

E. S. & P. PEMENT.
RAILROAD TIE.
APPLICATION FILED JULY 20, 1912.

1,064,163.

Patented June 10, 1913.

Fig. 1.

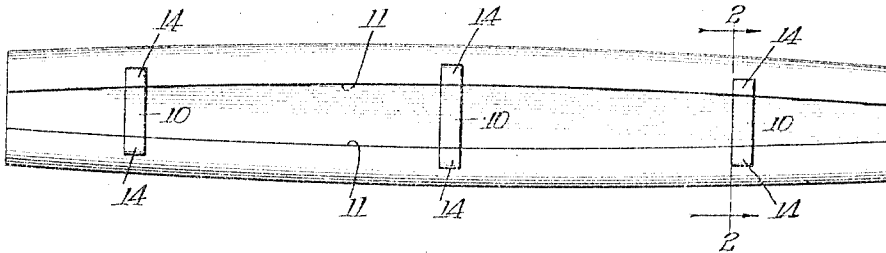


Fig. 2.

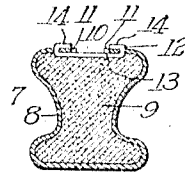


Fig. 3.

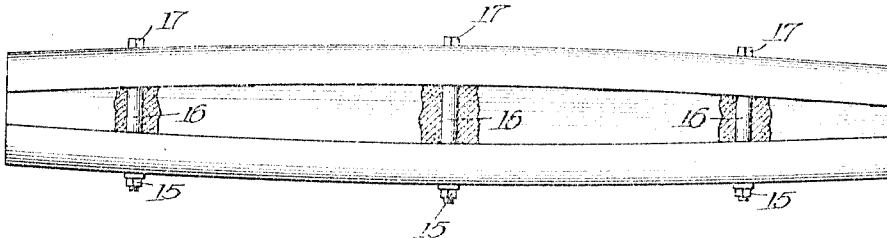


Fig. 5.

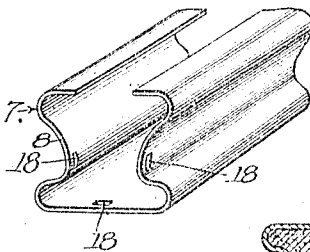


Fig. 4.

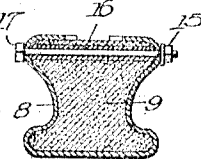


Fig. 6.



Fig. 7.

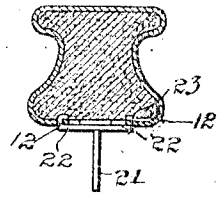
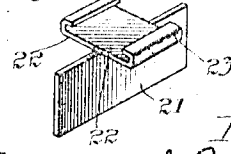


Fig. 8.



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UNITED STATES PATENT OFFICE.

EDWARD S. PEMENT AND PHILEMON PEMENT, OF CHICAGO, ILLINOIS.

RAILROAD-TIE.

1,064,163.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that we, EDWARD S. PEMENT and PHILEMON PEMENT, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railroad-Ties, of which the following is a full, clear, and exact specification.

10 This invention relates to improvements in railroad ties bent from sheet metal, and before use filled with cement, concrete or other suitable filler, rendering them solid throughout, and in which the filling contracts and on drying shrinks away from the metal walls of the tie.

15 The object of this invention is a filled sheet metal railroad tie, the set and dried filling of which is closely and tightly embraced by the surrounding walls of metal, and means by which the filling may be so embraced whether the shrinking be great or small throughout, or at intervals of the length of the tie.

20 A further object of this invention is to distend the metal of the tie adjacent its opposing longitudinal edges without changing the lines of other portions of the tie, and in such a manner that the distended portion locks the filling against endwise movement in the tie.

25 A still further object of this invention is to provide a tie with end closing caps for its filling, which caps are of simple construction, and conveniently locked to the tie against accidental detachment.

30 With these ends in view, our invention finds embodiment in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects are herein-after attained, all as fully described with reference to the accompanying drawing, and more particularly pointed out in the claims.

