

J. N. SCHWALEN.

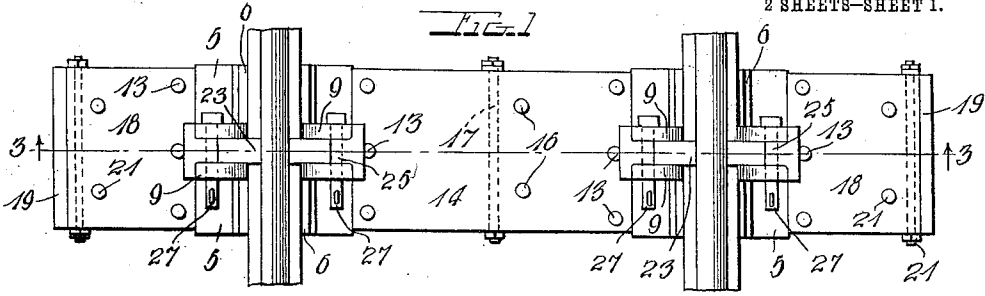
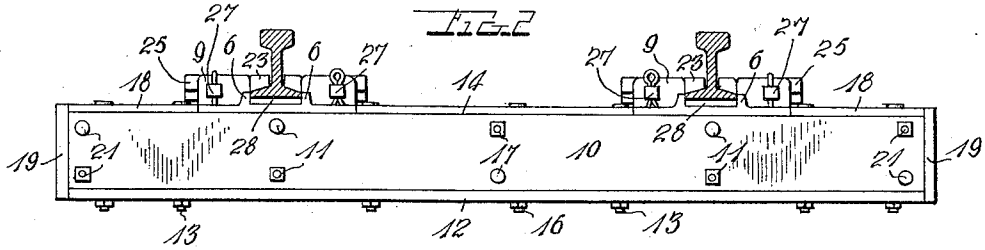
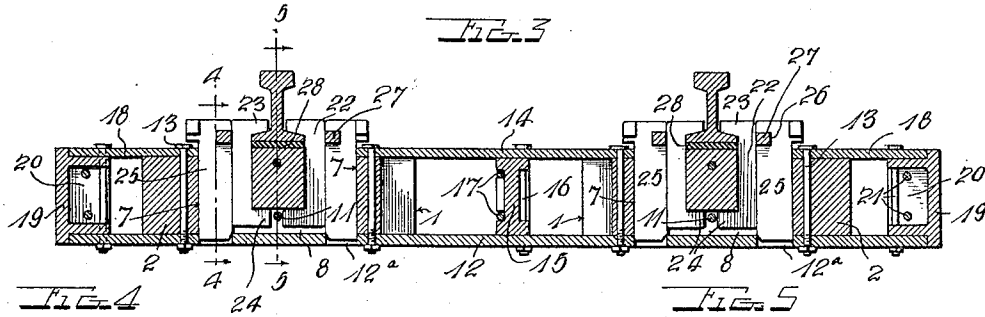
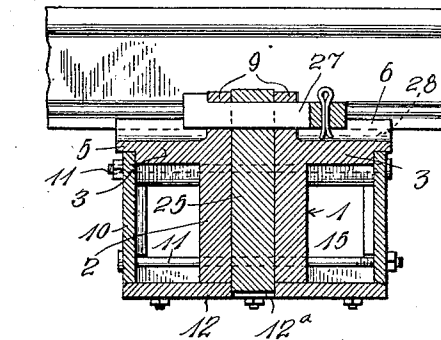
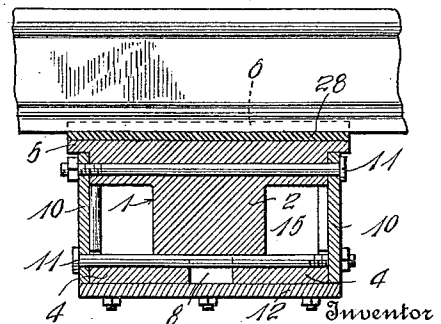
RAILWAY TIE.

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1,065,846.

Patented June 24, 1913.

