

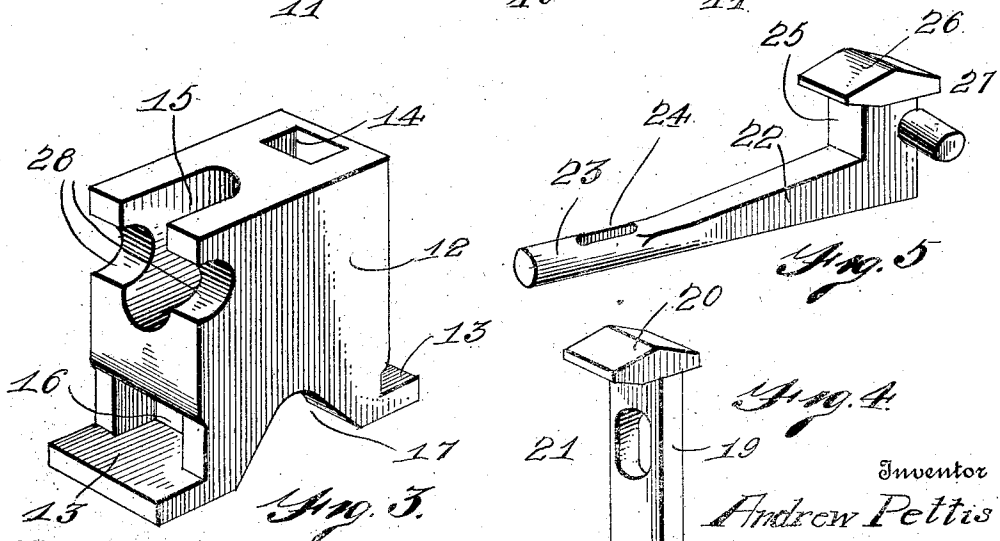
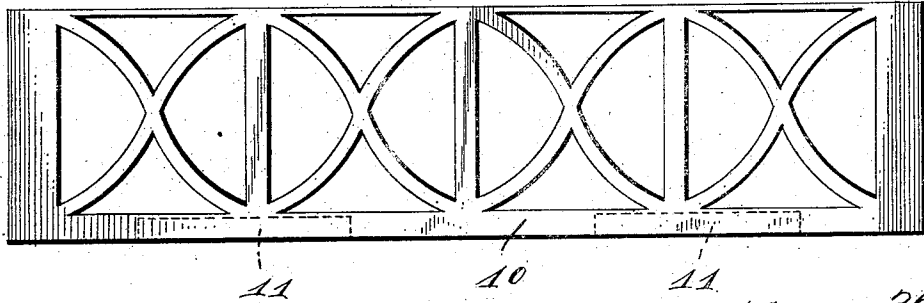
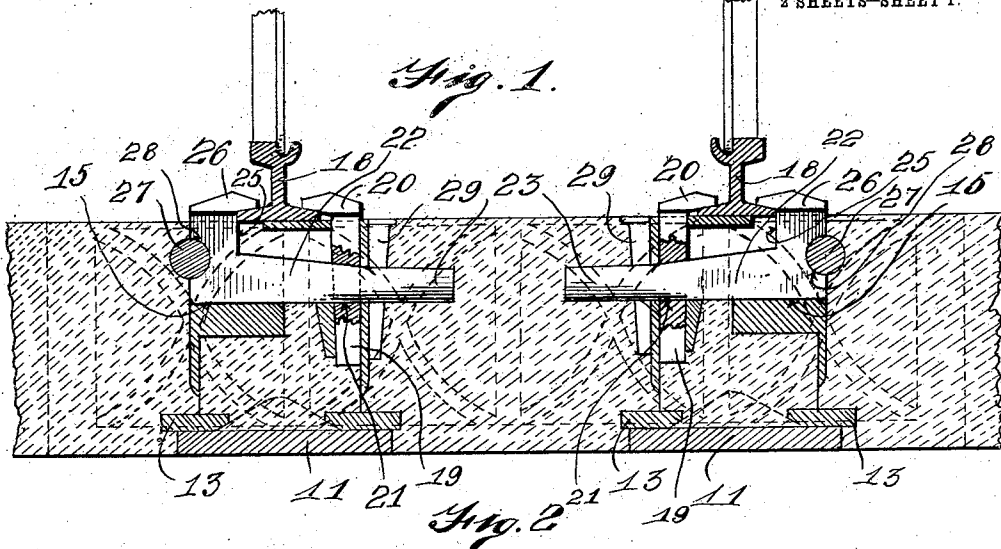
A. PETTIS.
CROSS-TIE FORM.

