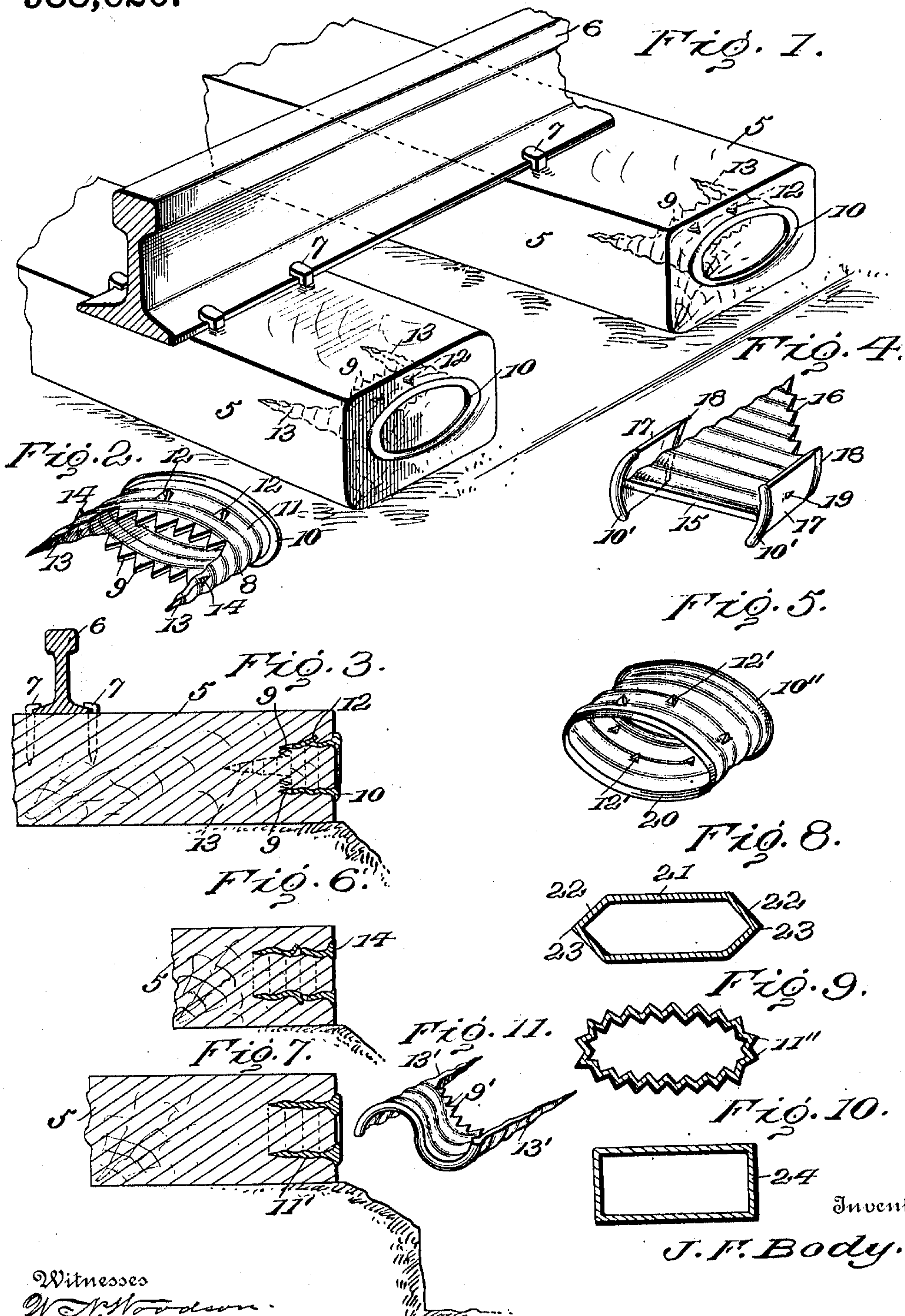


J. F. BODY.  
 REINFORCING DEVICE FOR RAILWAY TIES.  
 APPLICATION FILED AUG. 15, 1910.

988,620.

Patented Apr. 4, 1911.



Inventor

J. F. Body.

Witnesses

W. K. Woodson.

Jana M. Tallin.

By

Attorneys.



# UNITED STATES PATENT OFFICE.

JOSEPH F. BODY, OF BALTIMORE, MARYLAND.

REINFORCING DEVICE FOR RAILWAY-TIES.

988,620.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed August 15, 1910. Serial No. 577,256.

*To all whom it may concern:*

Be it known that I, JOSEPH F. BODY, a citizen of the United States, residing at Baltimore, and State of Maryland, have invented certain new and useful Improvements in Reinforcing Devices for 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to cross ties and more particularly to a reinforcing device for preventing splitting of the wood at the opposite ends of the tie incident to driving the rail retaining spikes.