2 SHEETS—SHEET 1.



Witnesses

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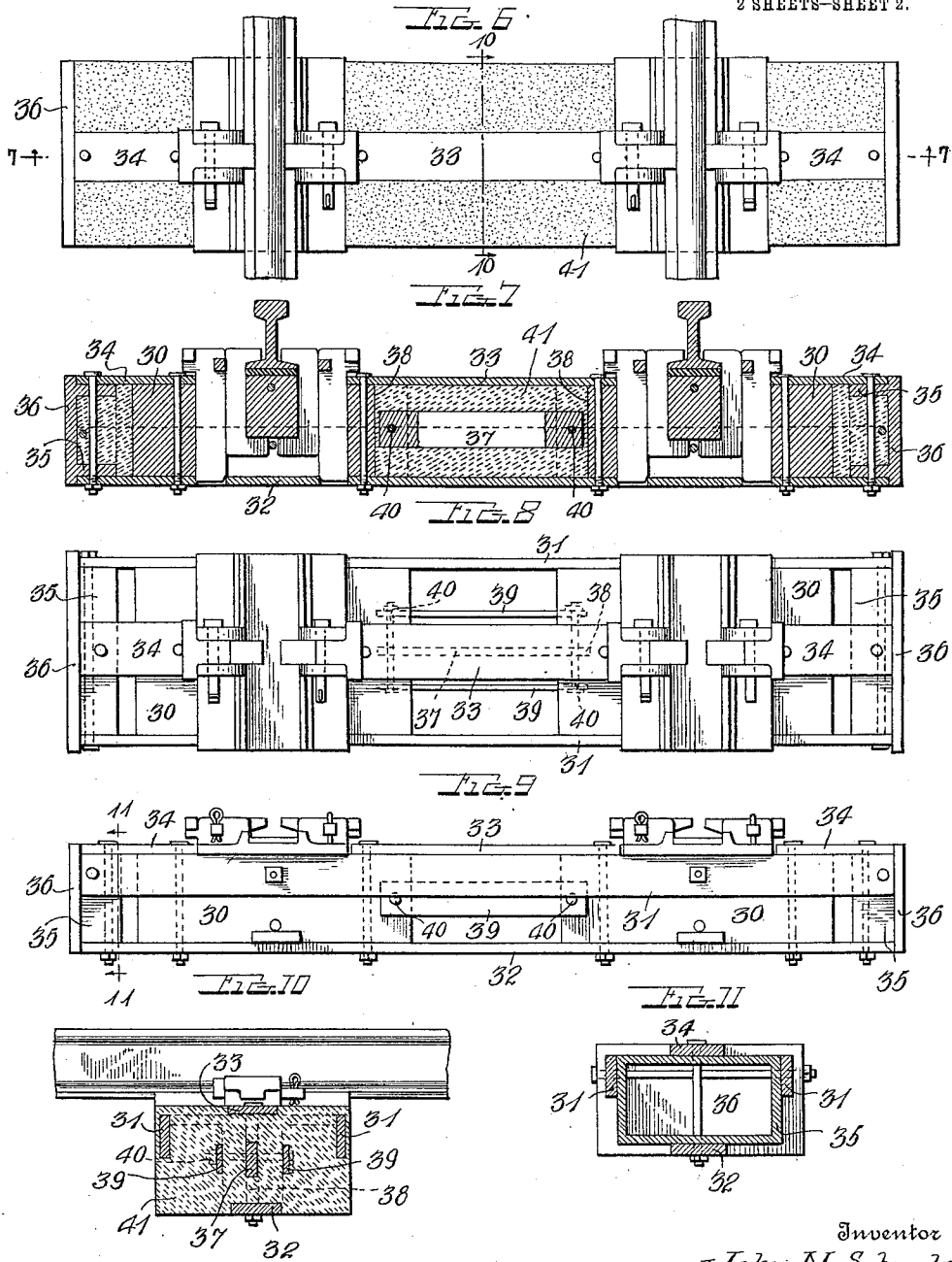
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UNITED STATES PATENT OFFICE.

JOHN N. SCHWÄLEN, OF HUDSON, WISCONSIN.

RAILWAY-TIE.

1,065,846.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN N. SCHWÄLEN, a citizen of the United States, residing at Hudson, in the county of St. Croix and State of Wisconsin, have invented certain new and useful Improvements in Railway-Ties; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in railway ties.

One object of the invention is to provide a railway tie comprising rail supporting chairs suitably connected and spaced apart and which are incased in a metal or cement casing which forms the body of the tie.

Another object is to provide a tie which will be strong and durable in construction and adapted to firmly support the rails fastened thereto, means being provided to absorb the shocks and jars occasioned by the trains passing over the rails.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a plan view of one form of my improved tie in which the same is provided with a metal casing; Fig. 2 is a side view thereof; Fig. 3 is a central vertical section taken on the line 3—3 of Fig. 1; Fig. 4 is a vertical cross section taken on the line 4—4 of Fig. 3; Fig. 5 is a similar view taken on the line 5—5 of Fig. 3 and showing the railway rail in full lines; Fig. 6 is a plan view of a modified form of the tie in which the interior structure is incased or embedded in concrete which forms the body of the tie; Fig. 7 is a central vertical longitudinal section thereof taken on the line 7—7 of Fig. 6; Fig. 8 is a plan view of the tie structure before the same has been incased or embedded in the concrete body of the tie; Fig. 9 is a side view of the parts shown in Fig. 8; Fig. 10 is a cross sectional view of the tie taken on the line 10—10 of Fig. 6; Fig. 11 is a similar view taken on the line 11—11 of Fig. 9.