35 In said drawing: Figure 1 illustrates a bottom plan view of a railroad tie in which this invention finds embodiment. Fig. 2 illustrates a transverse section on the line 2-2 of Fig. 1, with the tie bottom side up. Fig. 3 is a bottom plan view illustrating a modified form of this invention. Fig. 4 is a transverse section. Fig. 5 illustrates a detail perspective of a tie provided with means for securing thereto an end closing cap, and Fig. 6 is a face view of such a cap. Fig. 7,

is a closed section of a tie provided with a T-fastening clip, and Fig. 8 is a perspective of the T-clip detached.

Similar characters of reference indicate the same parts in the several figures of the drawing.

7 indicates a railroad tie composed of sheet metal 8, bent to the form shown, but may be of any other suitable form, and filled with cement, concrete or other suitable material 9 adapted for the purpose, and which on drying contracts and shrinks away at one or more places, or in its entirety, from the sheet metal walls of the tie, but forms a solid, and when dried, a hard mass therein. For the convenient introduction and uniform packing of the filling in these ties, and may be a saving in metal, there is usually an opening 10 between the opposing longitudinal edges 11-11 of sheet metal ties, but so far as advised no means have heretofore been provided for contracting the metal of the tie to close the metal against the filling after it has shrunk, or to expand the tie to a form locking the filling against endwise movement therein.

As before suggested, concrete and other fillings containing moisture on their introduction to the tie, however tightly packed in the tie, shrink from the surface of the metal on drying, and unless some means is provided forming and holding the metal against this mass the concrete soon becomes disintegrated from jars and shocks from handling, and when in use, and which by this invention is prevented by perforations 12 adjacent the edges of the tie through which to pass clip plates 13 subsequently having their ends 14 bent over upon the metal in clip form at the proper time after forcing the metal tie to close contact with the shrunken mass of filling. In other words in carrying out this invention the clip plates 13 in straightened out condition are passed through the slots with their ends projecting from the tie, and this either before or after the filling is inserted, and then after the filling has dried and correspondingly shrunken the metal of the tie is forced to close contact with the filling, and so held until the clips have been bent over to a position locking the sheet metal from spreading, and while three such clips are shown at uniform intervals of the length of the tie, a greater or less number may be employed as

may seem desirable and necessary to lock the metal of the tie against subsequent spreading away from its filling.

As a means for preventing an endwise movement of the filling in the tie, the curve portion or edge adjacent the opposing longitudinal edges are forced apart before inserting or completing the insertion of the filling by means of any implement adapted for that purpose, or by means of a short piece of pipe such as is shown in Fig. 4, and hereinafter described, the spreading implement, or the pipe, as may be, being used in such a manner as to curve the opposing edges in opposite directions from the center of length of the tie toward its ends and if desired throughout their length, and as a result of which long and short clip plates as shown in Fig. 1 may be used, as for example a longer clip plate at the center of length of the tie than at or toward its opposite ends. The tie may be thus curved when bending it, but in practice and for convenience and cheapness in their bending, they are preferably formed along straight lines and subsequently bent to retain their filling against endwise movement as above described.

Instead of using clip plates as shown in Figs. 1 and 2, this invention includes the employment of stay bolts 15 passing through spreader pipe 16, but when such bolts are used neither they, nor the pipe for finally holding the metal of the tie against the contracted mass of cement should be inserted until after the cement has ceased its contraction, and in which case the pipes themselves should have a length corresponding with the width of the cement adjacent thereto, other spreading implements being used to hold the ties spread until after the shrinking of the filling has ceased, and which may not be removed after the pipe and bolt device is inserted to place followed by tightening the nuts 17 on the bolts until the metal of the tie is thereby forced and locked.

