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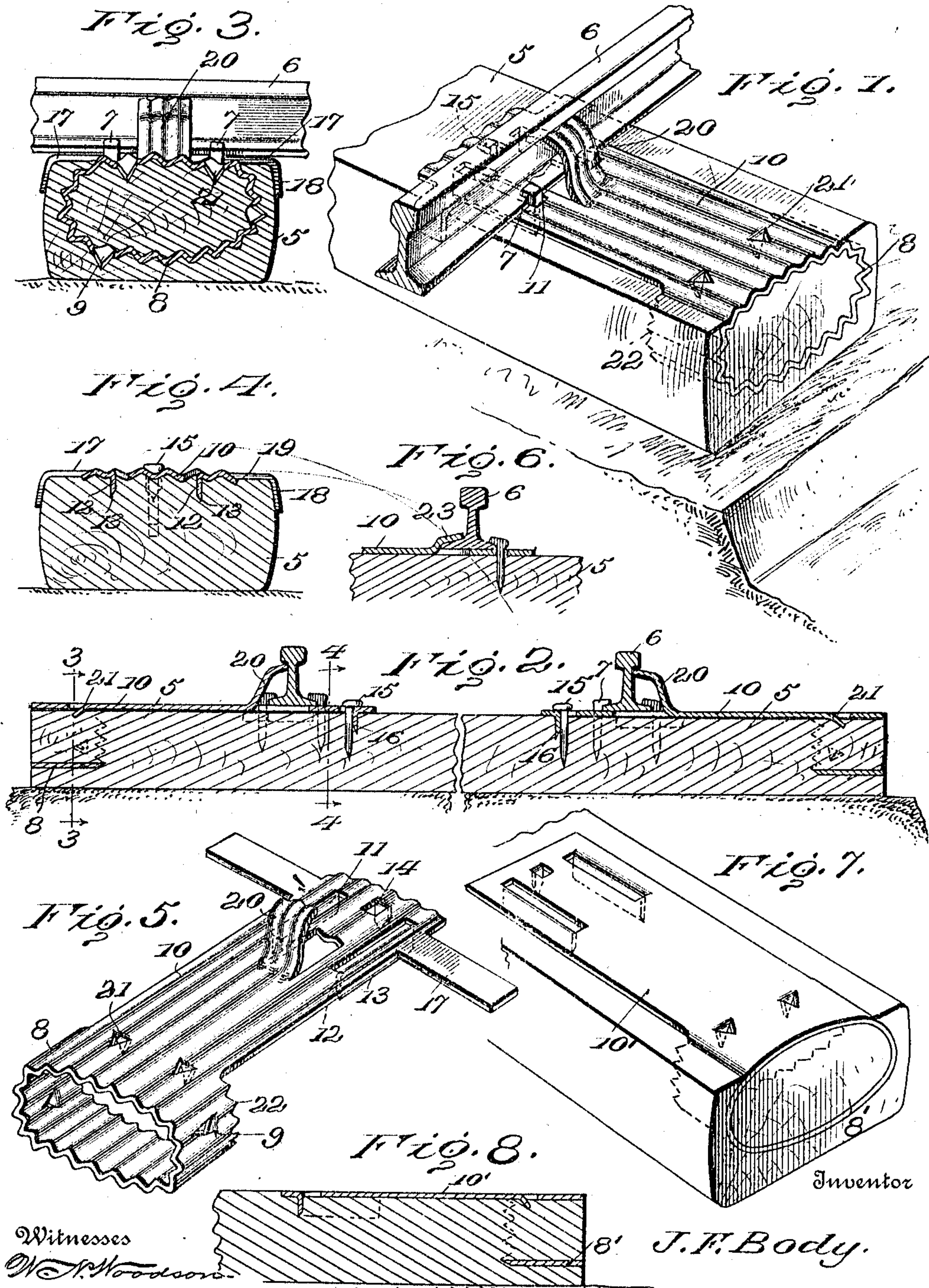
COMBINED RAIL PLATE, BRACE, BINDER, AND PROTECTOR FOR RAILWAY CROSS TIES.

APPLICATION FILED SEPT. 2, 1910.

988,621.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 1.



