E. JONES.

CONCRETE TIE.

APPLICATION FILED FEB. 2, 1918.

1,285,723.

Patented Nov. 26, 1918.

2 SHEETS—SHEET 1.

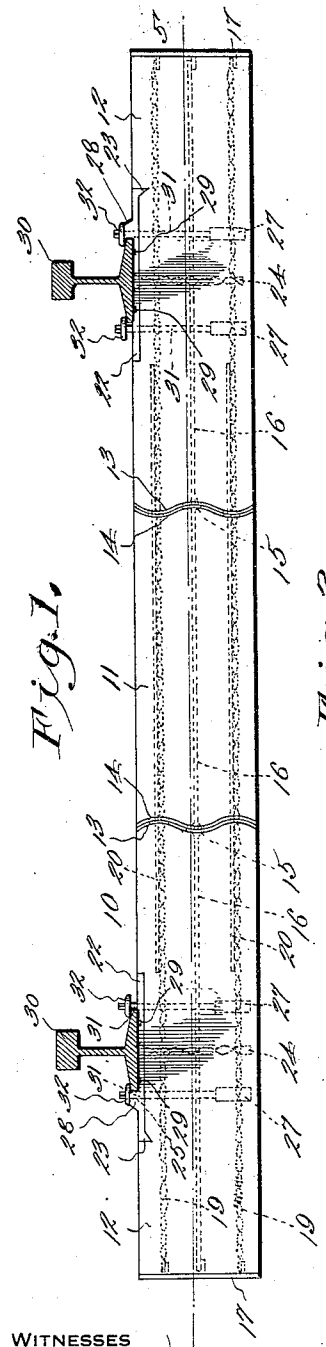


Fig. 1.

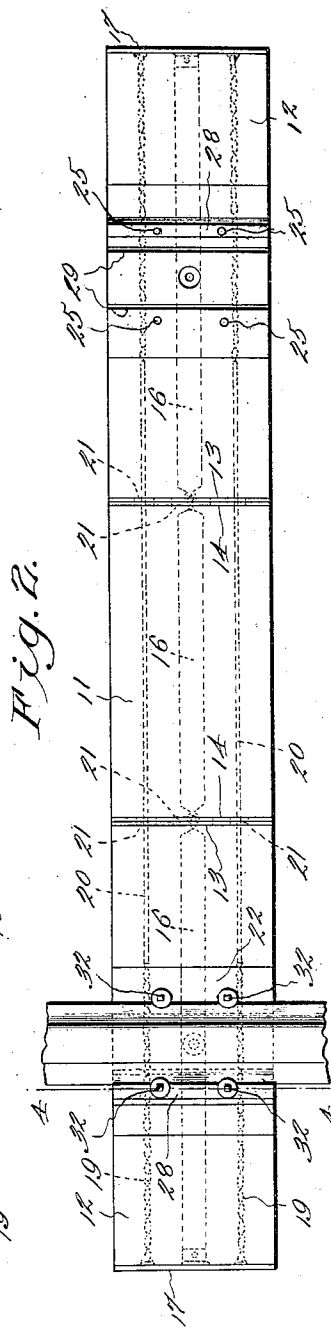


Fig. 2.

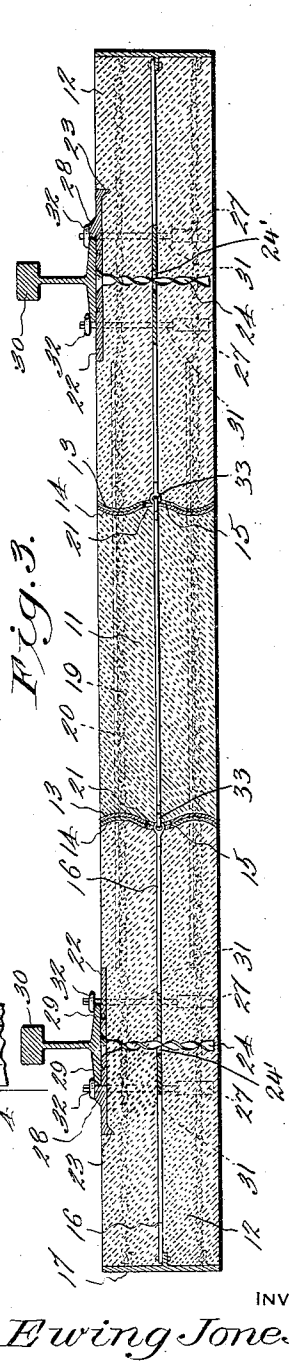


Fig. 3.