APPLICATION FILED JAN. 22, 1912.

Patented May 13, 1913.

1,061,946.

2 SHEETS-SHEET 1.



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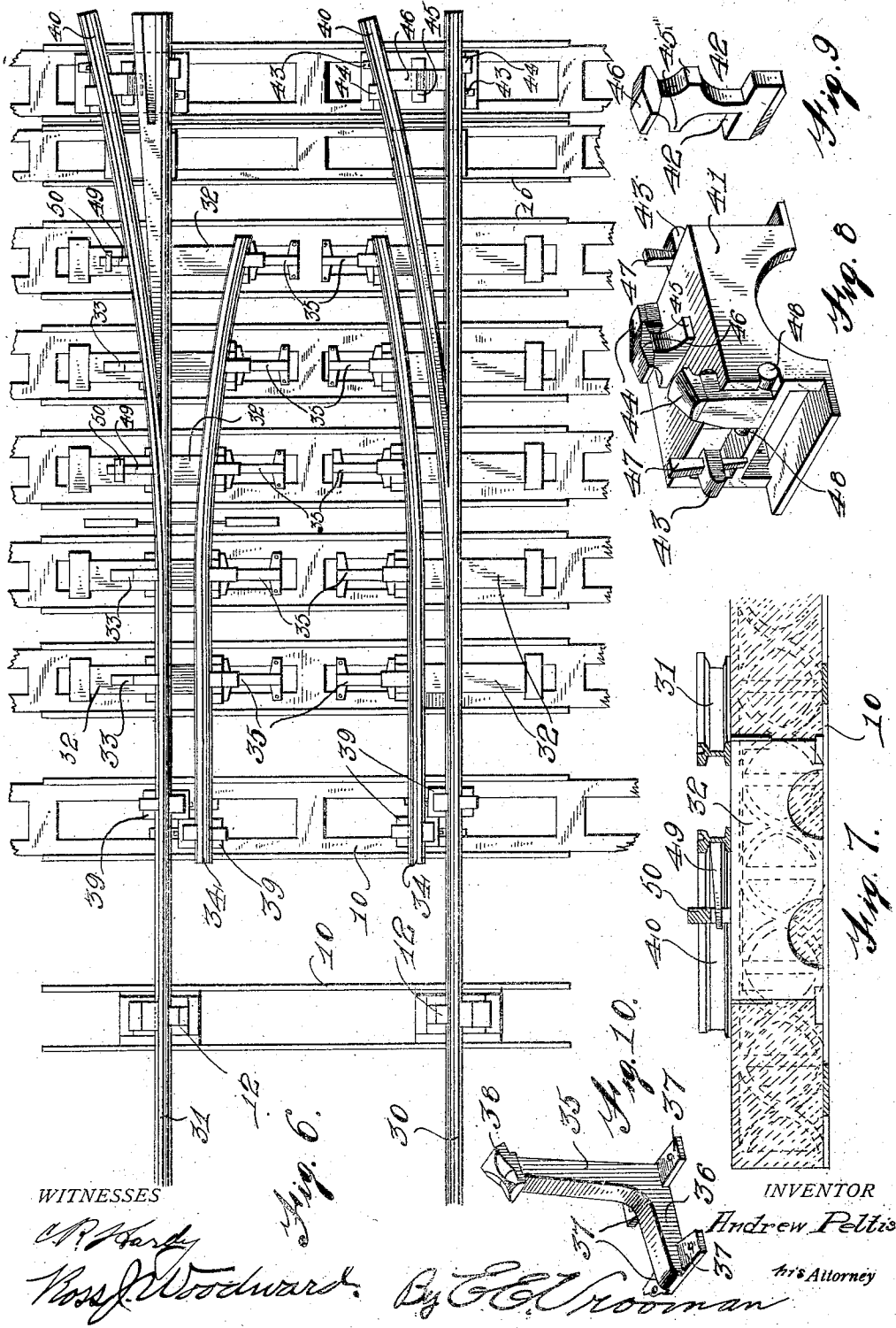
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UNITED STATES PATENT OFFICE.

ANDREW PETTIS, OF VIAN, OKLAHOMA.

