-tie with the rails secured in place thereon. Fig. 2 is a side view thereof, and Fig. 3 an end view, both in elevation. Fig. 4 is a top plan view of the tie detached. Fig. 5 is a side-view, and Fig. 6 an end view, of the holding clip, detached. Fig. 7 is a detached view of the locking-plate, and Fig. 8 a like view of the studs or buttons for holding down the rails. Fig. 9 is a partial elevation showing a modified structure of the tie, and Fig. 10 a like view showing a modification in form of the holding clip. Fig. 11 is a vertical longitudinal section in the center line of the tie, showing all the parts in position.

A represents the rail, B the tie, C C holding clips, $d\ d$ studs or buttons by which the rail is held to the tie, E E locking plates secured to the tie by bolt f and preventing lateral displacement of the rail, and g is a bolt securing the clip C to the tie. The tie B is preferably of iron rolled in one piece and having a flat top and down-turned flanges $b\ b$, as seen in Fig. 3. The holding clip C embraces the tie at its lower edges, being rudely of the shape of the letter W, as seen in Figs. 3 and 6, and is formed with the outer sides $c\ c$ and the central upward-curved portion c' , between which and the sides c the flanges $b\ b$ of the tie snugly fit, which prevents any spreading apart of the flanges, being assisted by the bolt g which passes entirely through the clip and tie, and to receive which bolt the clip is provided with holes c^4 corresponding with holes in the

tie. The sides $c\ c$ of the holding clip are preferably formed with projecting lugs c^2 , extending slightly above the tie and leaving between them the notch c^3 , as wide as the flat base of the rail and even with the top of the tie, as seen in Figs. 2 and 9. In this notch the rail rests and is prevented from moving sidewise. The rail is held down upon the tie by double-headed studs or buttons $d\ d$ passing through the tie; to receive which buttons the tie is perforated in that part covered by the rail, with a hole b' of a size to receive the head of the stud, from which on each side extends a slot b^2 , long enough to admit the base of the rail between the shanks of the studs when the latter are at the ends of the slots b^2 , as shown by the dotted lines in Fig. 1. The outer one of the slots b^2 , viz., the one nearest the end of the tie, is extended, preferably but not necessarily from one side and in an angular direction, far enough so that when the stud d in that slot is passed to the end of such extension the base of the rail can be passed between the two studs and brought to a firm bearing on the tie. When this is done the rail is forced against the inner stud, and, the outer stud being brought against the rail, the heads of the studs overlapping upon the flange or base of the rail prevent it from being lifted. The locking plate E is placed with its notch e against the shank of the outer stud, its edge abutting against the foot of the rail, and is secured to the tie by the bolt f passing through hole e' and through a corresponding hole in the tie. This locks everything in place and prevents any movement of the rail. By removing bolt f the outer stud can easily be moved into the extension b^3 of the slot b^2 , and leaves the rail free to be lifted and replaced by another in the shortest possible time. The removal of plate E will not leave the rail free to spread, as it will still be held by the lugs c^2 . The upward curved central part c' of the clip C bears against the under side of the studs d , and not only prevents them from dropping through when inserted at the hole b' , but keeps them protruding so far above the tie that the edge of the flange or base of the rail easily passes under the head of the studs, as seen in Fig. 11.

The spreading of the track is well known

to be one of the most fruitful causes of railway wrecks, and is caused by lateral movement outwardly of one or both of the rails, there being of course no tendency to force the rail inward toward the center line of the track. This outward acting force is, of course, greatest on curves. It will be seen that in my improved construction of tie the outward force acting on the rail is resisted by the stud *d*, the bolt *f*, and the lug *c*² or bolt *g*, as well as by the friction of the clip *C* on the flanges of the tie. The bolts *f* and *g* and stud *d* must all be sheared off before the rail can move, and as the strain is distributed between a large number of ties, it is impossible for enough to be concentrated on the bolts and stud to shear them off and permit the rail to spread. As a further means of resistance in localities where from any cause the rails are exposed to an unusual strain, as on sharp curves, or where, as on bridges, &c., excessive precaution is to be observed, the tie may be so notched on the bottom edge of its flanges *b b* as to allow the clip *C* to seat therein, the outside of the clip being flush with the bottom of the flange *b*, as seen in Fig. 9, and thus the shearing strain is resisted, in addition to the other parts, by the solid body of metal some inches in length in the flange of the tie. This last modification of structure will very seldom need to be resorted to, and indeed, where the strain is not great, as on the inside of curves, &c., the lugs *c*² may be dispensed with and the clip *C* formed with a straight top edge, as seen in Fig. 10.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A metallic railway tie having a flat top and depending flanges, in combination with double-headed holding studs seated in the top of the tie and a clip embracing both flanges of the tie and secured thereto by a bolt passing through the clip and tie, substantially as described.

2. A metallic railway tie having a flat top and depending side flanges, in combination with double-headed holding studs seated in a slot in the top of the tie and a locking plate secured to the tie and having a notch to embrace the shank of the stud and prevent its moving in its slot, substantially as described.

3. A metallic railway tie having a flat top and depending flanges, in combination with double-headed holding studs seated in a slot

in the top of the tie, a locking plate secured to the tie and having a notch to embrace the shank of the stud and prevent its moving in its slot, and a clip embracing both flanges of the tie and secured thereto by a bolt passing through the clip and tie, substantially as described.

4. A metallic railway tie having a flat top and depending flanges, in combination with double-headed holding studs seated in a slot in the top of the tie, a locking plate secured to the tie and having a notch to embrace the shank of the stud and prevent its moving in its slot, and a clip embracing both flanges of the tie and bolted thereto and having a lug projecting above the tie on each side of the rail, substantially as described.

5. A metallic railway tie having a flat top and depending flanges, in combination with double-headed holding studs seated in a slot in the top of the tie, a locking plate secured to the tie and having a notch to embrace the shank of the stud and prevent its moving in its slot, and a clip embracing both flanges of the tie and engaging a notch in the bottom of the flange, said clip being bolted to the tie, substantially as described.

6. A metallic railway tie having a flat top and depending flanges, in combination with double-headed holding studs seated in a slot in the top of the tie, a locking plate secured to the tie and having a notch to embrace the shank of a stud and prevent its moving in its slot, and a clip embracing both flanges of the tie and bolted thereto and having an upward curved portion to abut against the under side of the studs and prevent their falling or being forced through the slot in the tie, substantially as described.

7. The combination of the metallic railway tie having a flat top provided with slots extending beyond the outer side of the rail, double headed studs seated in said slots, a locking plate secured to the tie and having a notch to embrace the shank of the stud and hold the same against the rail, and a clip embracing depending flanges on the tie and bolted thereto, substantially as described.

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

JOSEPH DYSON.

Witnesses:

LOUIS H. WINCH,
LOREN PRENTISS.