Referring more particularly to the first five figures of the drawing wherein the body of the tie is in the form of a metal casing, 1 denotes the rail supporting chairs of the tie, said chairs being suitably spaced to re-

ceive the rails. Each of the chairs 1 comprises a longitudinal rectangular or oblong shaped block 2 having on its sides at the upper edges thereof laterally projecting flanges 3 which extend the entire length of the blocks and which project to a distance corresponding to the width of the tie. Also formed on the sides of the block at the lower edges thereof and midway between their ends are laterally projecting spacing lugs 4, said lugs corresponding in width to the width of the flanges 3 as shown. On the upper sides of the blocks and arranged transversely across the same midway between their ends are upwardly projecting offset seats 5 the ends of which project beyond the overhanging side edges of the flanges 3 as shown. On the seats 5 are formed upwardly projecting parallel stop flanges 6 which are spaced apart to a distance corresponding with the width of the base flanges of the rails and between which the rails are seated when applied to the tie.

Formed in the blocks 2 midway between the ends of the seats 5 and on opposite sides of the space between the stop flanges 6 are vertically disposed passages 7 the lower ends of which communicate with a longitudinally disposed recess 8 formed in the lower side of the blocks 2, said passages and recess being provided to receive rail fastening devices hereinafter described. On the upper sides of the seats 5 adjacent to the opposite sides of the passages 7 are upwardly projecting apertured lugs 9 the purpose of which will be hereinafter described.

The chairs when thus constructed are connected by longitudinal side plates 10 which extend the full length of the tie and form the sides thereof and which are engaged with the side edges of the flanges 3 and the ends of the spacing lugs 4 of the blocks, said plates being securely fastened to the blocks by upper and lower transversely disposed bolts 11 which are passed through the blocks midway between their ends as shown. In addition to the side plates 10 the chairs are also connected by a base plate 12 which forms the bottom of the tie and which is securely fastened to the bottom of the blocks by vertically disposed bolts 13 as shown. The chairs are further connected by a centrally disposed top plate 14 which is engaged with the tops of the blocks and upper sides of the flanges 3 thereof and has its ends abutting against the inner edges of the up-

wardly projecting seat portion 5 of the chairs as shown. The plates 14 are fastened to the chairs by the bolts 13 which secure the bottom plate 12 of the tie. The top, bottom and side plates are reinforced and braced midway between the inner ends of the chairs 1 by a transversely disposed brace bar 15 to which the upper and lower plates are fastened by transverse bolts 16 and to which the side plates are fastened by transverse bolts 17.

The tops of the ties at the ends thereof are covered by end top plates 18 the inner ends of which abut against the outer edges of the seats 5 and are secured to the outer ends of the chairs by the bolts 13 which fasten the bottom plate. The ends of the tie when thus constructed are closed by cap plates 19 which fit against the ends of the bottom, side and end top plates and which have on their inner sides rectangular flanges 20 which fit between the ends of the top, bottom and side plates of the tie, said ends of the plates being secured to the flanges by vertical and transversely disposed bolts 21 as shown.

The rails are fastened to the ties by fastening devices comprising pairs of clamping members each consisting of a bar 22 having on its upper end a rail-engaging lug 23 and on its lower end a chair engaging lug 24. In arranging the clamping members they are inserted in the passages 7 of the chairs until the lower ends thereof reach the recess 8 in the bottom of the blocks after which the members are moved toward the inner sides of the passages 7 and the upper lugs 23 thereon engaged with the base flanges of the rail, while the lower lugs engage the upper wall of the recess 8, said members thus securely fastening the rails to the chairs. The fastening members are held in operative position as above described by means of keys 25 which are inserted in the passages 7 between the clamping members and the opposite sides of the passages as shown. The lower ends of the keys 25 when thus arranged project into the apertures 12^a formed in the bottom plate 12 of the tie below the passages 7 in the chairs. The upper ends of the keys as well as the upper ends of the clamping members when arranged in the manner described are disposed between the lugs 9 on the seats 5 of the chairs and in the inner sides of the keys are formed notches 26 which are disposed in line with the apertures in the lugs 9 and with said apertures and the notches 26 are engaged bolts 27 by means of which the keys are fastened in position for holding the clamping members in operative engagement with the rails. Arranged on the seats 5 between the stop flanges 6 are cushioning strips 28 upon which the rails rest and which are adapted to absorb the shocks and jars occasioned by the passage of the trains over the rails.