WITNESSES

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Fig. 4.

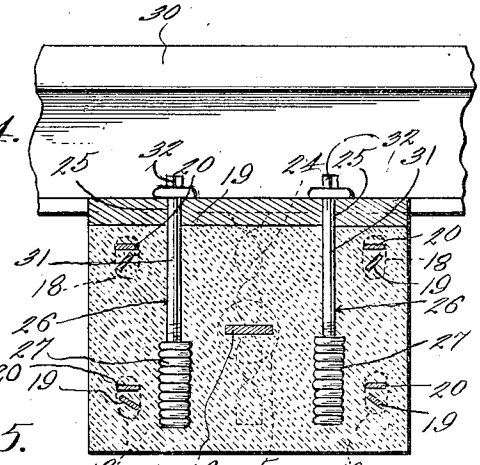


Fig. 5.

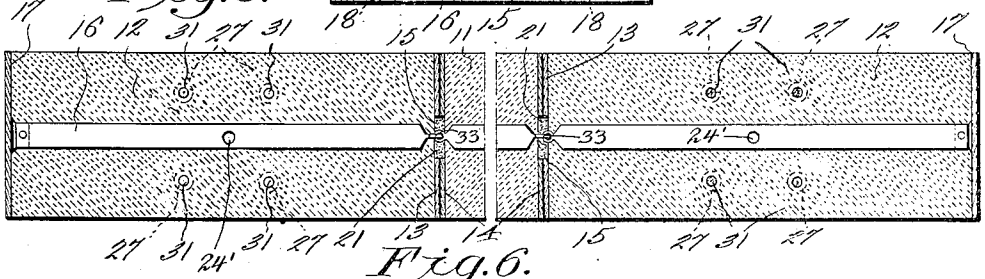


Fig. 6.

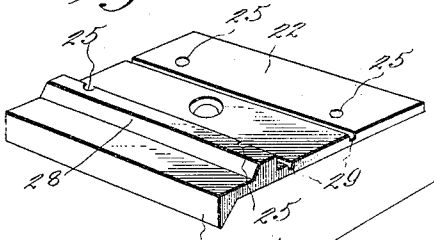
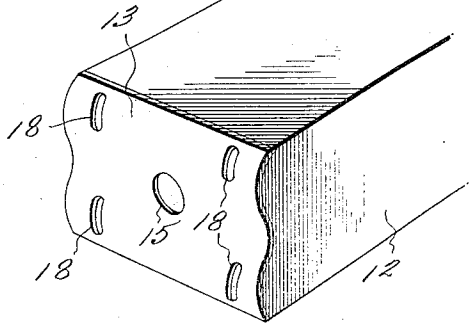
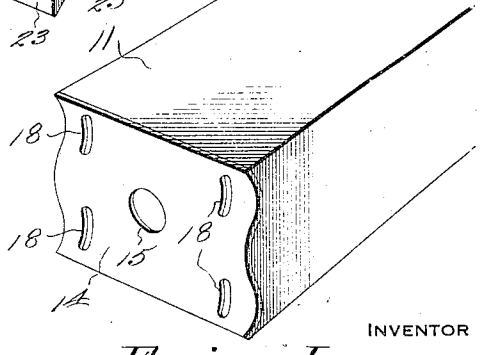


Fig. 8.

Fig. 7.





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UNITED STATES PATENT OFFICE.

EWING JONES, OF BROOKINGS, OREGON.

CONCRETE TIE.

1,285,723. Specification of Letters Patent. Patented Nov. 26, 1918.

Application filed February 2, 1918. Serial No. 215,098.

To all whom it may concern:

Be it known that I, EWING JONES, a citizen of the United States, residing at Brookings, in the county of Curry and State of Oregon, have invented new and useful Improvements in Concrete Ties, of which the following is a specification.

