

No. 736,293.

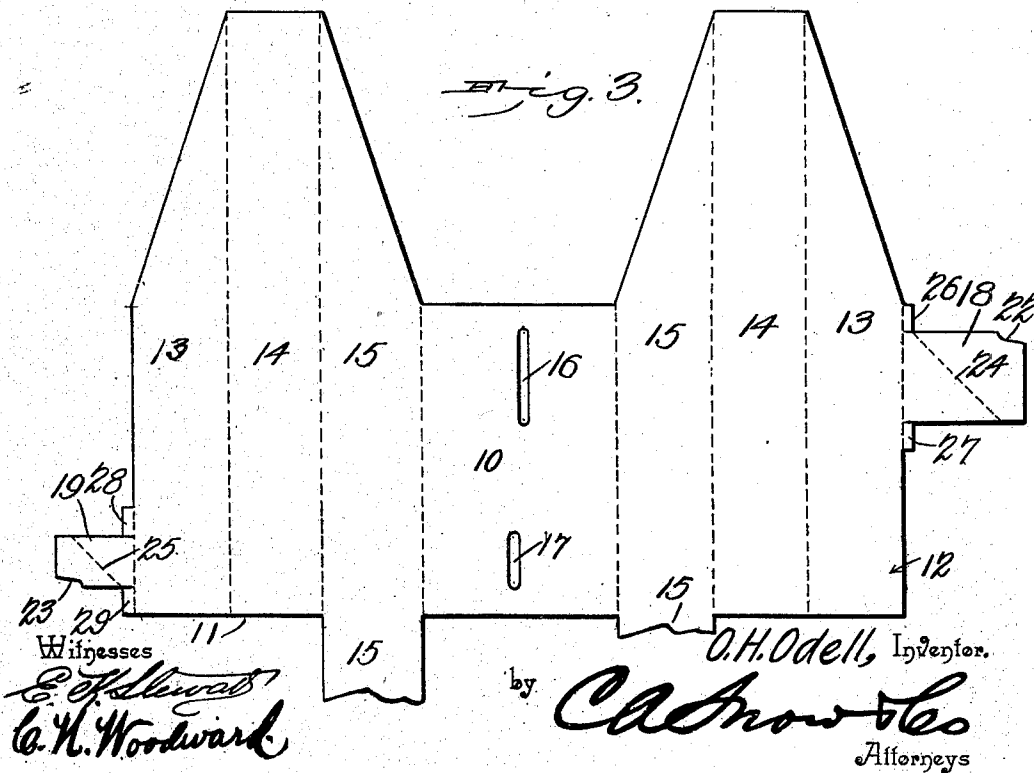
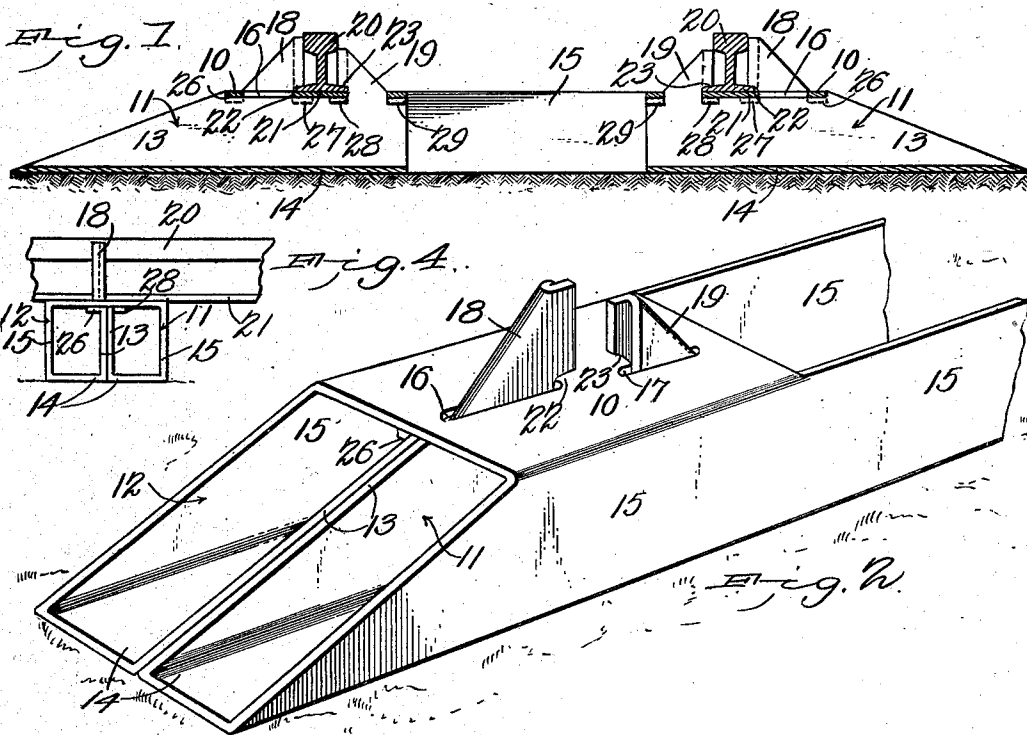
PATENTED AUG. 11, 1903.