CROSS-TIE FORM.

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Specification of Letters Patent.

Patented May 13, 1913.

Application filed January 22, 1912. Serial No. 672,761.

To all whom it may concern:

Be it known that I, ANDREW PETTIS, a citizen of the United States, residing at Vian, in the county of Sequoyah and the State of Oklahoma, have invented a new and useful Cross-Tie Form to be Used with Concrete, of which the following is a specification.

This invention relates to railroad ties, and the principal object of the invention is to provide a tie in which the rail supporting members are placed in a frame in which cement is poured to securely hold the rail supporting members in position.

Another object of the invention is to provide an improved type of rail supporting device which is so constructed that the rails may be easily connected with the supporting device and so that the rails will be tightly held in position.

Another object of the invention is to provide an improved type of device so that a switch frog will be supported and prevented from moving out of the desired position.

This invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a sectional view through a tie formed in accordance with this invention. Fig. 2 is a side elevation of the outer frame. Fig. 3 is a perspective view of the rail supporter. Fig. 4 is a perspective view of one of the devices which holds the rail in position. Fig. 5 is a perspective view of the second device which engages the opposite side of the rail base and which holds the device shown in Fig. 4 in place. Fig. 6 is a top plan view showing a section of a track at a point where a switch is placed. Fig. 7 is a sectional view through one of the ties shown in Fig. 6. Fig. 8 is a perspective view of one of the supporting blocks at the switch frog. Fig. 9 is a perspective view of the member which engages the inner flanges of the rails at the switch. Fig. 10 is a perspective view of the device which engages the outer flanges of the rail to brace the rail.

Referring particularly to Figs. 1, to 5, it will be seen that this invention comprises an outer frame having the side walls which are preferably of the lattice work type, and which are connected by the lower cross bars 11 forming supports for the rail supporting device. These side rails are formed as shown in Fig. 2 so that when the

cement is poured into these frames around the rail supporting device, part of the cement will flow through the spaces formed in the side walls and thus form anchors which will prevent the rail supporting device from working loose.

The rail supporting devices are each formed from a block 12 as shown in Fig. 3 which is provided at its base with the outwardly extending feet 13. A vertically extending opening 14 is formed adjacent one end of each of the blocks and a transversely extending opening 15 is also formed in the upper portion of the block and intersects the vertical opening 14. From an inspection of Fig. 1, it will be seen that the lower portion of each of these blocks is hollow thus permitting the cement to flow through the openings 16 and 17 formed in the lower portion of the blocks and thus securely hold the blocks in position. It should also be noted that when these blocks are in position, the cement rests upon the feet 13 and thus any upward movement is prevented.

When using this device, ditches are cut in the road bed and which are then partially filled with cement so that the cement bed is formed for each of the ties. The outer frame shown in Fig. 2 is then placed in the ditch and the blocks 12 are placed upon the connecting bars 11 in the position shown in Fig. 1. The rails 18 are then placed in position and rest upon the top of the supporting block 12. Pins 19 are then placed in the openings 14 with their heads 20 engaging the bases of the rails and with their openings 21 positioned in alinement with the transversely extending openings 15. A key shown in Fig. 5 is then passed through each of the openings 15 with its reduced end portion extending beyond the inner end of the block. Each of these keys comprise a tapered body portion 22 terminating in a cylindrical end portion 23 having an elongated opening 24 formed therein. A neck 25 extends from the body portion 22 and carries a head 26 which engages the opposite side of the rail base. Arms 27 extend from each side of the neck 25 and fit into the grooves 28 thus limiting the inward movement of the key. A securing pin 29 is passed through the opening 24 after the key is in place, and since this pin is provided with an inclined side face, it will readily be seen that when driven tightly into place

it will draw the key through the block as far as possible thus securely holding the key and pin 19 in place.

After the rails have been connected with the supporting blocks cement is poured into the outer frame and flows between the frame and the sides of the blocks and is also poured between the blocks and at each end of the blocks. This cement, therefore, completely surrounds the blocks and also flows through the openings 16 and 17 into the interior of the blocks thereby securely holding the blocks in position. It should also be noted that the cement which is at the ends of the frame and in the center of the frame mixes with that which forms the bed for the ties and, therefore, when the cement hardens the cement within the frame will be connected with that which forms the supporting bed for the ties. It will thus be readily seen from an inspection of Fig. 1 that the supporting blocks will be immovably held in place when the cement has set, and it will also be seen from an inspection of Fig. 2 that when the cement flows through the spaces formed in the side walls that anchors will be formed which will securely prevent any movement whatever of the frame or supporting blocks.

