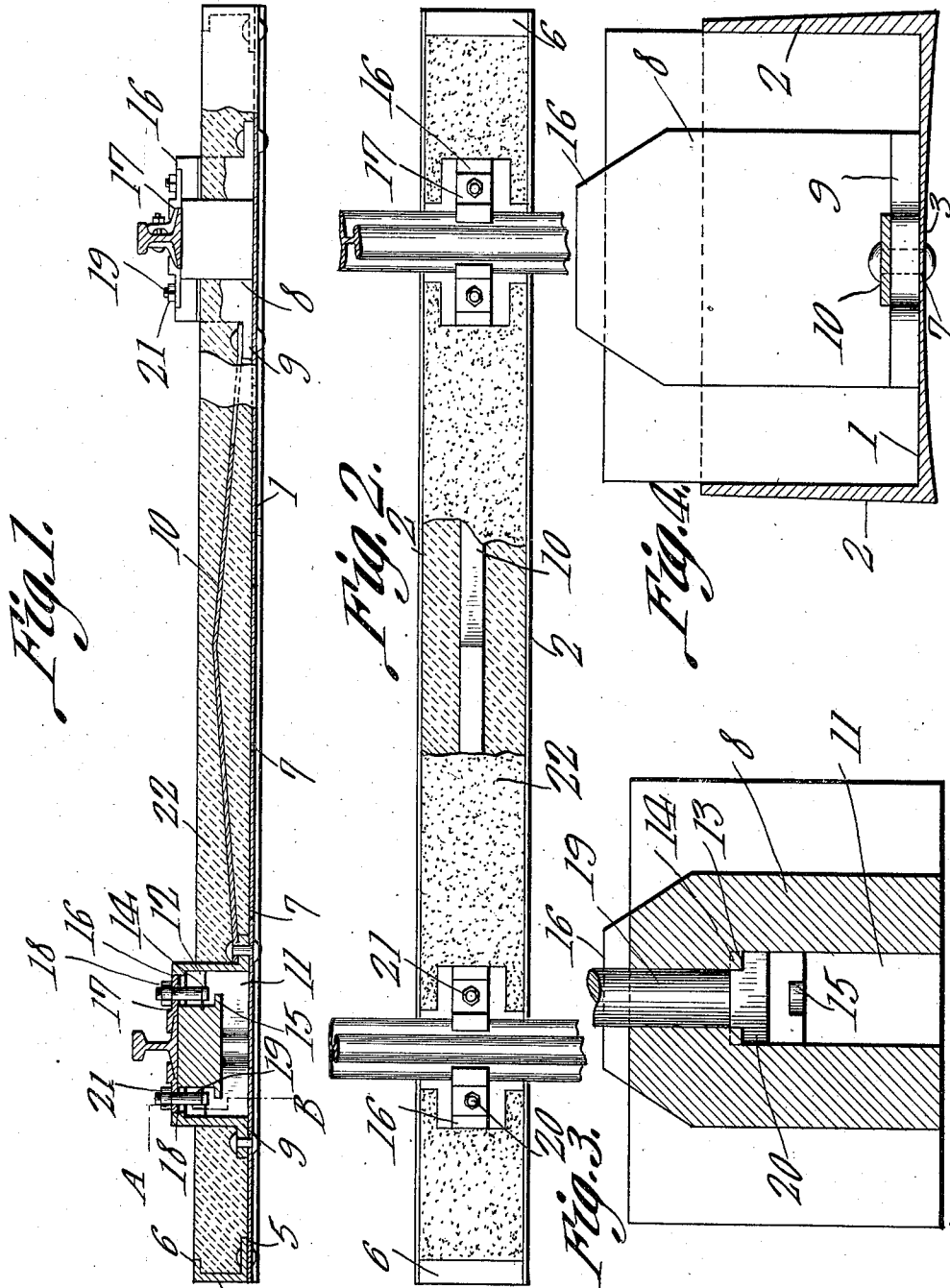


1,001,894.