O. H. ODELL.
RAILROAD CROSS TIE.

APPLICATION FILED NOV. 11, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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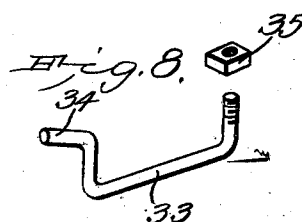
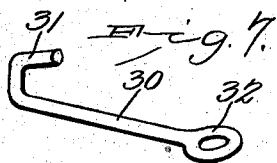
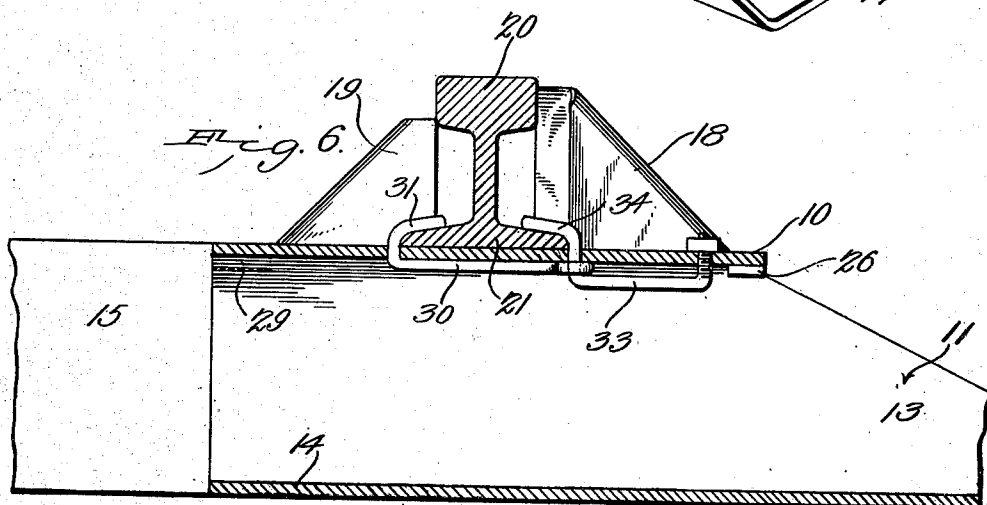
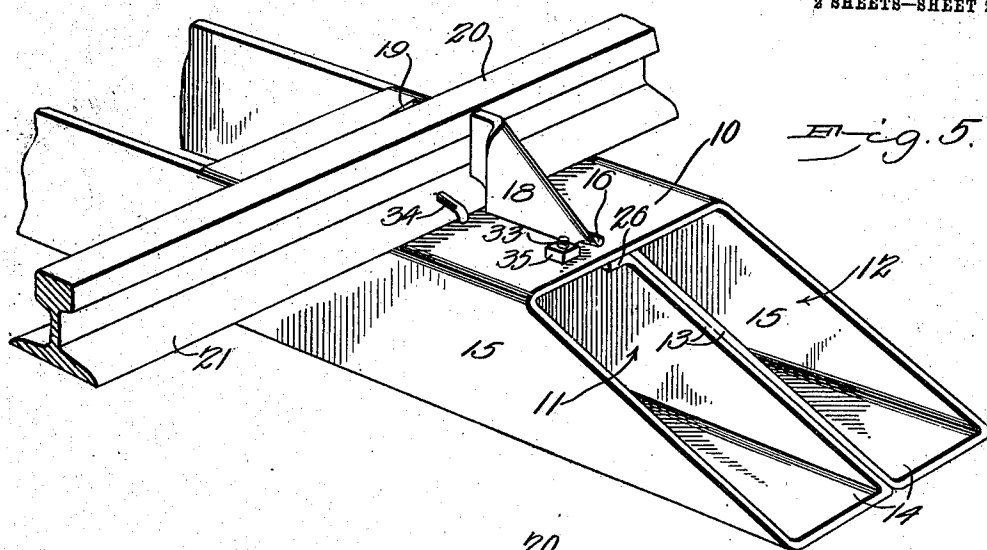
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2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

OSCAR H. ODELL, OF YATES CENTER, KANSAS.

