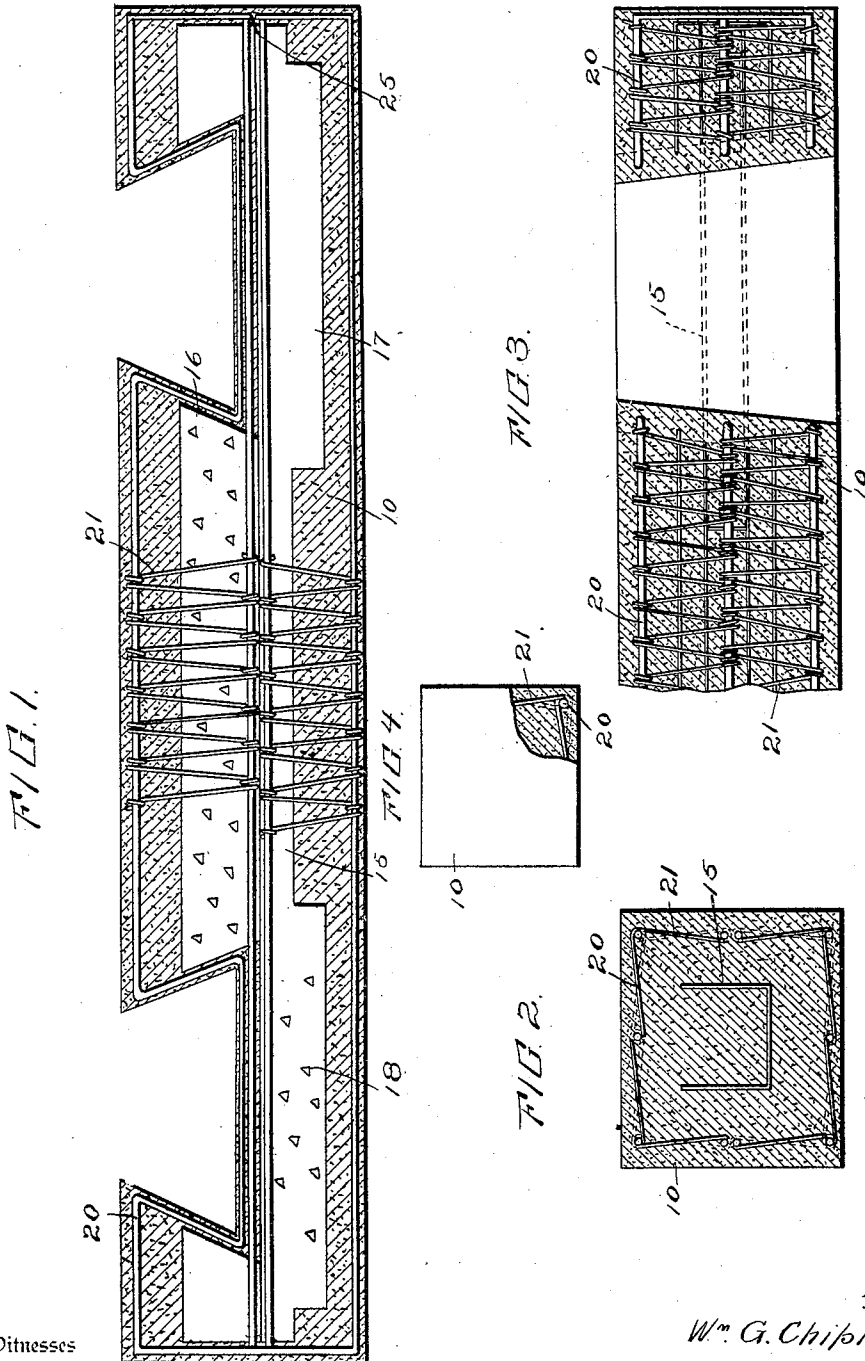


W. G. CHIPLEY.
 REINFORCED CONCRETE TIE.
 APPLICATION FILED AUG. 17, 1912.

1,065,430.

Patented June 24, 1913.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM G. CHIPLEY, OF ATLANTA, GEORGIA.

REINFORCED-CONCRETE TIE.

1,065,430.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed August 17, 1912. Serial No. 715,656.

To all whom it may concern:

Be it known that I, WILLIAM G. CHIPLEY, citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Reinforced-Concrete Ties; and I do hereby 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 reinforced concrete ties and the object is to provide a reinforcement for a tie in which strains upon said tie shall be taken up at the surface or near the surface and shall thus be prevented from communicating strains which might have a tendency to fracture the tie through the body portion thereof.

A further object is to provide means for reinforcing the surface of a concrete tie at or near the upper portions thereof and at the sides of transverse recesses formed for the purpose of receiving rail securing devices, such recesses being further reinforced near their bottom walls and on a line approximately midway between the upper and lower sides of the tie.

A further object is to provide a reinforcement of the character described which shall conform to the shape of such rail securing devices as may be employed, other longitudinal reinforcements if employed within the central portion of the tie also being formed to correspond with the transverse cross section of the recesses.