This invention relates to a plastic tie for railway rails.

In carrying out my invention, it is my purpose to produce a reinforced plastic tie comprising a plurality of associated sections, so connected as to permit of a limited yielding movement of any of the said sections with respect to the other sections whereby the tie is afforded the desired amount of flexibility, so that the same will not be liable to disintegration or breakage from the weight and impact of force of the rolling stock passing over the rail secured to the said tie.

It is a further object of the invention to produce a reinforced plastic tie comprising a plurality of associated sections, the meeting ends of the said sections being each provided with a transversely fluted or corrugated metallic plate, the reinforcements for the tie being in the nature of spring and consequently resilient elements, whereby the sections of the tie will be afforded each a limited independent yielding movement with respect to the other sections, and also whereby the construction overcomes the difficulty in the drying of plastic bodies of the size of an ordinary railroad tie.

It is a still further object of the invention to produce a reinforced plastic tie comprising a plurality of sections yieldably associated, the elements connecting the said sections reinforcing the body of the tie, the end sections having arranged thereon rail plates, the securing means for the said plates and the means whereby the rails are held upon the said plates serving as additional reinforcements for the body of the tie.

Other objects and advantages will appear as the nature of the invention is more fully understood, reference being had to the accompanying drawings, in which,

Figure 1 is a side elevation of a tie constructed in accordance with this invention, showing the rail secured thereon,

Fig. 2 is a top plan view of the same, one of the rails being removed,

Fig. 3 is an approximately central vertical longitudinal sectional view through the tie,

Fig. 4 is a transverse sectional view approximately on the line 4—4 of Fig. 2,

Fig. 5 is a horizontal sectional view approximately on the line 5—5 of Fig. 1,

Fig. 6 is a perspective view of one of the rail plates,

Fig. 7 is a perspective view looking toward the inner end of one of the end sections of the tie,

Fig. 8 is a similar view of the central section of the tie.

The tie is broadly indicated by the numeral 10, the same comprising a plurality of sections suitably connected, in a manner which will presently be described, the central section of the tie being indicated by the numeral 11 and the end sections by the numeral 12 respectively. All of the sections are formed from some suitable plastic material, such as concrete, and by forming the tie of sections, the difficulties met in drying plastic bodies of the size of an ordinary tie have been effectively overcome. The sections 12, upon their outer ends, may be provided with metallic face plates, and the said sections upon their inner ends have arranged thereon transversely fluted or corrugated metallic plates 13. In a like manner, both ends of the intermediate or central section 11 are provided with similar metallic plates 14, the ribs of the plates 14 being engaged in the grooves of the plates 13, thus providing an interengagement between the ends of the sections 11 and 12.

Arranged centrally of and extending through the length of the tie 10, and through suitable openings 15 in the abutting plates 13 and 14 is a flat reinforcing bar 16, and the said bar 16 may be connected to the end plates 17 on the outer ends of the sections 12.

The plates 13 and 14, inward of the corners thereof, are provided with alining openings 18, and through these openings are passed rods 19, the said rods preferably comprising each a twisted member, and the said rods 19 extend entirely through the tie 10 and may be connected with the end plates 17 when such plates are employed. The openings 15 and 18 are of a materially greater size or area than the bars or rods passing therethrough, so, in addition to the rods 19, I insert through the openings 18 additional flat spring reinforcing members

20, the same extending entirely through the central section 11, and entering the end sections 12 for approximately one-half of the length of the said sections. The spring plates 20 normally retain the sections 11 and 12 in proper alinement, as well as reinforcing the twisted rods 19, and in addition thereto serve as spring hinges between the sections 11 and 12. The ribbed or corrugated plates 13 and 14, upon the confronting surface thereof may be, and preferably are treated to a coating of tar or such like substance which will prevent the rusting of the said plates and not materially interfering with the movement of one of the plates over the other plate, when one of the sections of the tie yields vertically with respect to the other sections of the tie, and the openings 15 and 18 in the said plates 13 and 14 are preferably plugged or closed by tar paper or the like. The said closing substance, indicated by the numeral 21 preferably entirely surrounds or is wrapped around the reinforcing members 16 and 19.