RAILROAD CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 736,293, dated August 11, 1903.

Application filed November 11, 1902. Serial No. 130,903. (No model.)

To all whom it may concern:

Be it known that I, OSCAR H. ODELL, a citizen of the United States, residing at Yates Center, in the county of Woodson and State of Kansas, have invented a new and useful Railroad Cross-Tie, of which the following is a specification.

This invention relates to railway sleepers or ties, and has for its object the production of a tie or sleeper from one continuous plate or sheet of metal, preferably steel, bent to shape, and having the rail-braces preferably integral therewith; and the invention consists in a railway sleeper or tie formed of a single sheet of metal bent to shape and formed with independent rectangular box-like portions disposed side by side with a continuous upper portion common to both, with the adjacent side walls of said rectangular portions engaging and forming a central support to said continuous upper portion.

Other novel features of the invention will appear in the annexed description and be specified in the claims following.

In the drawings illustrative of the invention, in which like characters are employed to designate corresponding parts in all the figures, Figure 1 is a sectional view longitudinally of one of the improved sleepers or ties with the rails in position thereon in transverse section. Fig. 2 is a perspective view, enlarged, of one end of the improved ties or sleepers. Fig. 3 is a plan view of one end of the blank before it is bent into shape. Fig. 4 is an end elevation on the same scale as Fig. 1. Fig. 5 is a view similar to Fig. 2, illustrating the application of the rail-binding clip. Fig. 6 is a longitudinal section of the parts shown in Fig. 5. Figs. 7 and 8 are detached perspective views of the binding-clip members.

My improved sleeper, which it is intended to render stronger at the ends where the greatest strains are sustained, will be formed from a single blank or plate of any suitable sheet metal, preferably steel, and will, before being bent to shape, conform in outline to the blank illustrated in Fig. 3, in which one end of the blank is shown, and consists of a central portion 10, having flanking portions upon its opposite sides, each of the flanking portions adapted to be bent into longitudi-

nally-disposed rectangular-shaped portions 11 12, with outwardly and downwardly inclined ends, as shown in Figs. 1 and 2. Each of the flanking portions being precisely alike, corresponding designating characters are employed for like parts in each, and each of these portions above referred to consists in three longitudinally-disposed parts 13 14 15, the parts 14 forming the bottoms of the rectangular portions, the parts 13 forming the inner sides, and the parts 15 forming the outer sides of the same, while the central portion 10 forms a continuous top or upper portion extending over both of the rectangular portions when the blank is bent into shape. The parts 13, it will be noted, will thus come into close engagement, so that the central portion of the continuous top 10 will be firmly supported by two closely-engaging thicknesses of the plate.

In forming the rectangular portions the plate is bent by suitable machinery along the dotted lines shown in Fig. 3, the parts 15 being bent downwardly at right angles to the part 10, the parts 14 inwardly toward each other, and the parts 13 upwardly in close engagement against the under side of the part 10 and centrally thereof, the whole forming two box-like structures lying closely side by side and with inclined outer ends.

The part 10 is provided with two longitudinally-disposed apertures 16 and 17, placed each near one end thereof, a little to one side of its longitudinal center and in vertical alignment with the parts 13.

One of the parts 13 is provided with a laterally-extended wing 18, adapted when the blank is bent into shape to be inserted through the aperture 16 and extend above the plate 10, and the opposite part 13 with a laterally-extending wing 19, adapted when the blank is bent to shape to be inserted through the aperture 17 and likewise extend above the part 10.

The aperture 16 is considerably longer than the aperture 17, and the wings 18 19 correspond in width, respectively, to the length of the apertures with which they are to be engaged, as shown in Fig. 3.

The contiguous ends of the apertures 16 17 are spaced apart a distance equal to the width of the flanged lower surface of the rail 20, (illustrated in Fig. 1,) so that when the device

is bent into shape, as above noted, the tie-flanges 21 of the rails will be engaged by the adjacent inner edges of the upwardly-projecting wings 18 19.

5 The outer corners of the wings 18 19 are provided, respectively, with recesses 22 23, and the wings are adapted to be bent over angularly along the dotted lines 24 25 into the position shown in Figs. 1 and 2, which position brings the projections formed above the recesses 22 23, respectively, into engagement with the upper surfaces of the tie-flanges 21 upon opposite sides of the rail to firmly support them against lateral movement and bind 15 the sleepers and rails firmly together.

