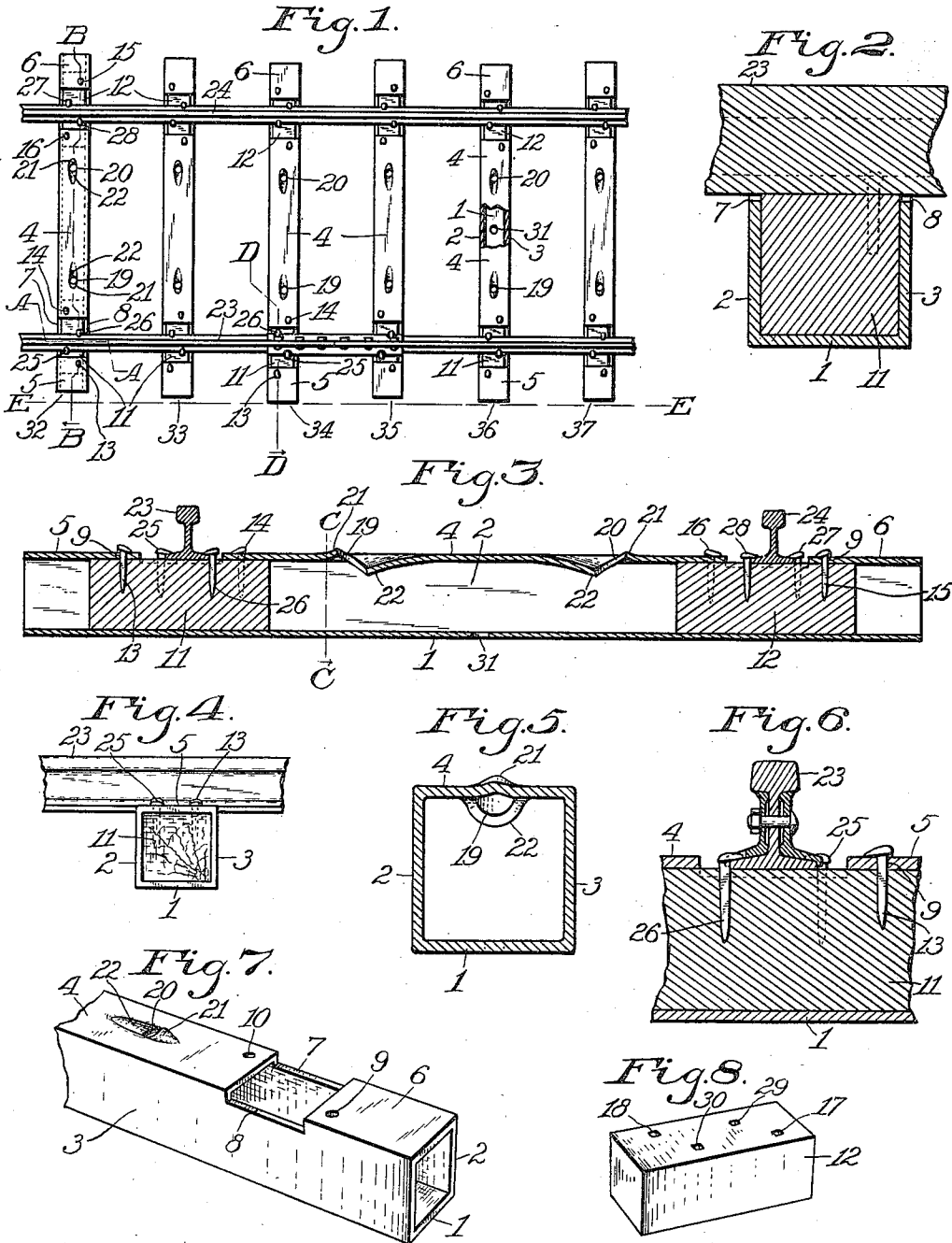


O. J. ENNIS.
RAILWAY RAIL TIE.
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RAILWAY-RAIL TIE.

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To all whom it may concern:

Be it known that I, ORA J. ENNIS, a citizen of the United States, residing at Martinsville, in the county of Morgan and State of Indiana, have invented a new and useful Railway-Rail Tie, of which the following is a specification, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

This invention relates to ties that are composed mainly of metal, and other parts which may be composed of wood or similar slightly elastic or non-rigid material for directly supporting railway rails, the ties being adapted to hold the rails in proper position, the invention having reference more particularly to ties of the above mentioned type that permit the rails to be brought to line without shifting the ties in case the latter gradually shift with the rails from their original positions.

The object of the invention is to provide an improved rail tie that may be so constructed as to be substantially uniform in thickness and strength throughout its length, and adapted to securely hold wooden filling blocks removably therein and permit ready removal of the blocks; a further object being to provide a tie that shall have substantially the same thickness at its middle portion as at its end portions, and be adapted to permit the filling blocks to be shifted independently, or to be entirely removed from the main metallic part of the tie.

A specific object of the invention is to provide a metallic main tie part, that will be adapted to be formed of drawn tubing, of square cross section, so that all portions thereof shall be equally strong, and of full height throughout, while at the same time, being so constructed as to permit the filling blocks to be readily driven out when necessary; a still further object being to provide a rail tie that will permit of the use of the minimum quantity of wood in its construction, and which may be cheaply constructed and be reliable, durable and economical in use.

