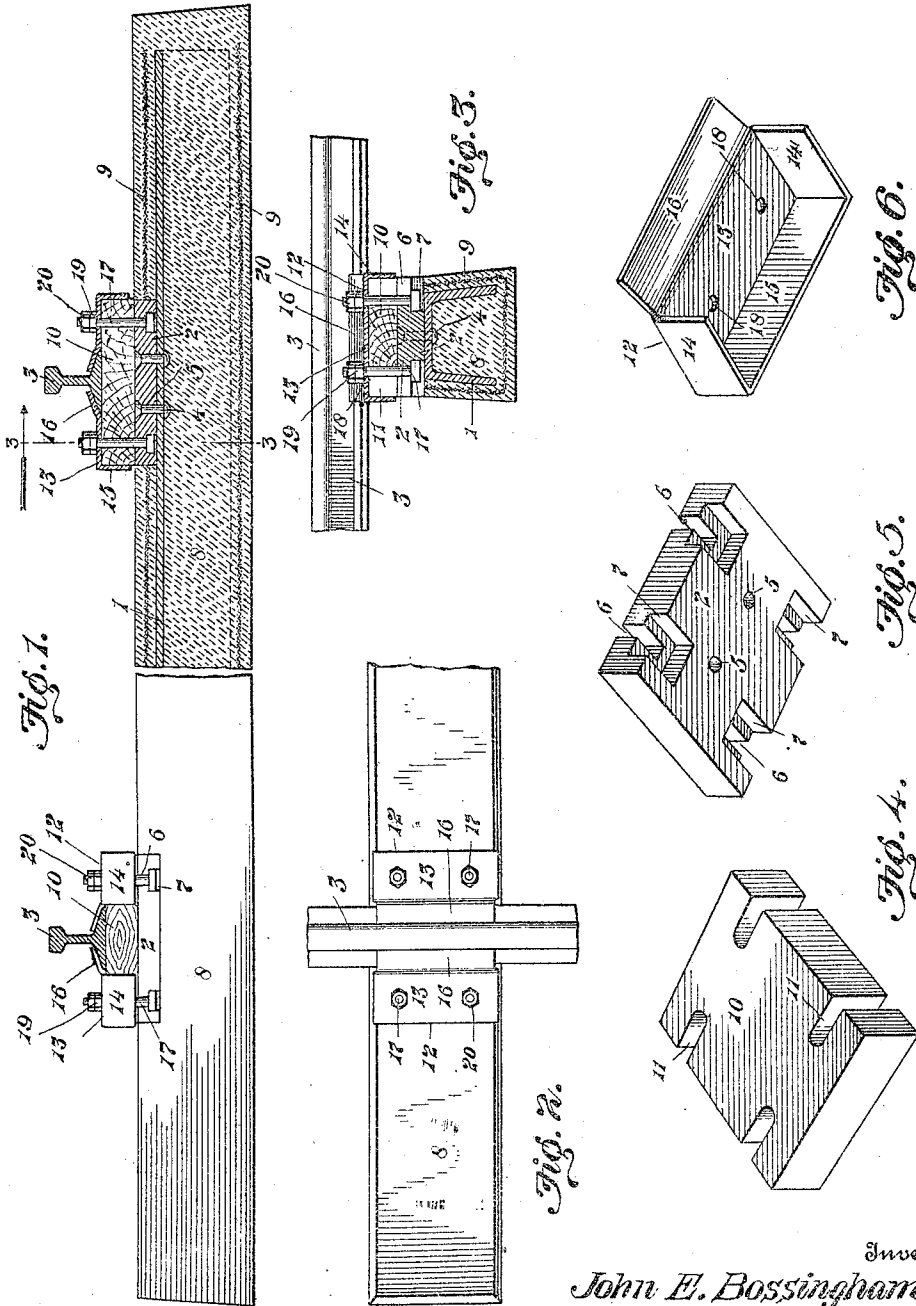


J. E. BOSSINGHAM.
 CONCRETE RAILWAY TIE.
 APPLICATION FILED FEB. 28, 1911.

993,500.

Patented May 30, 1911.



Witnesses

J. H. Bishop
Irene Lutz

By

Inventor
John E. Bossingham.