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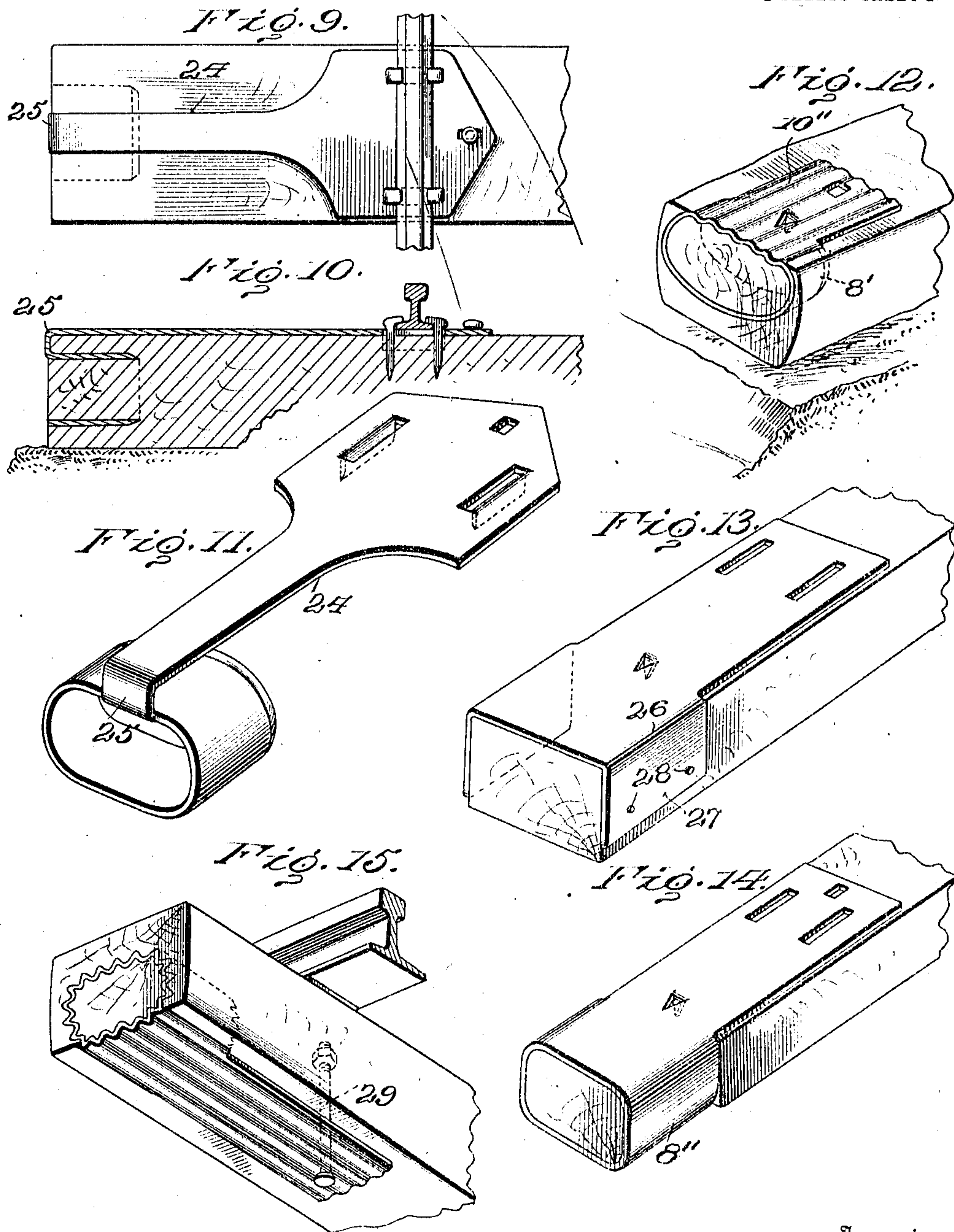
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COMBINED RAIL PLATE, BRACE, BINDER, AND PROTECTOR FOR RAILWAY CROSS-TIES.

988,621.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed September 2, 1910. Serial No. 580,193.

To all whom it may concern:

Be it known that I, JOSEPH F. BODY, citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Combined Rail Plates, Braces, Binders, and Protectors for Railway Cross-Ties, of which the following is a specification.