Patented Aug. 29, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

WARREN A. SAUL, OF BRIDGEPORT, CONNECTICUT.

COMPOSITE RAILWAY-TIE.

1,001,894.

Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed April 18, 1911. Serial No. 621,938.

To all whom it may concern:

Be it known that I, WARREN A. SAUL, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Composite Railway-Tie, of which the following is a specification.

This invention relates to composite railway ties of that type made up of reinforced concrete, one of the objects of the invention being to provide a tie the body portion of which can be quickly and cheaply formed from channeled beams rolled to desired form and cut into predetermined lengths, said beam sections being readily assembled to form a trough for the reception of the plastic filling of the body.

A further object is to provide means partly housed within the body for supporting the rails without subjecting the plastic material to undesirable pressure.

Another object is to provide means for connecting the rail supporting devices, said means being embedded within the plastic material and constituting means for reinforcing said material.

A further object is to provide improved means for fastening rails to the supporting devices.

Another object is to provide a tie so shaped as to firmly engage the road bed and thus prevent the tie from creeping out of position.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without parting from the spirit of the invention.

In the accompanying drawings, the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a view partly in side elevation and partly in section of a railway tie constructed in accordance with the present invention, rails being shown secured thereon. Fig. 2 is a view partly in plan and partly in section of the

parts shown in Fig. 1. Fig. 3 is an enlarged section on line A—B Fig. 1, the channeled portion being removed. Fig. 4 is an enlarged end elevation of one of the rail supporting members in position within the trough-like metallic portion of the tie, said metallic portion being shown in section.

Referring to the figures by characters of reference 1 designates the base and 2 designates the side flanges of a channeled beam constituting the base and sides of the tie body, the lower surface of the base being transversely concaved as indicated at 3 so that, when the tie is positioned upon the road bed, the material constituting said road bed will become packed within the concavity and thus prevent the tie from creeping. The channeled metallic portion of the tie body can be cut from a beam of any length, it being designed to use beams of commercial sizes and to cut therefrom tie lengths of the proportions desired. The ends of the channeled member of the tie body are closed by end blocks 4 preferably cut from channeled beams, each of these blocks having a base flange 5 riveted or otherwise secured to the base 1 of the tie body, and a top flange 6 overhanging the flange 5. Drain openings 7 may be formed in the base 1 of the tie body.

Arranged upon the base 1 adjacent each end thereof are rail supporting blocks 8 adapted to fit snugly against the side flanges 2 and each having laterally extending ears 9 riveted or otherwise fastened to the base 1. A connection and reinforcing strap 10 is arranged between these blocks and is secured to one ear on each block, this strap being preferably inclined upwardly toward its center from the ends thereof. Each block 8 has a recess 11 in the lower portion thereof and slots 12 extend downwardly into each recess from the top of the block, these slots being spaced apart greater than the width of the base of the rails to be supported. Shoulders 13 are formed along the sides of the lower ends of the slots and each shoulder has a recess 14. A stop lug 15 is formed integral with block 8 and extends under each slot 12.

Stop ribs 16 are formed along the top of each block 8 adjacent opposite edges thereof

and constitute abutments for rail engaging plates 17 so shaped as to fit snugly upon the base flanges of the rails. Each of these plates 17 has an opening 18 to receive the threaded end portion of a bolt 19. Said bolt has an elongated head 20 the length of which is greater than the width of the slot 12 but, by extending said bolt head in the direction of the length of slot 12 it can be slipped downwardly through the slot, this downward movement being limited by the stop lug 15 in the path of the bolt. After the bolt has been brought to position upon the stop lug, it can be given a one-quarter turn so as to bring its head 20 at right angles to the slot 12. The ends of the bolt head will thus be supported under the recesses 14. By then placing a plate 17 on the block 8 and upon the upwardly projecting end of the bolt 19, and screwing a nut, such as indicated at 21, upon the bolt, the head of the bolt will be elevated into the recesses 14 and thus be held against rotation and, at the same time, the plate 17 will be forced downwardly into frictional engagement with the rail mounted on the block 8.