Bond & Miller
 Attorneys

UNITED STATES PATENT OFFICE.

JOHN E. BOSSINGHAM, OF CANTON, OHIO.

CONCRETE RAILWAY-TIE.

993,500.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed February 28, 1911. Serial No. 611,415.

To all whom it may concern:

Be it known that I, JOHN E. BOSSINGHAM, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Concrete Railway-Tie, of which the following is a specification.

My invention relates to improvements in railway ties and especially to such ties as are made of reinforced concrete.

The objects of my invention are to generally improve devices of the character mentioned and to provide a concrete railway tie of simple construction, easily and cheaply made, strong, durable, convenient and practical in use and thoroughly efficient in all respects. These objects, together with other objects readily apparent to those skilled in the art, I attain by the construction illustrated in the accompanying drawings, although my invention may be embodied in other forms, the construction illustrated being chosen by way of example.

In the drawings Figure 1 is a side view of a concrete railway tie embodying my invention and showing the rails properly connected thereto, a portion of the tie being broken away to decrease the size of the figure, and a portion of the tie being shown in vertical longitudinal section to more fully disclose the internal construction. Fig. 2 is a top or plan view of a portion of the tie showing the rail attached. Fig. 3 is a vertical transverse section of the tie with the rail attached, said view being taken on the line 3-3 of Fig. 1. Fig. 4 is a perspective view on an enlarged scale of one of the cushion blocks. Fig. 5 is a perspective view from the under-side of one of the supporting anchor blocks. Fig. 6 is a perspective view from the under-side of one of the rail holding caps.

Throughout the several views similar reference numerals indicate similar parts.

The numeral 1 indicates an inverted steel channel with the side flanges thereof depending, said channel constituting the main reinforcing body and preferably extending nearly to the ends of the tie. On the top of the upturned base of the channel are ar-

ranged the supporting anchor blocks 2 at points above which it is desired to locate the rails 3. Each anchor block is firmly, fixedly connected to the channel 1 by suitable means, such as the rivets 4 which extend through the apertures 5 in the block 2 and through the base of the channel 1. In two opposite edges of each block 2 are arranged the bolt slots 6 which extend for a short distance into the body of the block at right angles to the length of the tie. On the under-side adjacent each slot the block 2 is cut away at 7 forming an under-cut recess to receive the head of an anchor bolt, as will hereinafter more fully appear.

The concrete 8 fills the interior of the channel as well as incases it on all sides with a heavy layer, the said concrete forming the main body of the tie in which the channel 2 is thoroughly embedded. To further reinforce and hold together the concrete 8 a multi-apertured reinforcing member 9 is provided. This reinforcing member may consist of wire mesh, expanded metal, perforated sheet steel, or any structural element having analogous characteristics. In the drawings the reinforcing member 9 is illustrated as composed of wire mesh, or woven wire, the said mesh extending externally around the channel 1 embedded in the layer of concrete in which the said channel is incased, and serving to reinforce said layer in a very substantial way, as will be understood by those skilled in the art.

As will be noted in the drawings, the anchor blocks 2 are of such thickness that their top surfaces are substantially flush with the top surface of the concrete while the lateral edges of said blocks in which the bolt slots 6 are arranged are substantially flush with the lateral concrete surfaces of the tie, the said top surface and lateral surfaces of the blocks 2 being thus exposed externally when the tie is completed, said surfaces being the only metal surfaces exposed in the tie proper.

The cushion blocks 10 may be constructed of wood, or other material or composition possessing resiliency. Each cushion block

is substantially of the same size and shape as the anchor blocks 2 and is provided with bolt slots 11 adapted to register with the corresponding slots 6 in the anchor blocks, said slots 11 being so arranged as to be disposed transversely with reference to the length of the tie.

The ties proper should of course be molded in suitable forms the channels with the anchor blocks connected thereto and the reinforcing member 9 being arranged in the mold and the concrete added while in a plastic state and allowed to harden in the usual way.