In the accompanying drawings forming a part of this application, Figure 1 is a view of a concrete tie partly in longitudinal section showing the outer reinforcement comprising a structure formed of wire, and an inner reinforcement constituting a channel member. Fig. 2 is a view in vertical transverse section. Fig. 3 is a horizontal section. Fig. 4 is a view of that form of the device in which the outer wire reinforcement is alone employed.

Referring to the drawings in detail, 10 indicates the body portion of a tie, which may be rectangular in cross section and which is provided with transverse recesses, the latter being formed if desired with undercut sides, in order that the recesses may be broader at the bottom than at the top. These recesses taper transversely of the tie forming a wedge-shaped opening and are designed to

receive blocks to which the rails may be attached or to receive blocks such as are shown in my copending application, Serial No. 715,655, filed August 17th, 1912, which are inserted within the recesses on opposite sides of the rail for the purpose of wedging the ends of the rail within the recesses.

Two forms of reinforcement are shown in the drawings, the inner reinforcement being of channel formation and being indicated by number 15. Said channel reinforcement may have any suitable configuration so far as the side walls are concerned, but it is desirable that cutaway portions be formed for the purpose of causing said reinforcement to conform with the side walls of the transverse recesses. Such cutaway portions are shown at 16 and downwardly depending members 17 provide for the stiffening of the channel member. This reinforcement may have walls which are perforated or provided with struckup portions 18 for the purpose of engaging the plastic concrete. In the present instance I wish to lay particular emphasis on the outer wire reinforcement. The latter may consist of a plurality of comparatively heavy longitudinal wires, which extend through the body portion of the tie very close to the surface, for the purpose of preventing strains from being communicated to the interior. The wire reinforcement is in the form of a cage, and is indicated by the number 20. A single strip of the trussed wire construction may be employed for this purpose. A strip about 16 inches wide is bent longitudinally so that a trough-like member is formed, with the sides of the trough approximately four inches in width. The middle portion, measuring eight inches, constitutes the reinforcement for the upper and lower sides of the tie, and the four inch strips the reinforcement for the sides. This structure extends the full length of the tie, being doubled over one end, and having the end portions brought to the opposite end of the tie, where they meet at the point 25. A portion of the wire structure may be cut in order to readily form the inner portion of the bend shown at the left in Fig. 1, the wires of the outer portion of the bent structure being continuous. The heavy longitudinal wires are trussed in the manner shown in the drawings by lighter wires 21.

That portion of the reinforcement next to the upper portion of the tie is crimped,

forming a depressed portion, adapted to lie within the walls of the transverse recess provided for the rail attaching devices. The crimped portion is provided
 5 with sides which are flared in the manner shown in the drawings, and with a substantially horizontal bottom portion. Attention is further called to the fact that strains upon the rails when secured to, or
 10 by, devices placed within the recesses, are transmitted to various portions of the tie and widely distributed without being communicated to the body portion of the tie, thereby preventing fracture. All other
 15 strains to which a tie is subjected are likewise resisted.

I claim:

1. In a device of the class described, a body portion of concrete provided with
 20 transverse recesses and a reinforcement therefor extending longitudinally of the tie and about the several walls of the recesses near the surface thereof the said reinforcement comprising a structure of channel formation folded upon itself to form a cage
 25 like structure rectangular in cross section the edges of the channel meeting each other.

2. In a device of the class described, a body portion of concrete provided with
 30 transverse tapering recesses and a reinforcement therefor, portions of which lie adjacent to the various sides of the tie and are disposed within the walls of said recesses near the surface thereof the said reinforcement comprising a structure of channel formation folded upon itself to form a cage
 35 like structure rectangular in cross section the edges of the channel meeting each other.

3. In a device of the class described a tie
 40 comprising a body portion of concrete provided with transverse recesses, the walls of which are flared and a reinforcement extending longitudinally of the tie and disposed within the upper surface thereof

and extending substantially continuously
 45 throughout said surface and the end portions, said reinforcement being deflected to conform to the walls of the recesses and the remainder thereof being U-shaped in cross
 50 section, the free edges of corresponding sides lying in the same plane and meeting each other along lines extending longitudinally of the tie below the lower walls of the recesses and rail attaching devices mounted
 55 within said recesses.

4. In a device of the class described, a body portion of concrete, channel member extending longitudinally thereof and disposed within the central portion, said channel member having cutaway portions and
 60 said tie being provided with transverse recesses, the walls of which are substantially coincident with the cutaway portions of the channel member, and an outer reinforcement of trussed wire formation, portions of said
 65 reinforcement lying adjacent to the various sides of the tie and the ends thereof and other portions being disposed within the walls of the recesses adjacent to the surface thereof.
 70

5. A reinforcing member for a concrete body comprising a cage-like structure formed with upper and lower channel sections oppositely located, the said structure being bent upon itself at an angle to its main axis
 75 and substantially midway between its ends, the free edges of corresponding sides of the channel lying in substantially the same plane, portions of one side of the upper section being deflected to form transverse pockets extending into the cage.
 80

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM G. CHIPLEY.

Witnesses:

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 J. D. GREENE.