10 This invention relates to a combined rail plate, brace, binder and protector for railway cross ties.

15 It is a well known fact that a large proportion of the cross ties used in the construction of road beds are more or less split at the ends thereof with the result that when the rail engaging spikes are driven into the ties, the spikes open up the cracks or interstices, thus not only rendering the rail fastening devices insecure, but also permitting the lodgment of hot cinders in said cracks or interstices which frequently set fire to the ties and partially or totally destroy the same. It is also a well known fact that the constant pounding on the rail plates, incident to the passage of trains and other railway rolling stock, cause the plates to cut into the ties and form deep depressions beneath the rails, which materially weaken the ties and often cause the ends thereof to buckle or break.

20 It is the primary object of the present invention to obviate these objectionable features and to reduce the cost of constructing a road bed, as well as to increase the effective life of the cross ties by the provision of a binder, the construction of which is that it may be used in lieu of the ordinary rail plate, and at the same time reinforce and positively prevent splitting of the ends of the ties.

25 A further object of the invention is to provide a binder including a ferrule adapted to be driven into or otherwise fastened on the end of a cross tie and having one end thereof extended to form a rail plate.

30 A further object is to provide a binder, the rail plate of which forms a housing for the top of the tie so as to prevent the lodgment of cinders thereon.

35 A further object is to provide a binder, the rail plate of which is slotted to accommodate cross ties of different lengths, and

provided with a brace for engagement with the head or flange of a rail.

40 A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

45 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.

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

55 Figure 1 is a perspective view of a portion of a railway track, showing a cross tie provided with a combined rail plate and binder constructed in accordance with my invention; Fig. 2 is a longitudinal sectional view of the tie, showing the position of the binders thereon; Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2 and looking in the direction of the arrow; Fig. 4 is a similar view taken on the line 4—4 of Fig. 2; Fig. 5 is a detail perspective view of one of the combined rail plates and binders detached; Fig. 6 is a detail longitudinal sectional view, showing the brace engaging the flange of the rail; Fig. 7 is a perspective view of one end of a cross tie illustrating a modified form of the invention; Fig. 8 is a longitudinal sectional view showing the rail plate embedded in the upper surface of a cross tie; Fig. 9 is a top plan view, illustrating a further modification; Fig. 10 is a detail longitudinal sectional view of Fig. 9; Fig. 11 is a perspective view of the binder, shown in Fig. 9 detached; Figs. 12 to 14 inclusive, are perspective views illustrating further modifications; Fig. 15 is an under perspective view, showing the binder engaging the lower face of a cross tie.

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

65 The combined rail plate and binder forming the subject matter of the present invention is principally designed for use on the cross ties of railway tracks, and by way of

illustration is shown applied to the cross tie of a section of track, in which 5 designates the cross tie, 6 the rail, and 7 the fastening devices or spikes for retaining the rail in position on said cross tie.

The device comprises a hollow body portion 8 preferably substantially elliptical in shape, as shown, and rolled, stamped or otherwise formed preferably from a single sheet of metal, the adjacent edges of which are welded, riveted or otherwise rigidly united. If desired however, the plate and binder may be cast in one piece or formed of one or more pieces suitably united. The metal constituting the body portion 8 is preferably corrugated longitudinally so as to reinforce and strengthen the same, the side walls of the body portion being cut or stamped to produce outwardly projecting anchoring spurs 9 adapted to engage the fiber of the wood and assist in preventing accidental withdrawal of said body portion after the latter has been driven into the end of a cross tie.

The body portion 8 is preferably in the form of a ferrule, while the metal at the top of the ferrule is slightly flattened and extended longitudinally beneath and beyond the rail 6 to form a rail plate 10 and also to form a housing for the top of the tie so as to prevent the lodgment of hot cinders from an engine passing over the rails.

The metal at the inner end of the plate 10 is stamped or punched to form oppositely disposed longitudinal slots 11 adapted to receive the fastening devices 7, the metal at said slots being pressed downwardly to produce depending anchoring flanges 12, the lower edges of which are beveled at 13 and adapted to be embedded in the upper surface of the cross tie to assist in preventing lateral movement of the plate.

The inner end of the plate 10 is also preferably stamped or punched to form a recess 14 for the reception of a spike or similar fastening device 15, the metal at the recess 14 being pressed downwardly to form a depending anchoring spur 16. Extending laterally from and preferably formed integral with the opposite longitudinal edges of the plate 10, are attaching arms 17 adapted to be bent downwardly into engagement with the adjacent side edges of the tie, as indicated at 18 so as to afford an additional means for retaining the device in position on said cross tie.

