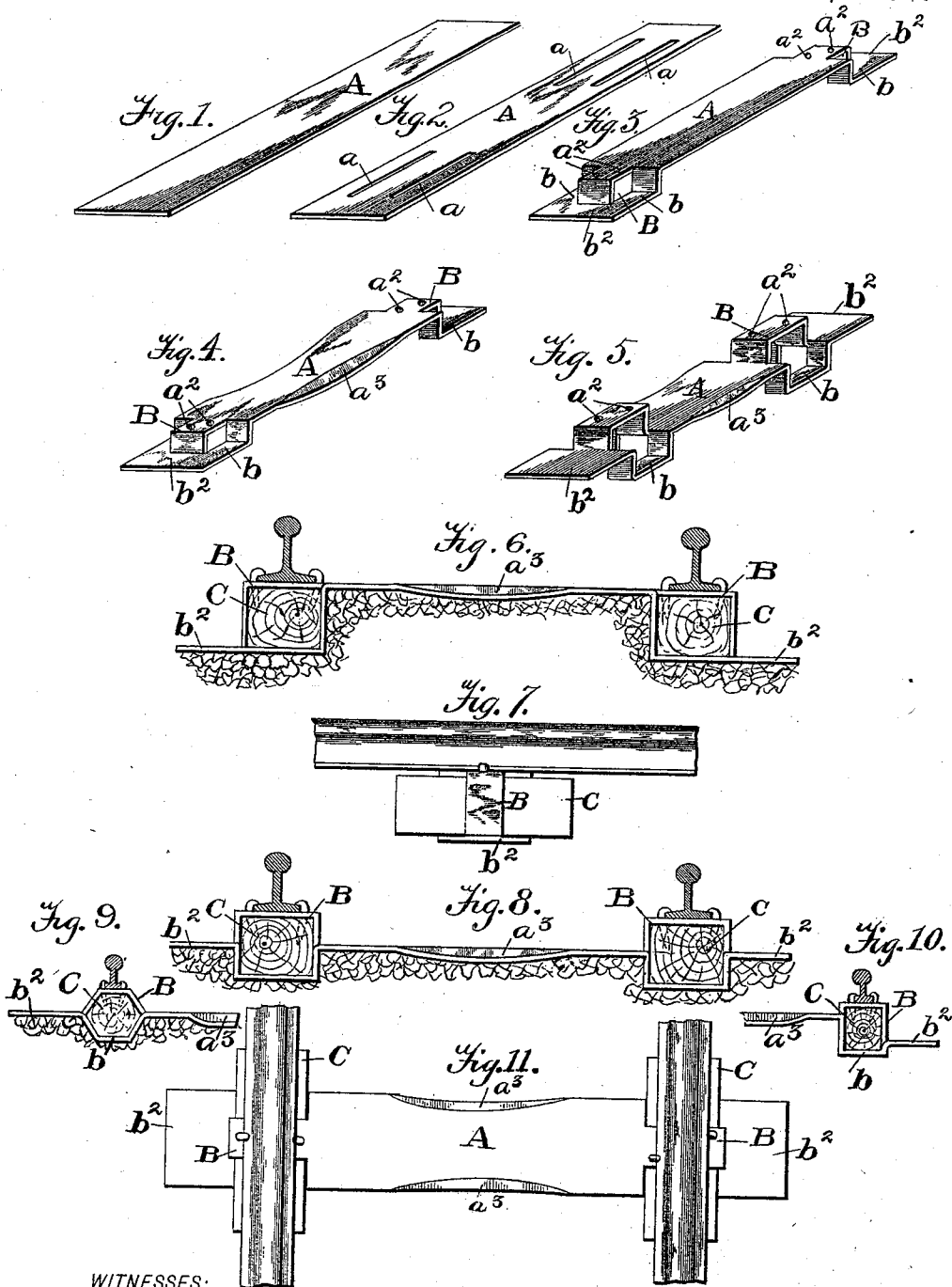


(No Model.)

C. COLEMAN & R. DE SAUSSURE.
METALLIC CROSS TIE FOR RAILWAYS.

No. 529,679.

Patented Nov. 20, 1894.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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METALLIC CROSS-TIE FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 529,679, dated November 20, 1894.

Application filed August 13, 1894. Serial No. 520,173. (No model.)

