

No. 758,900.

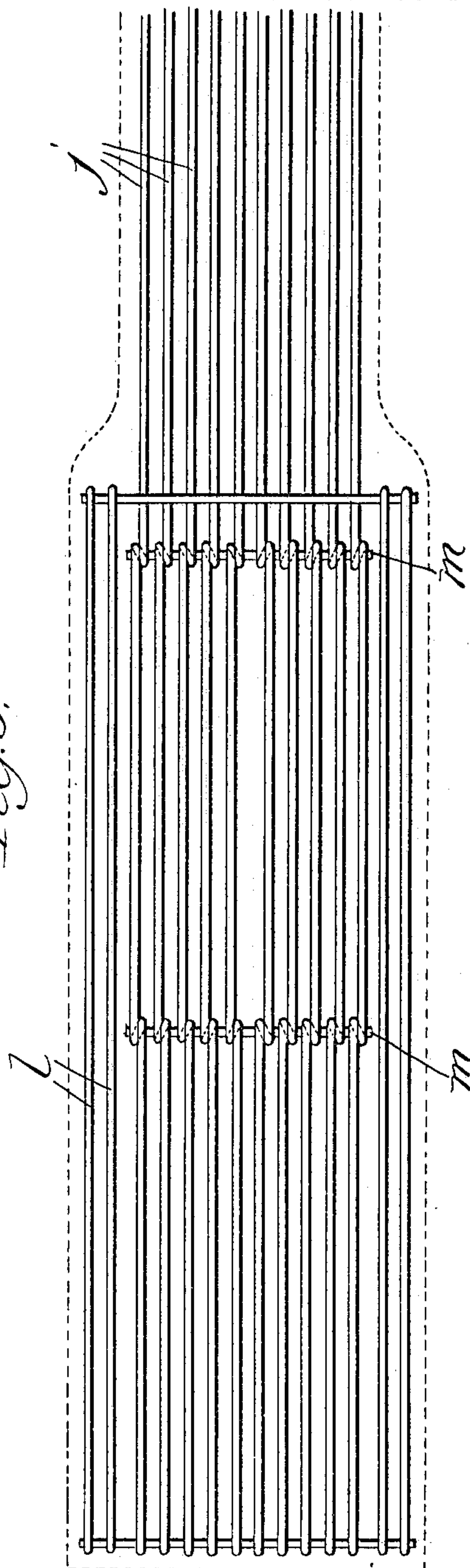
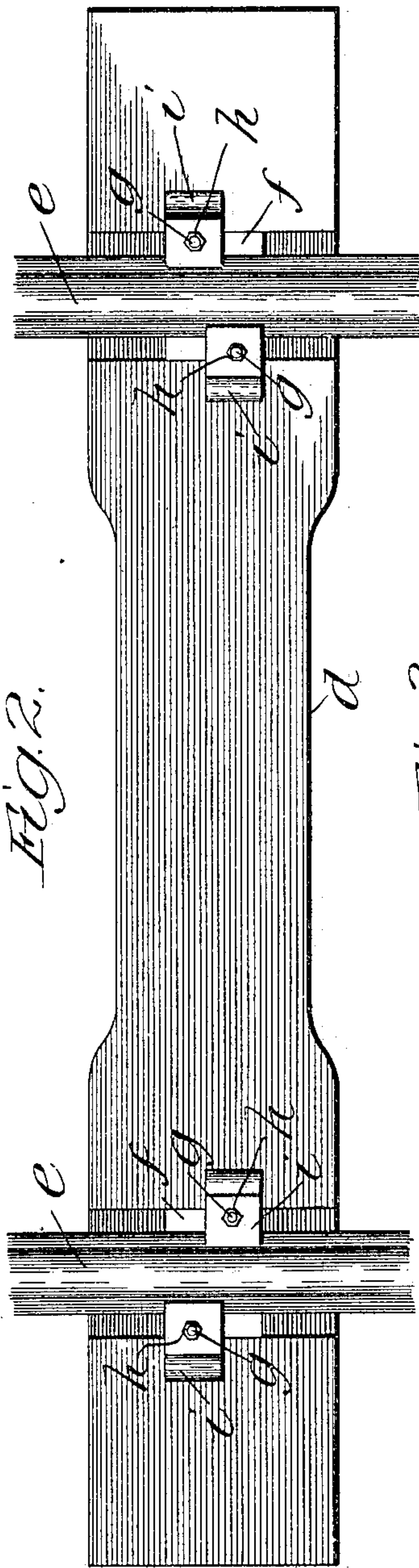
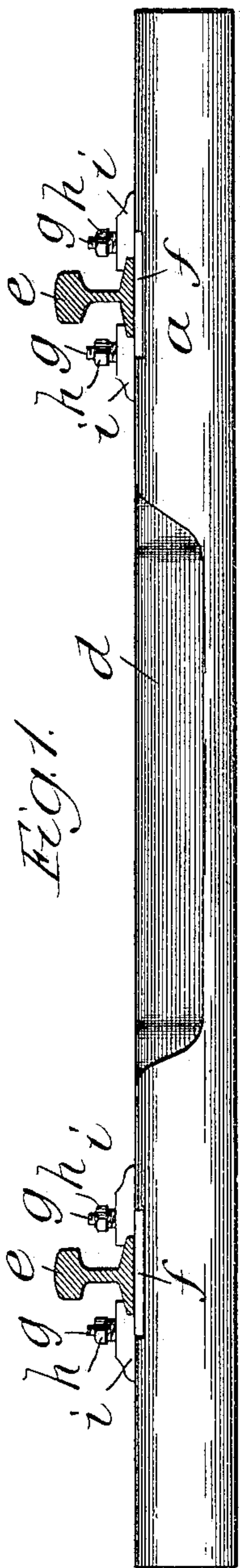
PATENTED MAY 3, 1904.