In use the ties proper should be laid down upon a suitable road bed with the anchor blocks turned upwardly. It will be noted that I have shown the tie as wider at the base than at the top. This not only makes the tie more stable when in position and more properly distributes the downward pressure but also serves to anchor the tie to the road bed when filling is arranged between the ties, as is a common practice in well built railways. When the ties have been so arranged as above described, with the blocks 2 turned upwardly one of the cushion blocks 10 is arranged upon each of the anchor blocks 2 and the rails 3 are then placed upon the blocks 10. For the purpose of covering and protecting the exposed portions of the blocks 10 and for fastening the rails to the ties the rail holding caps 12 are provided. Said caps are preferably formed of metal and two of such caps are used at each cushion block. It will be understood that the cushion blocks 10 are of such width as to extend, longitudinally of the tie, beyond the lateral edges of the rail base and the top 13 and depending flanges 14 and 15 at the ends and one of the sides of the said top serve to cover and protect that portion of the block 10 which projects beyond the rail base as described. Formed integrally with the top 13, is also the rail engaging flange 16 at the side of said top opposite the flange 15. Said flange 16 is adapted to overlie the base of the rail as illustrated in Figs. 1 and 2.

The anchor bolts 17 are slidably entered into the slots 6 and 11 with their heads in the recesses at 7. The apertures 18 in the top 13 of the rail holding caps are adapted to permit said anchor bolts to pass there-through and a nut 19, with a jam nut 20 if desired, is employed to clamp the cap 12 and block 10 to the block 2. Such clamping action will bring the flanges 16 of the two caps disposed on the opposite sides of the rail into clamping engagement with the base of said rail, thus holding said rail down tightly upon the block 10. It should be noted that when the parts are thus in position the caps

12 serve to maintain the bolts 17 passing through the slots 6 and 11 and apertures 18 in proper position, it being necessary not only to remove the nuts entirely from said bolts, but also to remove said cap from the blocks 10 in order to remove the bolts from their position relative to the other parts.

Special attention is directed to the fact that substantially no part of the metal members of the tie proper are exposed to the weather, the blocks 10 covering the upper surfaces of the blocks 2, leaving the lateral edges of the blocks 2 only exposed. These exposed lateral edges are so located as to be somewhat protected from the action of the elements, and the life of the tie proper is thus greatly prolonged. The blocks 10 may be renewed from time to time if necessary by loosening the nuts 19 and 20, removing the cap 12 and removing the anchor bolts 17, and the rails may be replaced or moved when desired in a similar manner. In replacing rails it is necessary to remove the caps on one side only of the length of the rail to be replaced and then laterally moving the old rail to detach it and reversing this operation for the fastening of the new rail.

The slots 6 and 11 are disposed transversely with reference to the length of the tie, as hereinbefore stated. Any side movement of the rail 3 will be prevented by reason of the fact that the caps 12 are held tightly in place by the bolts 17 and said bolts cannot move longitudinally of the tie by reason of the fact that they are held firmly in place by the sides of the said slots 6 and 11. The only direction of movement of the bolts 17 by which the various parts may be loosened is a lateral movement with reference to the length of the tie, following out through the slots 6 and 11. Such lateral movement is prevented so long as the caps 12 are in place upon said bolts, and therefore when the various parts are fully assembled and the bolts drawn up firmly a very substantial and strong fastening is made.

The anchor bolts themselves as well as the caps 12 may be replaced when necessary, although such replacement, especially of the caps, will be rarely required. In replacing the blocks 10, the caps 12 or the bolts 17 it is unnecessary to disturb the rail 3, as the parts may be slidably removed and new parts slidably placed in position as will be clearly understood.

The tie proper, it will be seen, is well adapted to endure an unusually great length of time and such replacements as may be necessary may be made at slight expense. The blocks 10, or their equivalents, providing a resilient support for the rails 3, the well known desirable qualities of wooden

ties will be retained and the device as a whole will prove to be practical and efficient.

I claim:

1. A railway tie comprising a main reinforcing body, anchor blocks fixedly connected to said body, concrete, forming the main body of the tie, said reinforcing body embedded in said concrete, said anchor blocks having slots in their lateral, opposite edges extending at right angles to the length of said tie, resilient blocks arranged upon said anchor blocks, said resilient blocks having slots in their opposite, lateral edges adapted to register with the slots in said anchor blocks, said resilient blocks adapted to support railway rails, and laterally slidably removable means extending through said slots for clamping said railway rails and said resilient blocks to said anchor blocks.