As above noted, the wings 18 coming on the outsides of the rail will necessarily be in position to receive the greatest strains and are thus made much wider and longer than the 20 wings 19, the width enabling them to withstand the greater lateral strains and their length causing their inner surfaces to engage the outer sides of the treads of the rails, as shown in Fig. 1, and thus forming very effect- 25 tual braces to the outer sides of the treads of the rails. The plates 19, being shorter than the plates 18, when bent to shape and in position relative to the inner sides of the rails will not project to a sufficient extent to interfere with the flanges of the wheels, as will 30 be obvious by reference to Fig. 1, but will be of sufficient size to form an effectual support and brace to the inner sides of the rails.

Adjacent to the wings 18 and projecting 35 from the adjacent part 13 are smaller wings 26 27, adapted to be turned off at right angles to the part 13 to increase the lateral width of the part 13 in engagement with the under side of the part 10, these parts 26 27 thus 40 forming supporting-brackets, which greatly strengthen the connection between the parts and materially add to the stiffness and strength of the structure. The opposite part 13 is likewise formed with small wings 28 29, 45 adjacent to the wings 19, and adapted to be turned at right angles to the adjacent part 13 and form supporting-brackets adjacent to the wings to support the parts 10 in the same manner as the brackets 26 27.

50 The parts 15, it will be noted, are continued longitudinally of the sleeper and form connecting means between the two ends of the device, so that the whole sleeper, whereby the spaced rails 20 are supported, will be constructed from one continuous piece or sheet 55 of metal.

It will be noted that the ends of the structure where the heavy strains will occur are reinforced by the closely-engaging portions 60 13 and further strengthened and supported laterally by the brace-plates 18 19, which by passing upward through the continuous top plate 10 effectually prevent any spreading of the parts 13. This lateral bracing of the 65 parts 13 by the wing-plates 18 19 is one of their important functions and adds materially

to the effectiveness and value of the device. The small brackets 26 27 28 29 are also an important feature of the invention and greatly strengthen and stiffen the structure without 70 adding materially to the weight or expense.

It will be noted that the apertures 16 17 are substantially equal to the thickness of the wings 18 19, so that when the latter are inserted through the apertures and then bent 75 over at right angles to the plate 10 along the angular lines 24 25 the bent-over portions will engage the upper surface of the part 10 and form effectual stops to any upward movement of the part 10 relative to the remainder 80 of the structure, the bent-over portions thus forming an effectual rigid locking means to firmly unite and rigidly support the whole structure.

The wings 18 19 may be bent to shape after 85 the rails are in place, or before, as preferred.

The rectangular portions 11 12 and the space between the side members 15 when bent to shape and in position upon the road-bed may be filled with ballast material or cement, whereby the stiffness and resisting 90 power may be very greatly increased and all tendency to vibrate or produce unpleasant noises will be prevented.

A sleeper thus constructed will be very 95 much stronger than the ordinary wooden tie or sleeper and cheaper and stronger than any metal or composite tie heretofore produced.

Another advantage gained by employing a tie thus constructed is that it is not rigid like 100 the ordinary wooden or solid metal tie, but will be sufficiently yieldable or elastic to relieve the rolling-stock largely from jar and concussion and will never become "center bound." 105

If required, additional clips or holding means may be employed for supporting the rails in place other than the brace members 18 19, and one form of one of these clips is illustrated in Figs. 5, 6, 7, and 8, consisting 110 in a bar 30, having one end turned upward, as at 31, and the other end formed with an eye 32, the turned-up end 31 adapted to be passed upward through an aperture in the continuous top member 10, adjacent to the 115 tie-flange of the rails and adapted to embrace the upper surface thereof, the body portion 30 extending beneath the lower surface of the portion 10, as shown in Fig. 6, with the eye portion 32 opposite another aperture through 120 the portion 10 adjacent to the opposite side of the tie-flange. Another bar 33 is provided, having one end 34 turned upwardly and outwardly and adapted to be inserted through the eye 32 and the aperture with which it 125 registers and engaged with the tie-flange, while the opposite end of the member 33 is turned upwardly through another aperture in the portion 10 and threaded and provided with a nut 35 upon the outer surface of the tie, as 130 shown. By this arrangement it will be obvious that by rotating the nut 35 the member

33 will be clamped in position and forcibly draw the member 30, with its end 31, into rigid engagement with the tie-flange of the rail and firmly clamp the latter to the tie.