On the upper surface of each of the end sections 12 is arranged a flat rail receiving plate 22, the said plates being preferably embedded in the said sections but having their outer surface flush with the upper faces of the sections. The outer edge of each of the plates 22 is provided with a downturned rib 23 which is embedded in the tie and which is preferably substantially V-shaped in cross section. The plates 22 are of a width corresponding with the width of the tie, and the said plates at the center thereof, may be provided with an opening through which passes a preferably twisted retaining element 24 that enters the end sections 12 and provides an additional reinforcement. The twisted element 24 may and preferably does pass through a suitable opening 24′ in the end sections of the rod 16. Each of the plates 22, adjacent the corners is provided with additional openings 25, and the end sections, in a line with the said openings 25 are provided with vertically disposed holes 26, the said holes communicating with interiorly threaded flexible socket members 27. Each of the plates 22, in a line with the outer openings 25, upon the upper surface thereof, is provided with a transverse enlargement 28, the inner wall of which being vertically straight, and the said plate, inward of the said enlargement, is preferably provided with spaced transverse grooves 29. The rail 30 is designed to have the outer edge of its foot contact with the vertical wall of the enlargement 28, the opposite edge of the said foot of the rail being disposed in a line with the inner openings 25 in the plate, and passing through the said openings 25 are screw bolts 31 which are received in the sockets 27 and which have their heads 32 contacting with the upper surface of the foot of the rail, whereby to effectively retain the rail upon the tie.

As illustrated by the drawings, the bar 16 comprises a plurality of members or sections, corresponding in number with the sections or members constituting the tie, and each of the sections of the said bar 16, at the end thereof, arranged in the openings 15 in the abutting plates 13 and 14, is bent upon itself providing a hook or eye 33, which is designed to be received in the hook or eye of the adjacent bar section, and this arrangement permits of a free swinging movement of any of the sections 11 or 12 with respect to the other sections, the rods 19 and the spring members 20, as previously stated normally retaining the sections of the tie in proper alinement. The road bed is preferably tamped from the ends beneath the tie but is not tamped beneath the central section 11 of the tie, so that any sinking of the tie will occur in the center thereof. From the foregoing description, when taken in connection with the drawings, the simplicity and advantages of the device, will, it is thought, be apparent without further detailed description.

Having thus described my invention, what I claim is:

1. A tie comprising a plastic body constructed of a plurality of similar sections arranged end to end, reinforcing means passing through all of the sections, one of said reinforcing means comprising a bar constructed of a plurality of sections corresponding in number to the sections of the tie and the ends of the said sections of the said bar being hingedly connected at the abutting ends of the tie sections and the remaining reinforcing elements constituting spring members designed to retain the tie sections in longitudinal alinement.

2. A plastic tie constructed of a plurality of sections, plates having transverse corrugations upon the confronting ends of the said sections, and the projections upon one of the said plates designed to be received in the recesses of the confronting plate, reinforcements embedded in all of the sections of the tie, the central reinforcement constituting a bar constructed in sections and having its ends terminating at the confronting ends of the sections of the tie, and the said ends of the said sections of the bar being loosely connected, and the remaining reinforcements comprising spring rods designed to normally retain the sections of the tie in longitudinal alinement.

3. A tie comprising a plastic body constructed of a plurality of similar sections, metallic plates upon the confronting ends of the sections, said plates having spaced openings, reinforcing elements arranged longitudinally of the tie, the central reinforcing element comprising a bar construct-

ed of a plurality of sections, each of a length equaling the length of the sections of the tie, the confronting ends of the bar sections having interengaging hooks, the remaining reinforcements comprising twisted metallic rods and spring members overlying the said rods extending entirely through the central sections of the tie and into the end sections of the said tie, whereby to maintain all of the sections in longitudinal alinement.

4. A tie comprising a plurality of alining plastic sections, corrugated metallic plates on the confronting ends of the sections, a central hinged reinforcement for the tie, metallic end reinforcements for the tie, spring bars associated with said end reinforcements and passing through the central member of the tie and entering the end members of the said tie, and rail plates on the end sections of the tie.

In testimony whereof I affix my signature.

EWING JONES.