In Fig. 5 the metal tie 7 is shown provided with slots 18 respectively in its sides and face, for the reception (see Fig. 6) of a plate 19 conforming in outline to the contour of the end of the tie and provided with lugs 20 formed therewith, adapted to project through the slots 18, which plate caps and closes the end of the tie and forms, as it were, a cap closing the end of the tie sufficiently to prevent any substantial part of the filling escaping therethrough. The lugs 20 preferably are of such a length that the cap may be placed in its operative position in the end of the tie before filling it, and the body of the cap of such dimensions that it will not resist the forcing of the tie tight against the filling after the filling has contracted from drying, for it should be understood that there need not be a close joint between the edge of the cap and the walls of the tie in

order to prevent a substantial amount of the filling escaping therefrom either before or after it is dried.

In Figs. 7 and 8 is illustrated another form of fastening clip for the opposing edges of the tie in which the stem 21 of the T is longer than its lateral projecting flanges 22--22, or in other words the flanges are cut away to so short a length that they may be projected through the slots 12, and their free ends bent as indicated at 23 to clamp and lock the clip to the tie, as indicated in Fig. 7, so that the longer stem of the T when the tie is in its operative position, will project into the ground, or other formation of road bed, and have such a hold as to substantially resist a horizontally lateral movement or twisting of the tie wherever located in a road bed, but especially at and along curves where ties are greatly subjected to forces tending to produce a lateral and pivot like displacement from face moving and heavy trains passing over the rails at that point.

In conclusion it may be observed that this invention is not limited to any special form of sheet metal tie, or to one formed from a single piece of sheet metal, but includes any sheet metal tie in which in the forming there are longitudinal opposing edges providing for the contraction of the tie against the filling provided with a clip or device of any form adapted to lock the contracted tie in its operative position closely against the filler and against subsequent expansion. Nor is this invention limited to the particular means and devices by which the ends of a hollow tie are closed to a degree preventing the contained filler discharging therefrom.

Having described this invention what we claim and desire to secure by Letters Patent is:

1. A railroad tie composed of sheet metal bent to form, having separated opposing longitudinal edges in combination with means secured in the face of the tie adjacent to and locking said edges against lateral movement.

2. A railroad tie composed of sheet metal bent to form, having separated opposing lateral edges and provided with perforations adjacent said edges, in combination with means projecting through said perforations adapted to maintain and lock said edges from lateral movement.

3. A railroad tie composed of sheet metal bent to form, having separated opposing lateral edges extending on the arc of a circle, provided with perforations adjacent said edges, in combination with a plurality of locking devices differing in length projecting through said perforations, whereby said edges are maintained throughout their length against spreading apart.

4. A railroad tie composed of sheet metal bent to form with the opposing longitudinal

nal edges separated from each other, the edges of one side or face of which tie extend in parallel lines, and the other in reversely curved lines, and means locking and maintaining the opposing curved side edges thereof from expanding.

5 5. A railroad tie constructed from bent flexible sheet metal having on one face separated opposing longitudinal edges, a contractible filler therein, and means in the face of the tie adjacent said edges for forcing the walls of the tie against and locking them in contact with the filler, following the contraction thereof from said walls.

10 6. A railroad tie composed of bent contractible sheet metal having separated opposing longitudinal edges in combination with caps, for closing the ends thereof, and means whereby said caps are locked to the metal of the tie when the latter is contracted.

15 7. A railroad tie of sheet metal bent to form, with its longitudinal edges separated from each other, and contractible, said tie being provided with perforations adjacent its ends in combination with caps provided

with lugs for projecting into said perforations, whereby when the tie is contracted said caps are locked thereto in a position substantially closing the ends of the tie.

30 8. A railroad tie of sheet metal, bent to form, in combination with a T-clip locking its opposing longitudinal edges with the stem of said T-clip, projecting substantially below the bottom face of the tie.

35 9. A railroad tie of sheet metal bent to form, the longitudinal edges of which are separated from each other, in combination with a clip of T form, the flanges of which connect and lock the opposing edges of the tie with the stem of the T extending in a line parallel with the sides of the tie, substantially as described.

40 In witness whereof, we have hereunto set our hands and affixed our seals this 16th day of July A. D. 1912: 45

EDWARD S. PEMENT. [L. s.]
PHILEMON PEMENT. [L. s.]

Witnesses:

MILDRED ELSNER,
JNO. G. ELLIOTT.