In preparing cross ties for road beds, the ties after being cut and shaped are generally piled in tiers along the track or other convenient point and allowed to dry out or season until ready for use. As the sap dries out, there is a shrinkage in the wood which tends to split the tie at the opposite ends thereof with the result that when the cross ties are positioned on a road bed, and the rail engaging spikes driven home, said spikes open up the cracks or interstices and frequently cause the tie to split throughout its entire length, thus rendering the spikes insecure and permitting the rails to spread.

The object of the present invention is to obviate these objectionable features and to reinforce and strengthen the tie by the provision of metallic binding members adapted to be driven into the wood at the opposite ends of the tie, thereby to prevent splitting of said tie and insure a firm anchorage for the rail engaging spikes.

A further object of the invention is to provide a binding member for cross-ties including a hollow body portion having a driving head or face and provided with circumferential corrugations which pierce the wood and hold the fibers thereof together and at the same time prevent accidental displacement of said member.

A further object is to provide a binding member the construction of which is such that the binder may be applied to the cross ties either before or after the tie is positioned on a road bed.

A still further object of the invention is

generally to improve this class of devices, so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a perspective view of a portion of a railroad track, showing a cross tie provided with a binding member constructed in accordance with my invention. Fig. 2 is a detail perspective view of the binder detached. Fig. 3 is a detail longitudinal sectional view of a portion of one of the ties showing the binder embedded in the end thereof. Fig. 4 is a perspective view illustrating a modified form of binder. Fig. 5 is a similar view illustrating a further modification. Fig. 6 is a detail sectional view of the binder shown in Fig. 5 driven into a cross tie. Fig. 7 is a detail longitudinal sectional view illustrating a further modification. Figs. 8 to 10 inclusive are transverse sectional views showing different forms of binders. Fig. 11 is a perspective view of an S-shape binder.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

The improved binder forming the subject-matter of the present invention is principally designed for use on the cross ties of electric, steam or street railway tracks and by way of illustration is shown applied to the cross ties of a section of railway track, in which 5 designates the cross ties, 6 the rails and 7 the fastening devices or spikes for retaining the rails in position on said cross ties.

In the preferred embodiment of the invention the binder is in the form of a hollow body portion or ferrule 8 preferably elliptical in shape and rolled, cast or otherwise formed of metal, one end of said body portion or ferrule being provided with a cutting edge having teeth or serrations and the other end thereof provided with a thickened portion constituting a head or



driving face 10 by means of which the binder may be driven into the end of a cross tie, as best shown in Fig. 3 of the drawing.

The metal constituting the body of the binder between the teeth 9 and driving head or face 10 is preferably corrugated circumferentially at 11 so as to hold the fibers of the wood together and also to assist in preventing accidental displacement of the binder after being driven into the tie. The metal forming the corrugated zone of the binder is preferably stamped or punched to form a plurality of anchoring spurs 12 disposed in staggered relation and adapted to bite into the wood and assist in preventing accidental displacement of said binder when the cross tie is subjected to jars or vibration incident to the passage of cars or other railway rolling stock. These spurs 12 are preferably disposed at the apexes of the exterior ribs or corrugations, while the bills thereof normally project slightly beyond the exterior wall of the binder so that as said binder is driven into the cross tie, the spurs will engage the wood, as will be readily understood.

The binders preferably extend two or more inches in a direction of the length of the tie so that should the spikes enter one of the cracks or interstices in said tie when fastening the rail 6 in position, the binder 8 will prevent the spikes from wedging open the split or crack and causing the tie to split throughout its entire length.

The metal forming the end-walls of the body portion is extended longitudinally and thickened to form oppositely disposed tangs 13 which facilitate driving the binder into the cross tie. These driving tangs 13, as well as the body of the binder may be made smooth and unobstructed, but it is preferred to corrugate said body portion and tangs and to provide the latter with one or more spurs 14 to assist in anchoring the binder in the body of the tie. Thus it will be seen that when the binder is driven into the end of a cross tie the corrugated walls thereof will hold or bind the fibers of wood together so as to effectually prevent splitting of either the ends or body of the tie when the rail fastening devices are driven home.

The driving head or face 10 may be arranged so as to bear against the outer face of the cross tie at the end thereof, as shown in Fig. 1, or if desired, the driving head or face may be flattened and entirely embedded in the end of the cross-tie as indicated at 14 in Fig. 6 of the drawing.

In Fig. 4 of the drawing there is illustrated a modified form of the invention in which the body of the binder is in the form of a transversely corrugated plate 15 having its rear end inclined or beveled and provided with teeth or serrations 16. In this form of the device the edges of the plate

are formed with segmental wings 17, each provided with a driving head 10' and a cutting edge 18, there being one or more anchoring spurs 19 formed in the wings as shown.