It will here be noted that by corrugating the plate 10, said plate is not only materially reinforced and strengthened, but said corrugations, by engagement with the upper surface of the tie, form in effect a yieldable bearing surface for the rail and in a measure receive and absorb the shock or pounding incident to the passage of trains and other railway rolling stock. It will also be noted

that the opposite longitudinal edges of the plate 10 are bent downwardly to form anchoring fins 19 which bite into the upper surface of the tie, as best shown in Fig. 4 of the drawings. The plate 10 between the slots 11 and ferrule 8, is cut or severed, and the metal at said cut or severed portion, bent or curved upwardly to form a brace 20 adapted to bear against the head of the rail so as to assist in preventing spreading of the rails. One or more anchoring spurs 21 are also preferably formed in the plate 10 at the ferrule 8 with the bills thereof bent downwardly for the purpose before mentioned.

By forming the slots 11 in the plate 10, the device may be readily fitted to cross ties of different lengths without cutting the ends of the tie to permit proper alinement of the rails, the brace 20 being bent into engagement with the rail after the latter has been adjusted on said plate.

It is preferred to form the inner edge of the ferrule 8 with one or more spurs 22 to assist in driving the ferrule or binder into the end of the cross tie although these spurs may be omitted, if desired. Thus it will be seen that the ferrule 8 serves to hold or bind the fibers of the wood together at the end of the tie, and effectually prevent splitting of said tie, while the member 10 takes the place of the ordinary tie plate now in use and also forms a housing for the top of the tie so as to prevent the lodgment of hot cinders in the cracks or interstices of the tie, which cinders frequently ignite the tie and partially or totally burn the same. In this connection, it will be noted that by forming the rail plate 10 integral with the ferrule or body portion 8, the tendency of the plate to bite into and form depressions in the upper surface of the cross tie, incident to the pounding or hammering on the rails, is reduced to a minimum, thus materially increasing the life of the tie and preventing the ends thereof from buckling or breaking. This pounding or vibration of the rail plate, kills the fiber of the wood and causes the latter to soon rot, particularly when the ties are exposed to the action of the elements, and the plate 10 not only in a measure prevents deterioration of the tie in this respect, but also serves to assist in preventing water, moisture and the like from penetrating the wood at the opposite ends of the tie and rotting said tie.

In Fig. 6 of the drawings, the plate 10 instead of being formed with a brace for engagement with the head of a rail, is provided with an overhanging lug 23 adapted to engage the base of the rail.

In Figs. 7 and 8 of the drawings, there is illustrated a modified form of the invention, in which the brace 20 is dispensed with and the ferrule 8' and rail plate 10'

formed of smooth or flat metal instead of being corrugated, the rail plate shown in Fig. 8 being embedded in the upper surface of the cross tie. If desired however, the plate 10' shown in Fig. 8, may rest on the upper surface of the cross tie and said plate formed with or without the rail brace.

A further modification is illustrated in Figs. 9 to 11 inclusive, in which the opposite longitudinal edges of the rail plate are cut-away at 24 so as not to require so much metal in the construction of the binder. In this form of the device, the outer end of the rail plate is bent downwardly to form a shoulder 25 adapted to bear against the adjacent end of the cross tie so as to limit the inward longitudinal movement of the body portion or ferrule when driving the binder in position on the cross tie. The shoulder 25 is preferably formed integral with the ferrule, but of course may be made integral with the rail plate and welded, riveted or otherwise secured to said ferrule, if desired.

The binder shown in Fig. 12 is formed of a relatively narrow ferrule or body portion 8' having a short top plate 10'', such a construction being desirable when the ordinary rail plates are in position on the cross tie and is merely necessary to prevent further splitting or cracking of the ends of said tie. In some cases, it is found desirable to fasten the body portion to the exterior of the tie instead of embedding said body portion in the end of the tie. Such a construction is shown in Fig. 13 of the drawings, in which the opposite longitudinal edges of the rail plate at the outer end thereof, are bent downwardly on the lines 26 to form depending attaching arms 27, which arms may be secured in any suitable manner to the cross tie, as by bolts 28. The rail plate shown in Fig. 14 of the drawings extends the entire width of the upper surface of the cross tie, while the ferrule or body portion 8'' embraces the adjacent end of the cross tie so as to prevent splitting of the wood.