In Figs. 6 to 11 of the drawing is shown a slightly modified construction and arrangement of the tie, the metallic parts of which in this instance, are incased in concrete which forms the main body of the tie. In this form of the invention the tie comprises chairs 30 which are constructed in exactly the same manner as the chairs 1 of the first form of the invention and a further description of the chairs is not thought to be necessary. In the modified form of the tie the chairs 30 are connected and spaced a suitable distance apart by side bars or plates 31 which correspond to but are of less width than the side plates of the first form of the tie and which are engaged with the edges of the upper side flanges of the chairs. Also bolted to the lower sides of the chairs is a bottom bar or plate 32 which is arranged along the center of the bottom of the chairs as shown. The upper portions of the chairs are connected by a centrally disposed top bar 33 and to the ends of the chairs are secured end top bars 34. The outer ends of the bottom, side and end top bars are bolted or otherwise secured to the flanges 35 of cap plates 36 constructed similar to the cap plates 19 shown in the first form of the invention except that the plates 36 in the present instance are preferably slightly longer than the plates 19 or project farther from the side flanges 35 and a slight distance beyond the side bars 31 as shown. The seats 30 are further connected by a short centrally disposed bar 37 the ends of which are engaged with vertical recesses 38 in the inner ends of the chairs and by short side bars 39 the ends of which are engaged with the opposite sides of the inner ends of the chairs, said bars 37 and 39 being secured to the inner ends of the chairs by transversely disposed bolts 40 as shown.

The parts of the modified form of the tie when thus constructed and arranged form a skeleton-like structure which is adapted to be incased or embedded in cement or concrete which is formed or molded around the skeleton structure to form the main body 41 of the tie. The concrete body 41 when thus formed around the skeleton structure of the tie covers all parts thereof except the upper surface of the projecting seats on the chairs and the rail fastening members thereon, the cap plates 36 and the outer surfaces of the upper and lower connecting bars of the chairs which are the only exposed metal parts of the completed tie. In the concrete form of the tie the rail fastening devices are constructed and arranged in exactly the same manner as the rail fastening devices shown and described in the first form of the invention and a further description of these devices is not thought to be necessary.

From the foregoing description taken in

connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

5 Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

10 Having thus described my invention, what I claim is:

1. In a railway tie, rail supporting chairs comprising blocks having on their sides laterally projecting flanges and on their upper 15 surfaces transversely disposed rail receiving seats, spacing lugs also arranged on the sides of said blocks, longitudinally disposed side, bottom and top connecting elements secured respectively to the sides, bottoms 20 and tops of the chairs whereby the latter are connected and spaced suitable distances apart, cap plates having on their inner sides rectangular flanges engaged with and secured to the ends of said longitudinal connecting elements and forming the ends of 25 the tie, stop flanges formed on said rail receiving seats and adapted to engage the opposite edges of the base flanges of the rails, and cushioning devices arranged on 30 said seats between said stop flanges.

2. In a railway tie, rail supporting chairs comprising blocks having on their sides laterally projecting flanges and on their upper 35 surfaces transversely disposed rail receiving seats, spacing lugs also arranged on the sides of said blocks, side plates secured to said side flanges and spacing lugs to form

the sides of the tie, a base plate secured to the lower side of the chairs to form the bottom of the tie, a central top plate secured at its ends to the upper sides of the 40 inner ends of the chairs, and top plates connected at their inner ends with the upper sides of the outer ends of the chairs, said central and end top plates having their ends 45 engaged with the seats on said chairs and forming therewith the top of the tie and flanged cap plates secured to the ends of the side, bottom and end top plates to form the 50 ends of the tie.

3. In a railway tie, rail supporting chairs comprising blocks having on their sides laterally projecting flanges and on their upper surfaces transversely disposed rail receiving seats, spacing lugs also arranged 55 on the sides of said blocks, longitudinally disposed side, bottom and top connecting elements secured respectively to the sides, bottoms and tops of the chairs whereby the latter are connected and spaced suitable 60 distances apart, cap plates having on their inner sides rectangular flanges engaged with and secured to the ends of said longitudinal connecting elements and forming the ends 65 of the tie, and a cement casing molded around said chairs and connecting elements to form the main body of the tie.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN N. SCHWALEN.

Witnesses:

HERBERT R. SCHMITT,
E. A. SCHMITT.