F. A. DELANO & C. H. CARTLIDGE.  
RAILWAY TIE.

APPLICATION FILED FEB. 8, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

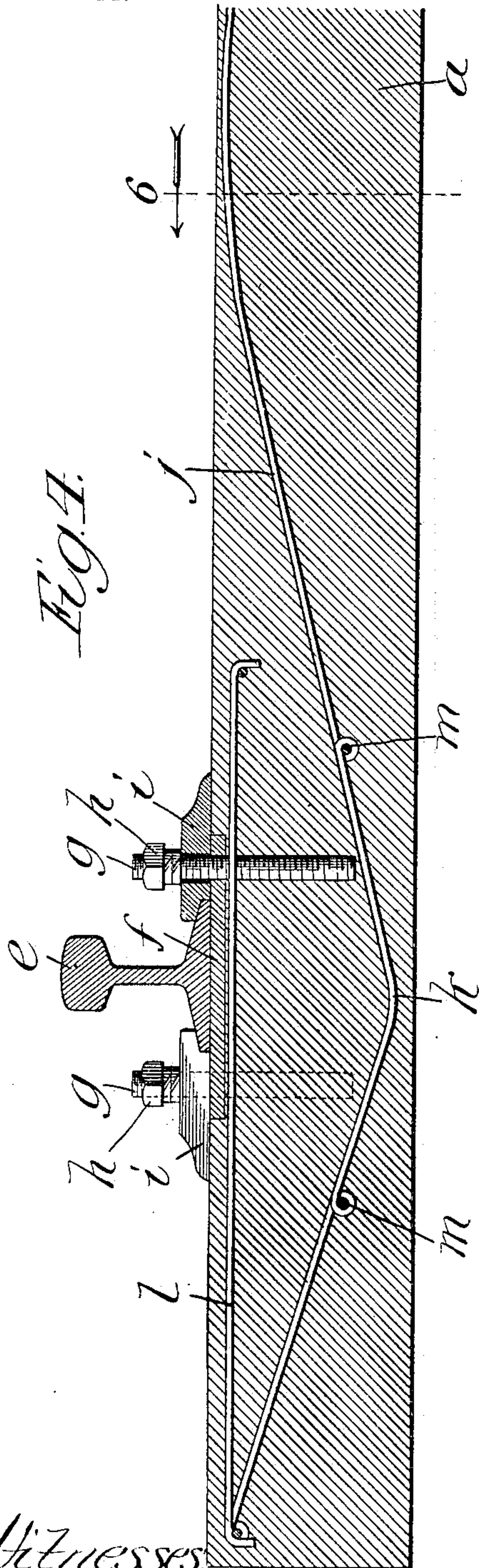


Fig. 6.