In the form of the devices shown in Figs. 5 and 6 of the drawing, the body of the binder is corrugated circumferentially, one end of said body portion being provided with a driving head or face 10'' and the other end thereof formed with a continuous cutting edge 20. In this form of the device the body of the binder may be made with or without anchoring spurs 12'.

In Fig. 7 the binder is formed with corrugations 11' on both the interior and exterior walls thereof. If desired the binder instead of being elliptical in shape may be provided with flat upper and lower walls 21 and tapered side-walls 22, as best shown in Fig. 8 of the drawing, in which case the cutting edges 23 formed at the intersection of the tapered side-walls 22 will bite into the wood and prevent accidental displacement of the binder.

The binder shown in Fig. 9 is provided with longitudinal corrugations 11'' extending from the driving head to the cutting edge thereof so as to produce a continuous roughened surface for engagement with the tie.

If desired, however, the ferrule may be rectangular in shape, as indicated at 24 in which case one end of the ferrule will be provided with a driving head or face and the other end thereof provided with a cutting edge similar in construction to the driving head and cutting edge shown in Fig. 5 of the drawing.

A still further modification is illustrated in Fig. 11 in which the body of the binder is of substantially S-shape formation, the opposite ends of the metal forming the body of the binder being extended longitudinally to produce tangs 13', and the inner edge of the metal between the tangs being formed with serrations or teeth 9'.

It is to be understood that the reinforcing devices or binders may be driven into the ends of the cross ties after the latter are shaped and piled along a railway track to dry out or season, or said binders may be driven into the cross ties after said ties are placed on a road bed and the rails fastened thereto without departing from the spirit of the invention.

Having thus described the invention what is claimed as new is:—

1. A binder for cross-ties comprising a hollow corrugated body-portion having one end thereof provided with a driving face, and its side walls formed with laterally extending anchoring spurs.

2. A binder for cross ties comprising a hollow body portion having one end thereof



provided with a driving face and its other end provided with a cutting edge adapted to be driven into the end of a cross tie.

3. A binder for cross ties comprising a  
5 hollow body portion having one end thereof provided with a driving face and its other end formed with a cutting edge adapted to be driven into the end of a cross tie, the side walls of the body portion between the  
10 cutting edge and driving face being provided with upstruck spurs, the bills of which are extended in the direction of said driving face.

4. The combination with a cross-tie, of  
15 a hollow circumferentially corrugated binder embedded in the end of the tie to prevent splitting thereof, the corrugations of the binder being provided with laterally extending anchoring spurs.

20 5. The combination with a cross tie, of a hollow binder adapted to be embedded in the cross tie and having one end thereof provided with a driving face and its other end formed with oppositely disposed driving  
25 tangs.

6. The combination with a cross tie, of a hollow binder adapted to be driven in the end thereof and having one end provided with a driving face and its other end  
30 formed with oppositely disposed driving tangs, there being teeth formed on the binder between the driving tangs, and anchoring spurs extending laterally from the binder between the teeth and driving head thereof.

35 7. A binder for cross ties including a corrugated body portion having one end thereof provided with a driving face and its other end enlarged to form a sharp edge adapted to be driven into the end of said  
40 cross tie.

8. A binder for cross ties including a hollow body portion having one end thereof thickened to form a driving face, and its other end provided with longitudinally dis-  
45 posed tangs, the exterior walls of which are provided with anchoring spurs, there being

teeth formed on the body portion between the tangs, and anchoring spurs formed on said body portion between the teeth and driving face.

9. A binder for cross ties comprising a hollow circumferentially corrugated metallic body portion having one end thereof provided with a driving face and its other end cut away to form oppositely disposed tangs  
55 the metal at the cut away portion being serrated to form teeth disposed between said tangs, there being anchoring spurs extending laterally from the body portion at the apices of the corrugations.

10. A binder for cross ties comprising a hollow substantially elliptical metallic body portion having one end thereof provided with a driving face and its other end cut away to form spaced longitudinally disposed  
65 tangs, there being teeth formed on the body portion between said tangs, and corrugations extending circumferentially of the body portion between the teeth and driving face, said corrugations being also formed on  
70 the tangs.

11. A binder for cross ties comprising a hollow body portion having one end thereof formed with a driving face and its other end provided with an edge adapted to be  
75 driven into the end of a cross tie, the side walls of the body portion being provided with laterally extending anchoring devices.

12. A binder for cross ties comprising a hollow elliptical shaped body portion having  
80 substantially parallel interior walls and provided at one end thereof with a driving face, the other end of the body portion being formed with a cutting edge adapted to be driven into the end of a cross tie.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH F. BODY. [L. S.]

Witnesses:

SAMUEL N. ACKER,  
W. N. WOODSON.