It is to be understood, of course, that the trough-like body formed by the base 1, flanges 2 and end blocks 4, is to be filled with a plastic material, such as indicated at 22, this material being firmly anchored between the blocks 8 by the strap 10 and, between said blocks 8 and the end blocks 4, by the flanges 6. This plastic material adds weight to the tie and also reinforces the metal portion thereof.

By providing rail fastening devices such as have been described, it will be seen that rails can be easily fastened to or disconnected from the tie whenever desired and, by utilizing nut locks, all danger of accidental loosening of the rails is eliminated.

As has heretofore been stated, importance is attached to the fact that the channeled portions of the tie body can be cut from channeled beams of any length desired and as the supporting blocks 8 can be formed at comparatively slight cost, it will be apparent that the entire tie can be constructed at a nominal cost and, when finished, will possess all of the advantages of an ordinary wooden tie and will be much more durable.

It is to be understood of course that any suitable cushioning elements, such as blocks of wood or the like, may be interposed between the supporting blocks 8 and the rails, should it be deemed desirable to employ them.

What is claimed is:—

1. A composite railway tie including a channel-beam section having its bottom formed with a flat upper face and with a transversely concaved lower face, channel-beam sections interposed between the end portions of the flanges and closing the ends

of the first mentioned section and having their lower flanges secured to the bottom of said section, and a plastic material filling said sections and anchored by the upper flanges of the end sections.

2. A composite railway tie including a channel-beam section, rail supporting members bearing on the bottom of said section, a combined connecting and reinforcing element bearing at its ends upon said members, a fastening device extending through each end of said element and through the adjacent supporting members for securing said members and element to the bottom of the channel-beam section, and a plastic material interposed between the members and inclosing and anchored by said element.

3. A composite railway tie including a channeled member having its bottom formed with a flat upper face and a transversely concaved lower face, channel-beam sections extending transversely of the end portions of the first named channel member and having their lower flanges secured upon the flat upper face of the bottom of the channeled member, rail supporting blocks within and secured upon the flat face of the bottom of the first named channeled member, a connecting and reinforcing element bearing at its ends upon said blocks, means extending through the ends of the said element and through portions of the blocks for securing said element and blocks to the bottom of the channeled member on which the blocks are mounted, rail engaging and fastening elements carried by the blocks, and a plastic material interposed between the blocks and between the end closures and blocks, said connection and the upper flanges of the end closures constituting means for anchoring the plastic material.

4. A composite railway tie including a channel-beam, said beam having its bottom formed with a flat upper face and a transversely concaved lower face, cruciform blocks bearing upon the flat upper face of the bottom of said section and fitting snugly against the side flanges of said section, rail fastening devices carried by the blocks, a combined connecting and reinforcing element having its ends bearing upon portions of the blocks, means extending through the ends of said element and portions of the blocks for securing the element and blocks to the bottom of the section, and a plastic material interposed between the blocks and extending partly around the same.

5. A composite railway tie including a channel-beam, said beam having its bottom formed with a flat upper face and a transversely concaved lower face, hollow cruciform blocks bearing upon the flat upper face of the bottom of said section and fitting snugly against the side flanges of said section, rail fastening devices carried by the

blocks, a combined connecting and reinforcing element having its ends bearing upon portions of the blocks, means extending through the ends of said element and
5 portions of the blocks for securing the element and blocks to the bottom of the section, and a plastic material interposed between the blocks and extending partly around the same, said blocks extending

above the plastic material and the flanges of 10 the channel-beam section.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WARREN A. SAUL.

Witnesses:

F. B. OCHSENREITER,
M. E. GEIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."