With the above mentioned and minor objects in view, the invention consists in certain improvements in the details of construction of metallic tie parts and in the combinations and arrangements of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a

fragmentary plan of a section of railway including the improved rail ties; Fig. 2, a fragmentary section on the line A A in Fig. 1; Fig. 3, a section on the line B B in Fig. 1; Fig. 4, an end elevation of the improved tie and fragment of a rail thereon; Fig. 5, a transverse section of the metallic main part of the tie, on the line C C in Fig. 3; Fig. 6, a fragmentary section, on the line D D in Fig. 1; Fig. 7, a fragmentary perspective view of the main part of the tie, and Fig. 8 a perspective view of one of the filling blocks removed from the main part.

Similar reference characters in the several figures of the drawings indicate corresponding elements or features of construction herein referred to.

The tie comprises a hollow main part of suitable length, width and height, which if desired, may be produced as a steel casting, but preferably is composed of a section of square drawn tubing, so that it may be produced in large numbers at relatively small cost and not be liable to fracture, and be stiff without being rigid. Each main part comprises a flat bottom plate 1, two integral side walls 2 and 3 of substantially uniform height throughout, a flat middle top plate 4, and two flat top end plates 5 and 6, the top plates being integral with the side walls and originally are formed integrally, but in manufacture of the tie part, portions are sawed out to form gaps to receive the rails, so that the end plates 5 and 6 are relatively short and the spaces between them and the middle plate 4 are sufficiently wide to receive and permit lateral movement of the rails. The upper portions of the side walls are cut away slightly at each gap to constitute recesses 7 and 8 in the two walls 2 and 3 respectively. A hole 9 is punched or drilled in each top end plate 5 and 6, near the inner end thereof, and a similar hole 10 is suitably made in each end of the middle top plate 4 so as to be near the gap.

Two identically formed filling blocks 11 and 12 comprise non-rigid portions of each tie, and they may be composed of any suitable material such as wood or suitable fibrous composition, and they are only sufficiently long to afford substantial support for the respective rails, and are inserted removably in the end portions of the metallic part, and are secured therein, preferably by means of rail spikes 13 and 14, and 15 and 16, respectively, each pair of spikes forming holes

17 and 18, in each block. The spikes being inserted through the holes 9 and 10 respectively, serve to prevent longitudinal movements of the block. Each block completely fills the space between the bottom plate 1 and the top plates, so that the block is slightly higher than the recessed portions of the side walls.

In order that the filling blocks may be readily driven out of the metallic main part when worn out or decayed, two holes 19 and 20 are formed in the middle top plate 4 at a suitable distance from its ends and the metal of the plate at the sides of the holes toward the ends of the plate is pressed upward so as to form an arch 21, an arch extending from each hole being pressed downward and thus is dished or forms a channel 22 so that a bar may be inserted through each hole at a suitable angle and be driven against the inner end of the filling block.

The two rails 23 and 24 are placed upon the filling blocks in the gaps provided in the tops of the metallic parts, and the ties are adjusted to a line E E, but as is well known the ties are liable to shift slightly endwise in use, so that the rails are thereby moved out of alinement. The rails respectively are secured to each tie by means of spikes 25 and 26, driven into one filling block, and two spikes 27 and 28 driven into the other filling block of each tie, the spikes obviously being removable as desired when repairing the roadway, and when removed there are two holes 29 and 30 left in each block. Preferably the middle portion of each bottom plate has a drain hole 31 therein, to permit the escape of water.

In practical use the ties may shift slightly endwise as indicated in Fig. 1, with respect to the proper alinement, the ties at 32, 33, 34, 35, 36, 37, being at various distances away from true alinement, the tie at 34 having shifted from its proper position entirely to the line E E, while a number of the ties have shifted nearly to the line, and others have shifted in the opposite direction so as to be farther from the line. In such cases it is desirable to leave a tie firmly embedded in the ballast, and shift the rails, which in the present case may be done by drawing the spikes 13 and 14, and 15 and 16, and shifting the blocks with the rails secured thereto, and

then driving the spikes in new positions in the blocks. Or the spikes 25 and 26, and 27 and 28 may be withdrawn, after which the rails may be brought into proper alinement and then respiked. The blocks afford the desired elasticity or non-rigidity under the rails, and when decayed or worn away under the rails the blocks may be released and driven out to be replaced by new blocks, or the old blocks may be repeatedly turned over if worn away under the rails until they finally become decayed.

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

1. In a rail tie, the combination of a hollow metallic main part, the top plate thereof being flat, there being two gaps and also two separate holes in said top plate, the holes being between the two gaps, said plate having two arched portions extending respectively from the two holes outwardly toward the two ends of the part and decreasing in height toward said ends, said plate having also two channels extending respectively from the opposite sides of said two holes and decreasing in depth each toward the other, with two blocks in the two end portions respectively of said part opposite the outer ends of said channels respectively.

2. In a rail tie, the combination of a hollow metallic main part that is square in cross-section and uniform in diameter throughout, the top plate thereof being flat, there being two gaps in said top plate, said top plate having a plurality of spike holes therein on opposite sides respectively of the gaps separately therefrom, there being a hole on one side of each gap in proximity to one of the side edges of the plate and a hole on the opposite side of the gap in proximity to the opposite side edge of the plate, each of said holes having a spike therein, with two blocks in the end portions of said main part having said spikes embedded therein, two rails in said gaps respectively and movable laterally therein upon said blocks, and spikes driven into said blocks in contact with said rails.

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

ORA J. ENNIS.

Witnesses:

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TOWN M. HAMILTON.