5 This makes a very simple, complete, and easily-operated clamping means, very readily applied, and effectually preventing lateral or vertical movement of the rails relative to the ties.

10 As many of the clip members may be employed as required, but generally one to each tie, as shown, will be sufficient.

Having thus described the invention, what is claimed is—

15 1. A railway sleeper or tie of a single sheet of metal bent to shape and formed with independent rectangular box-like portions disposed side by side with a continuous upper portion and the adjacent side walls of said rectangular portions engaging and forming a central support to said continuous upper portion, substantially as described.

25 2. A railway sleeper or tie of a single sheet of metal bent to shape and formed with independent rectangular box-like portions disposed side by side with a continuous upper portion, said upper portion provided with longitudinal apertures and the adjacent side walls of said rectangular portions engaging centrally beneath said continuous upper portion and forming a support thereto and provided with wings extending through said apertures and forming lateral supports to the rails, substantially as described.

30 3. A railway sleeper or tie formed of a continuous sheet of metal bent to shape and formed with independent rectangular box-like portions disposed side by side and having a continuous upper portion provided with longitudinal apertures and with the adjacent side walls of said rectangular portions engaging centrally beneath said continuous upper portion and forming a support thereto and provided with wings extending through said apertures and folded over into engagement with said continuous upper portion and likewise embracing the tie-flanges and forming lateral supports to the rails, substantially as described.

35 4. A railway sleeper or tie of a single sheet of metal bent to shape and formed of independent rectangular box-like portions disposed side by side and with a continuous upper portion common to both, the adjacent inner side walls of said rectangular portions engaging said upper portion and laterally flanged and forming a central support to said upper portion, substantially as described.

40 5. As a new article of manufacture, a plate for forming sheet-metal railway sleepers or ties consisting of transverse end members connected by spaced longitudinal members, said transverse members having angularly-formed outwardly-extended portions and laterally-extended wings and with centrally-disposed spaced apertures, whereby when bent

to shape rectangular box-like end portions will be formed with continuous connecting side walls and outwardly-extended inclined ends with a continuous upper portion common to both, and with said lateral wings extending through said apertures and forming lateral supports to the rails, substantially as described.

6. A tubular railway sleeper or tie having spaced apertures, the track-rail transversely disposed between said apertures, a clip-bar within said tubular tie and having an eye at one end registering with one of said apertures and with its other end extending through the opposite aperture and curving backwardly over one edge of the tie-flange of the rail, a clamp-bar passing through said eye and with one end engaging the opposite tie-flange, and means for forcibly actuating said clamp-bar to clamp said rail to the tie, substantially as described.

7. A railway sleeper or tie of a single sheet of metal bent to shape and formed into rectangular box-like portions, the upper side provided with longitudinal apertures with integral wings extending through said apertures and forming lateral braces to the rails, substantially as described.

8. A tubular railway sleeper or tie having spaced apertures, the track-rail transversely disposed upon said tie between said apertures, a clip-bar within said tubular tie and having an eye at one end registering with one of said apertures and with its other end extending through the opposite aperture and curving backwardly over one edge of the tie-flange of the rail, a clamp-bar having up-turned ends with one of said ends passing through said eye and extending over the opposite tie-flange, and the other end threaded and passing upwardly through said tie and provided with a nut exteriorly of the tie, whereby said clamp-bar may be forcibly actuated to clamp the rail to the tie, substantially as described.

9. A railway sleeper or tie of a single sheet of metal bent to shape and formed into rectangular box-like portions, the upper side provided with longitudinal apertures with integral wings extending through said apertures and forming lateral braces to the rails and with spaced apertures through said upper side adjacent to the rails, a clip-bar within said tubular tie and having an eye at one end registering with one of said spaced apertures, and the other end extending through the opposite spaced aperture and curving backwardly over one edge of the tie-flange of the rail, and a clamp-bar passing through said eye and with one end engaging the opposite tie-flange, and means for forcibly actuating said clamp-bar to clamp said rails to the tie, substantially as described.

10. A railway sleeper or tie constructed of a single sheet of metal bent to shape and formed into rectangular box-like portions, the

upper side provided with longitudinal apertures with integral wings extending through said apertures and folded over into engagement with the adjacent surface of the tie, and forming lateral braces to the rails, substantially as described.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in the presence of two witnesses.

OSCAR H. ODELL.

Witnesses:

C. PHELPS,

W. P. LOCKARD.