In Figs. 6 to 10 there has been shown the manner of constructing the track at the point where a switch is provided for leading a train to a siding. At this point the rails 30 and 31 rest upon the side walls of the frames 10 which are constructed similar to the frame shown in Fig. 2. The supports 32 are placed in the frames 10 and are held in place by the cement filling shown in Fig. 7. The rails 30 and 31 are secured to these devices 32 by any suitable means such as the clamps 33 fastened to the tops of the supporting members 32. Guard rails 34 are placed between the rails 30 and 31 to prevent the train from jumping the track and are secured by devices such as that shown in Fig. 10. This device comprises the standard 35 which is provided with a base 36 having feet 37 extending therefrom in order that the device may be secured to the bottom of the frame 10. A head 38 is formed at the upper end of the standard 35 to engage the base of the rail. The guard rails are mounted at one end upon supporting devices 39 which are similar in construction to that shown in Figs. 3, 4, and 5. The supports 39 may also be provided for the main rails and located in the same frame carrying the ends of the guard rails. The rails 40 which form the side track lead from the rails 30 and 31 and rest upon supporting frames 41 constructed somewhat similar to that shown in Fig. 3. This supporting frame, however, carries a gripping member shown in Fig. 9 having its body portion cut to provide recesses 42 through which the

shafts 43 of the gripping members 44 pass. These notches 42 also provide arms 45 which rest upon the upper face of the supporting member 41, and thus limit the inward movement of the central gripping member.

The head 46 engages the inner sides of the rail bases of the two sets of rails, and the central member, therefore, serves the purpose of holding both of the rails to the tie. The shafts 43 which pass through the recesses 42 are secured by means of the pins 47, the longitudinal movement of the shafts being limited by the arms 48. It should be noted that one of the rails 40 is slidably mounted and is provided with arms 49 which pass through eyes 50 formed upon the supporting member 32. This rail is shifted by any suitable means, and the trains can thus be guided from the main track on to the siding by moving the shift rail to the proper position as shown in Fig. 6. It will, therefore, be seen that the same principle is used at the switch as along the main track, the rails being supported upon ties comprising frames in which rail supports are placed and after being connected with the rails locked in place by a cement binding.

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

1. A tie comprising a frame, rail supporting blocks positioned in said frame and provided with hollow lower portions having openings to permit communication with the interior of the lower portions, said blocks being each provided with a vertical opening in its upper portion and with a transversely extending opening intersecting with said vertical opening, a rail engaging pin placed in said vertical opening and provided with an opening positioned in alinement with said transversely extending opening, a rail engaging key passing through said transversely extending opening and through said pin to hold said pin in place, means for holding said key in position, and a plastic positioned in said frame and surrounding said blocks and passing into the interior thereof to hold said blocks in position.

2. A tie comprising a frame, rail supports positioned in said frame, each of said supports comprising a block having a hollow lower portion and provided with outwardly extending supporting feet and being also provided with a vertical opening in its upper portion and with a transversely extending opening intersecting said vertical opening and having grooves leading from its outer end portions, a rail securing pin passing through said vertical opening, a rail securing key passing through said transversely extending opening and through said pin, a securing pin passing through an opening formed in one end portion of said key to hold the same in place, arms extending from said

key and positioned in said grooves to limit the inward movement of said key, and a plastic placed in said frame and surrounding said block and passing into the interior thereof to hold said blocks in position.

3. A tie comprising a frame, rail supports positioned in said frame, each of said supports comprising a block provided with a vertically extending opening and with a transversely extending opening intersecting said vertically extending opening, a rail engaging pin placed in said vertically extending opening and provided with an opening positioned in alinement with the transversely extending opening, a rail engaging key passing through said transversely extending opening, said key comprising a tapered body

portion terminating in a reduced end having a longitudinally extending opening formed therein, a neck extending from said body portion, a rail engaging a head at the upper end of said neck, arms extending from said neck and positioned in grooves leading from said transversely extending opening to limit the inward movement of said key, a securing pin passing through the opening of said key to hold said key in a locked position, and a plastic positioned within said frame and surrounding said blocks to hold said blocks in position.

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