To all whom it may concern:

Be it known that we, CLARENCE COLEMAN, a citizen of the United States, and RENÉ DE SAUSSURE, a citizen of France, both residing at Roanoke, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Metallic Cross-Ties for Railways; and we 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.

This invention relates to metallic cross-ties for railways. The object is to produce a metallic cross-tie of simple, ready and inexpensive, but efficient construction, by which the rails will be held firmly in line; furthermore, to unite with the essential qualities of iron or steel, in a cross-tie, the use of wood, economically and in a manner to give elasticity under the rail-seat and allow a spike-fastening to be employed; furthermore, to unite with the use of a metallic cross-tie, the use of wood or other suitable substance for a cushion, with protection of the cushion from injury, under impact of the rail from passing trains, by a portion of the tie itself. The object is, finally, to combine, by a simple form of construction, the essential advantages of a metallic cross-tie, a wooden cross-tie, and a metal tie-plate which shall protect the wood.

With these objects in view, the invention consists in a metallic cross-tie for railways having one or more boxes in the course of its length formed of upper and lower straps, and to or by means of which rails may be secured in position; the lower straps being below the plane of the body of the tie; furthermore, in the combination with a metallic cross-tie having one or more boxes formed of continuous upper and lower straps, of blocks or lengths of wood in the boxes to present a support in these, allow the use of spikes to fasten the rails to the metallic tie, and act as a key to stiffen and strengthen the tie at the point which bears the load in passing trains; furthermore, in the combination with a metallic cross-tie having boxes formed of upper and lower straps in the course of its length, of blocks or lengths of wood fitting the boxes and presenting an elastic support under and

protected by them, and permitting the use of spikes to fasten the rails to the tie, the boxes being integral with the tie; and finally, the invention resides in various details of construction, all as more fully hereinafter set forth.

In the accompanying drawings, forming part of this specification and in which like letters of reference indicate corresponding parts,—though the invention is capable of embodiment in various forms, as that the boxes may be formed by stamping, without first slitting the blank, or otherwise,—we show four forms of embodiment of the invention and a method of making the tie by slitting and bending a portion of it.

In the drawings, Figure 1— is a view in perspective, showing a blank. Fig. 2— is a similar view, showing the blank provided with slits toward its ends. Fig. 3— is a similar view, showing the slitted blank bent at the slits to present a tie with boxes, tie-plates, or straps toward its ends, with their tops in the same plane with the main body of the blank, and extension-plates for bearings, on a plane below that of the main plate or body of the tie, all formed in one piece, the inner portion of the part between the slits forming the top of the box, in the same plane with the body, the inner portions of the parts outside of the slits forming offsets at the ends of the body or main plate of the tie, the outer portions of the part between the slits forming the end of the box, and the outer portions of the parts outside of the slits forming supports, and with the portion beyond the ends of the slits, an extension-piece or bearing on a plane below that of the main plate or body of the tie. Fig. 4— is a similar view, showing, in addition to what is displayed in Fig. 3, the sides of the body of the tie bent down to form flanges, and there being holes in the tops of the boxes. Fig. 5— is a similar view, but showing a modification, in which the inner portion of the part between the slits is bent upward, forming an upper strap, or tie-plate, with its top above the plane of the main body of the tie, and the outer portions of the parts outside of the slits, instead of forming, with the portion beyond the ends of the slits, together, an extension-bearing,

being bent down at right-angles, forming lower straps of the box of the same shape as the upper strap, the upper end of the slit extending as a bearing, as before, but being in
 5 or nearly in the same plane with the main body of the tie. Fig. 6— is a view in cross-section through a road-bed and track, showing, in side-elevation, a cross-tie of the kind displayed in Fig. 4, in position with blocks
 10 driven into the boxes, and rails running over their tops, spiked through the boxes into the blocks, the extension being on a plane below that of the main body of the tie. Fig. 7— is a view in end-elevation of the construction
 15 displayed in Fig. 6. Fig. 8— is another view in cross-section, through a road-bed and track, showing, in side-elevation, a cross-tie of the kind displayed in Fig. 5, in position with blocks driven into the boxes and rails
 20 running over their tops, secured by spikes through boxes into the blocks, the extension being in about the same plane with that of the main body of the tie. Figs. 9 and 10— are views in side-elevation, each of a portion
 25 of a tie and its box, showing other shapes or constructions of boxes or tie-plates and positions of the extension-pieces or bearings; and Fig. 11— is a view in plan, showing a cross-tie of our construction with blocks
 30 driven into the boxes, rails running along the tops of the boxes, and spiked through the boxes to the blocks.