If desired, the binder shown in Fig. 1 of the drawings, as well as the binders shown in the other figures of the drawings, may be positioned on a cross tie with the plate 10 thereof resting against the lower surface of the cross tie and to which it may be secured by a bolt 29 or in any other suitable manner. When the binder is used in this manner, the extension or plate thereof prevents the tie from coming in contact with the ground or ballast and thus assists in preventing rotting of the wood, while the body portion or ferrule thereof prevents splitting of the end of the tie.

The inner, and in some cases, the outer faces of both the ferrule and rail plate of the binders shown in the several figures of the drawings, will be preferably coated with a layer of pitch or other water proof mate-

rial, so as to assist in preserving the tie and also to prevent the metal from rusting.

A binder constructed in accordance with the present invention prevents deterioration of the cross tie, prevents the spikes from pulling out and materially increases the efficiency of the tie in many respects, the construction of the binder being such that it may be readily manufactured and placed on the market at a relatively small cost.

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

1. A binder for cross ties including a body portion adapted to be driven into the end of a tie and provided with a plate for engagement with one face thereof.

2. A binder for cross ties including a hollow body portion adapted to engage the end of a tie and having a portion thereof extended to form a rail plate.

3. A binder for cross ties including a hollow body portion adapted to engage the end of a tie and having a portion thereof extended longitudinally to form a rail plate having means for engagement with a rail.

4. A binder for cross ties including a hollow body portion adapted to engage the end of a tie and having one end thereof extended longitudinally to form a rail plate provided with anchoring spurs for engagement with one face of said tie.

5. A binder for cross ties including a hollow body portion adapted to engage one end of a cross tie and provided with a longitudinal extension constituting a rail plate, there being slots formed in said rail plate for the reception of rail engaging devices.

6. A binder for cross ties including a hollow body portion having one end thereof extended longitudinally to form a rail plate, there being spaced slots formed in said plate for the reception of fastening devices, and the metal at said slots being pressed downwardly to produce anchoring flanges for engagement with the adjacent surface of a tie.

7. A binder for cross ties including a hollow corrugated body portion having one end thereof provided with an extension also corrugated and constituting a rail plate.

8. A binder for cross ties including a hollow longitudinally corrugated body portion having a longitudinal extension also corrugated and constituting a rail plate, and means carried by said rail plate for engagement with the opposite longitudinal edges of a cross tie.

9. A binder for cross ties including a body portion for engagement with one end of a cross tie and provided with a longitudinal extension constituting a rail plate adapted to bear against one face of a tie, and arms extending laterally from the opposite longitudinal edges of the rail plate and adapted to be bent downwardly in engagement with the adjacent side edges of said tie.

10. A binder for cross ties including a hollow longitudinally corrugated body portion having its inner end provided with teeth adapted to be embedded in the end of a cross tie and provided with an extension projecting longitudinally beyond the toothed edge of said body portion to form a rail plate, there being slots formed in said rail plate for the reception of rail engaging devices, and a tooth depending from the inner end of the plate for engagement with the cross tie.

11. A binder for cross ties including a hollow body portion adapted to be driven into the end of a cross tie and provided with laterally extending anchoring spurs, said body portion being provided with a longitudinal extension constituting a rail plate and having spaced incisions formed therein, the material between said incisions being bent upwardly to form a brace for engagement with the head of a rail.

12. A binder for cross ties including a hollow body portion adapted to be driven into a cross tie and provided with a longitudinal extension constituting a rail plate, said plate being provided with spaced slots for the reception of rail engaging devices and having an upstruck brace formed integral therewith for contact with the head of a rail, there being an opening formed in the plate in front of the brace and the metal at

said opening pressed downwardly to form a depending anchoring spur.

13. A binder for cross ties including a hollow, substantially elliptical body portion having its upper portion slightly flattened and extended longitudinally to form a rail plate, said plate being corrugated longitudinally and provided with oppositely disposed attaching arms for engagement with the adjacent edges of a cross tie and having spaced slots formed therein for the reception of fastening devices, there being an opening formed in the plate at said arms, and a lug struck-up from the plate near said opening and constituting a brace for engagement with a rail.

14. A binder for cross ties including a hollow longitudinally corrugated body portion adapted to be driven into the end of a cross tie and provided with an extension constituting a rail plate, said rail plate being also corrugated longitudinally and the corrugations at the opposite longitudinal edges of the plate bent downwardly to form fins for engagement with the upper surface of said tie.

In testimony whereof, I affix my signature in presence of two witnesses.

JOSEPH F. BODY, [L.S.]

Witnesses:

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L. VERNON MILLER.