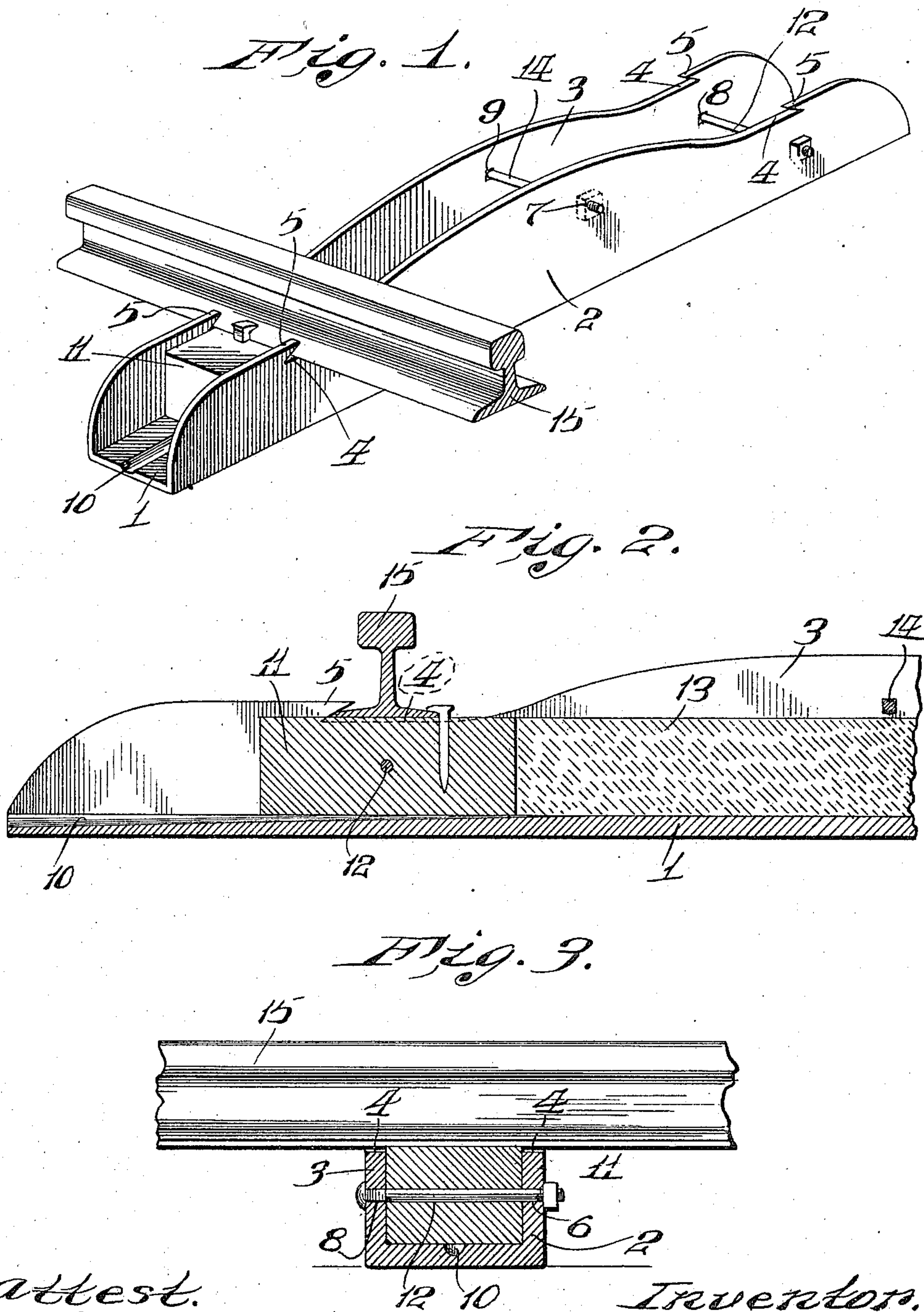


B. F. WISE.  
COMPOSITE RAILWAY TIE.  
APPLICATION FILED JUNE 19, 1909.

963,196.

Patented July 5, 1910.



attest.  
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# UNITED STATES PATENT OFFICE.

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## COMPOSITE RAILWAY-TIE.

963,196.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed June 19, 1909. Serial No. 503,047.

*To all whom it may concern:*

Be it known that I, BENJAMIN F. WISE, citizen of the United States, and resident of St. Louis, Missouri, have invented certain  
5 new and useful Improvements in Composite Railway-Ties, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part  
10 hereof.

My invention relates to improvements in composite railway ties, the object of my invention being to produce a tie, preferably of a single piece of sheet metal, having in-  
15 tegral means to prevent spreading of rails and arranged to receive fibrous blocks for yieldingly supporting rails and concrete or other analogous material between said blocks.

20 For the above purposes my invention consists in certain novel features of the construction and arrangement of parts as will be hereinafter more fully set forth, pointed out in my claims and illustrated in the ac-  
25 companying drawings, in which:

Figure 1 is a perspective of the complete tie showing a single rail in position thereon; Fig. 2 is a longitudinal sectional elevation of one end portion of a tie; and, Fig. 3 is a  
30 transverse sectional elevation illustrating the tie proper, a fibrous block and a rail supported thereon.