In carrying our invention into effect, the point is to provide, in the length of a metallic tie, at proper places, boxes, the tops of
 35 which will be on a level with the bottom-surface of the rails, which boxes will present a bearing-surface to the rails, and, when these are fastened to them, as by bolting them directly to the metal, or by spiking them to
 40 blocks or stringers running through the boxes, will serve, with the rest of the tie, to hold the rails from lateral movement in either direction. For an ordinary track, there will
 45 be a box toward each end of the tie; but there may be as many boxes as desired in the length of the tie for use in the construction of switch-ties, frog-ties, bridge-ties, &c. The preferred manner of construction of the tie
 50 and mode of use is, however, that shown in the drawings.

In the drawings, A, represents the body of a metallic tie, having, toward its ends, tie-plates, integral with the body, in the nature
 55 of boxes, B. These boxes may be formed by stamping them out of a plain blank; but are preferably made by slitting a metallic blank near its ends, as at a , a , bending the inner portions of the parts outside of the slits downward, and the outer portion of the part between the slits to any desired angle with the
 60 body of the blank, leaving the remainder of the parts outside of the slits level and in a plane with the portion beyond the ends of the slits, being then on a plane below that of
 65 the body of the blank. This forms angular

straps, the inner one constituting the top (or bottom) of a box, B, with top and outer end closed and sides open, and the outer ones constituting supports, b , b , on each side of it, 70 with an extension or bearing surface, b^2 , beyond the end of the box. The top of the box is provided, preferably, with holes, a^3 , a^3 , for bolts or spikes. The body of the blank is preferably bent down at its sides to form 75 flanges, a^3 , which serve the double purpose of strengthening the body, and of enabling the tie to be more securely held in the road-bed.

Instead of forming the boxes and supports, 80 as just described, and which construction is shown in Fig. 3, the boxes may be formed as shown in Fig. 5, where the middle strap is formed by bending the part between the slits upward, making angular offsets upward at 85 its ends, and the outer straps are formed by bending the parts outside of the slits downward, making angular offsets downward at the ends, whereby the top of the box will be on a plane above that of the main body of 90 the tie, and the extension or bearing surface will be on the same plane.

It is to be understood that the straps may be bent to any suitable shape, so that the box may be of rectangular, polygonal, or other 95 configuration, and the bearing surfaces, b^2 , may be in any plane with relation to the body of the tie, according as the parts between and outside the slits are bent, relatively, alike, or more or less up or down. 100

The box of the tie may be used alone for the support of the rails, if made of sufficiently strong and heavy metal; and, in this case, the rails would be bolted to them; but it is preferred that the boxes should be supported, by 105 wooden blocks, C, driven into them by sledging or by hydraulic pressure, so that, when they are driven into place, they shall be firmly held by the straps and angles formed by slitting and bending, as above described; or the 110 box may be driven onto stringers.

It will be obvious that the number of slits cut into a blank may be chosen *ad libitum*, and that there may be any number of straps above or below the blank, or straps of any desired width for retention or for support. 115

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A metallic cross-tie for railways having 120 one or more boxes in the course of its length formed of upper and lower straps and to or by means of which rails may be secured in position, the lower straps, being below the plane of the body of the tie, substantially as 125 described.

2. A metallic cross-tie for railways having one or more boxes formed of upper and lower straps integral with the body of the tie, and the lower straps below the plane of the same, 130 substantially as and for the purpose set forth.

3. A metallic cross-tie for railways, having

one or more boxes formed of upper and lower straps in combination with a piece or pieces of wood driven into the box or boxes, that is, between the straps, substantially as and for
5 the purpose described.

4. The combination with a metallic cross-tie having boxes or receptacles in the course of its length, formed of upper and lower straps, of wooden blocks or stringers fitting in the
10 boxes or receptacles, the upper strap cover-

ing and protecting the wood at the rail-seat, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

CLARENCE COLEMAN.
RENÉ DE SAUSSURE.

Witnesses:

EDWARD W. ROBERTSON,
PERCY MOIR.