2. A railway tie comprising a main reinforcing body, an anchor block fixedly connected to said body, concrete, forming the main body of the tie, said reinforcing body embedded in said concrete, said anchor block having slots in its lateral, opposite edges extending at right angles to the length of said tie, recesses on the under-side of said anchor block at said slots, a resilient block arranged upon said anchor block, said resilient block having slots in its opposite, lateral edges adapted to register with the slots in said anchor block, said resilient block adapted to support a railway rail, bolts arranged in said slots and having their heads in said recesses in the anchor block, a rail engaging member in engagement with the base of said rail and connected to said bolts, and nuts for said bolts, whereby said rail and said resilient block may be clamped to said tie by means of said bolts.

3. A railway tie comprising a main reinforcing body, anchor blocks fixedly connected to said body, concrete, forming the main body of the tie, said reinforcing body embedded in said concrete, resilient blocks arranged upon said anchor blocks, said resilient blocks adapted to support railway rails, rail holding caps adapted to cover and protect said resilient blocks and provided with integral rail engaging flanges, and means for detachably clamping said rail holding caps, rails, resilient blocks and anchor blocks together.

4. A railway tie comprising a main reinforcing body, anchor blocks fixedly connected to said body, concrete, forming the main body of the tie, said reinforcing body embedded in said concrete, said anchor blocks extending through said concrete to the outer surface of the tie, resilient blocks arranged upon said anchor blocks, said anchor blocks and resilient blocks provided with lateral slots adapted to receive clamp-

ing bolts, said resilient blocks adapted to support railway rails, rail holding caps adapted to cover and protect the resilient blocks where said blocks project beyond the said rails and said caps provided with integral rail engaging flanges and bolts arranged in said slots in the anchor blocks and resilient blocks and extending through apertures in said rail holding caps, and nuts on said bolts, whereby to clamp said rail holding caps, rails, resilient blocks and anchor blocks together.

5. A railway tie comprising a main reinforcing body, anchor blocks fixedly connected to said body, concrete, forming the main body of the tie, said reinforcing body embedded in said concrete, resilient blocks arranged upon said anchor blocks, said anchor blocks and resilient blocks provided with slots disposed transversely with reference to the length of the tie and adapted to receive clamping bolts, said resilient blocks adapted to support railway rails, rail-holding caps adapted to cover and protect the resilient blocks, said caps provided with integral rail engaging flanges and bolt apertures, said bolts arranged in said slots in the anchor blocks and resilient blocks and extending through said bolt apertures in said caps, and nuts on said bolts, whereby to clamp said rail-holding caps, rails, resilient blocks and anchor blocks together.

6. A railway tie comprising a main reinforcing body, anchor blocks fixedly connected to said body, concrete, forming the main body of the tie, said reinforcing body embedded in said concrete, resilient blocks arranged upon said anchor blocks, said anchor blocks and resilient blocks provided with lateral slots disposed transversely with reference to the length of the tie and adapted to receive clamping bolts, said resilient blocks adapted to support railway rails, rail-holding caps adapted for engagement with the rails and provided with bolt apertures, bolts arranged in the slots in said anchor blocks and resilient blocks and extending through said apertures in said caps and nuts on said bolts, whereby said caps prevent movement of said bolts in a direction transverse to the length of the tie.

7. A railway tie comprising a main reinforcing body, anchor blocks connected to said body, concrete, forming the main body of the tie, said reinforcing body embedded in said concrete, resilient blocks arranged upon said anchor blocks, said resilient blocks adapted to support railway rails, said anchor blocks provided with slots disposed transversely with reference to the length of the tie and adapted to receive clamping bolts, rail holding means adapted to engage said railway rails and bolts arranged in the

slots of said anchor blocks, engaging said
rail holding means and adapted to clamp
said rail holding means, rails, resilient
blocks and anchor blocks together, said bolts
5 being removable from said anchor blocks by
a movement transverse with reference to the
length of the tie.

In testimony that I claim the above, I
have hereunto subscribed my name in the
presence of two witnesses.

JOHN E. BOSSINGHAM.

Witnesses:

WILLIAM H. MILLER,
IRENE LUTZ.