Referring by numerals to the accompanying drawings: 1 designates the base section  
35 and 2 and 3 the side walls of the tie, the ends of which side walls are curved or rounded from a point adjacent the ends thereof to the base. From the longitudinal center of the tie the upper faces of the walls 2 and 3  
40 are curved downwardly toward the ends of the tie, which curves terminate in straight horizontal faces 4. Leading from the outer ends of the faces 4 are inwardly and upwardly inclined faces forming shoulders 5.  
45 The wall 2 is provided with circular perforations 6 adjacent the longitudinal center of the faces 4 and with a circular perforation 7 adjacent its upper margin at its longitudinal center. The wall 3 of the tie is pro-  
50 vided with angular perforations 8 at points opposite the perforations 6 in the wall 2 and with an angular perforation 9 opposite the perforation 7.

The tie as described is preferably struck

from a single piece of sheet metal and rolled 55 or formed into trough-shape. In the operation of forming the tie, depressions 10 are formed longitudinally of the base of the tie at approximately the transverse center thereof and taper from the outer ends of  
60 the tie upwardly and inwardly to points adjacent the inner ends of the horizontal upper faces 4 of the side walls.

I prefer to construct my tie of a size corresponding to the common wood tie which 65 is approximately eight feet long, eight inches wide, between the inner faces of the side walls, six inches high near the ends of the tie and about nine inches high at its longitudinal center. 70

In connection with the tie proper as described, I employ wooden or other fibrous blocks 11 treated with creosote or other preservative to render them practically imper-  
75 vious to moisture to increase their life and efficiency, which blocks are positioned in the tie and secured in place by the bolts 12, said bolts being squared at one end to seat in the openings 8 so as to prevent their turning  
80 when nuts are applied at their opposite ends. The upper faces of the blocks 11 are on a plane somewhat higher than the horizontal faces 4 of the walls 2 and 3 of the tie. After the blocks 11 are secured in place, concrete, or the like, 13 is filled in the tie between the  
85 blocks to lend weight and rigidity to the tie. The bolt 14 is then placed, with its square end in the perforation 9 in the wall 3 and a nut applied to its opposite end which bolt serves to prevent movement of the walls of  
90 the tie which would tend to shatter or crumble the filler 13. The tie complete as described is then placed in position on a road bed and rails 15 secured in place on the  
95 blocks 11 by the ordinary spikes with the outside flanges of the base of the rails engaging the inner faces of the shoulders 5. After the rails are secured in place the tie is  
100 tamped in proper position in the usual manner with material from the road bed with a part of such material filled and tamped in the ends of the tie outside the blocks 11 which serves to prevent movement of the tie. Thus it is obvious by securing the rails to  
105 the fibrous blocks they may be held in a plane above the tie proper and by reason of the resiliency of such blocks the tie proper and concrete filler is cushioned against wear



and breakage caused by the great strain to which ties are subjected by reason of moving cars or trains.

By reason of the rails engaging the shoulders 5 "spreading" is prevented and by reason of the rails being secured to the blocks, and the blocks in turn secured to the walls of the tie, a double precaution against spreading is obtained.

10 By the use of the two rail securing means, the blocks and the concrete filler, and by reason of the increased vertical dimension of the walls at their central portions and their curved contours forming trusses, a metallic tie may be employed of extremely light material with a maximum of strength and durability.

The depressions 10 are employed to carry off and drain moisture from the base of the tie under the blocks 11 and from under the concrete filler.

I claim:

1. A composite railway tie, comprising a metallic trough-shaped portion, shoulders 25 formed adjacent the ends of the walls thereof, fibrous blocks detachably secured within the tie, a filler between said blocks and inclined drains in the base of the metallic tie.

2. In a composite railway tie, a metallic 30 trough-shaped portion having a base section, drains in said base section, side walls formed integral with said base section, shoulders formed in said side walls adjacent their ends, said side walls being highest at their 35 central portions and curved outwardly toward each horizontal face, fibrous blocks positioned between the side walls adjacent the

horizontal faces, bolts extending through the side walls and blocks, a bolt extending through the side walls adjacent the longitudinal center of the tie and a filler between said blocks. 40

3. A composite railway tie, comprising a metallic trough-shaped portion, shoulders formed adjacent the ends of the walls thereof, fibrous blocks detachably secured within the tie, the upper faces of which occupy a plane above the said margins of the walls of the tie, a filler between said blocks and inclined drains in the base of the metallic tie. 50

4. In a composite railway tie, a metallic trough-shaped portion having a base section, drains in said base section, side walls formed integral with said base section, shoulders formed in said side walls adjacent their ends, 55 horizontal faces formed adjacent each shoulder, said side walls being highest at their central portions and curved outwardly toward each horizontal face, fibrous blocks positioned between the side walls adjacent the horizontal faces, the upper faces of said blocks occupying a plane above the horizontal faces, bolts extending through the side walls and blocks, a bolt extending through the side walls adjacent the longitudinal 65 center of the tie and a filler between said blocks.

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

BENJAMIN F. WISE.

Witnesses:

H. G. FLETCHER,  
E. L. WALLACE.