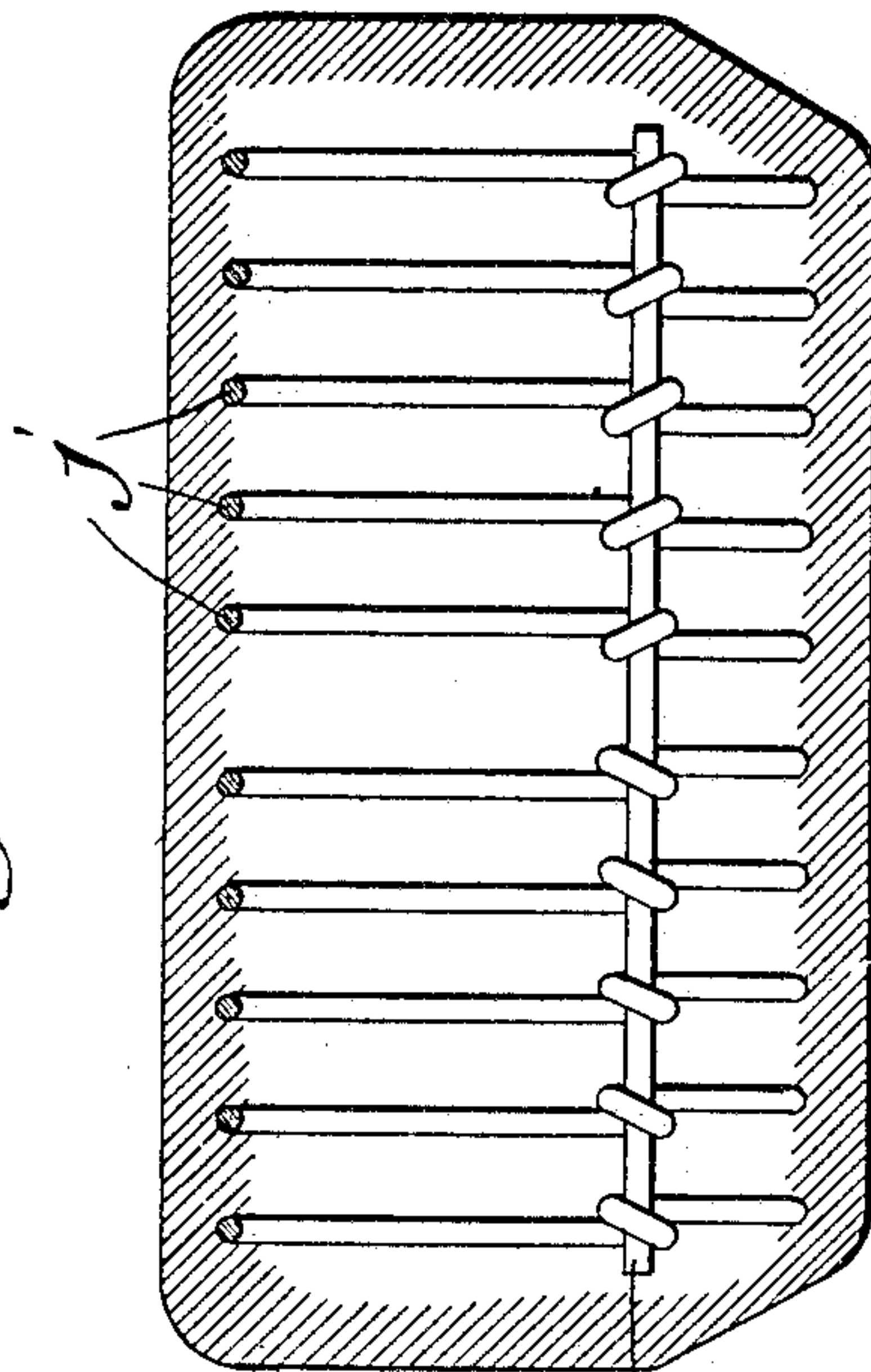
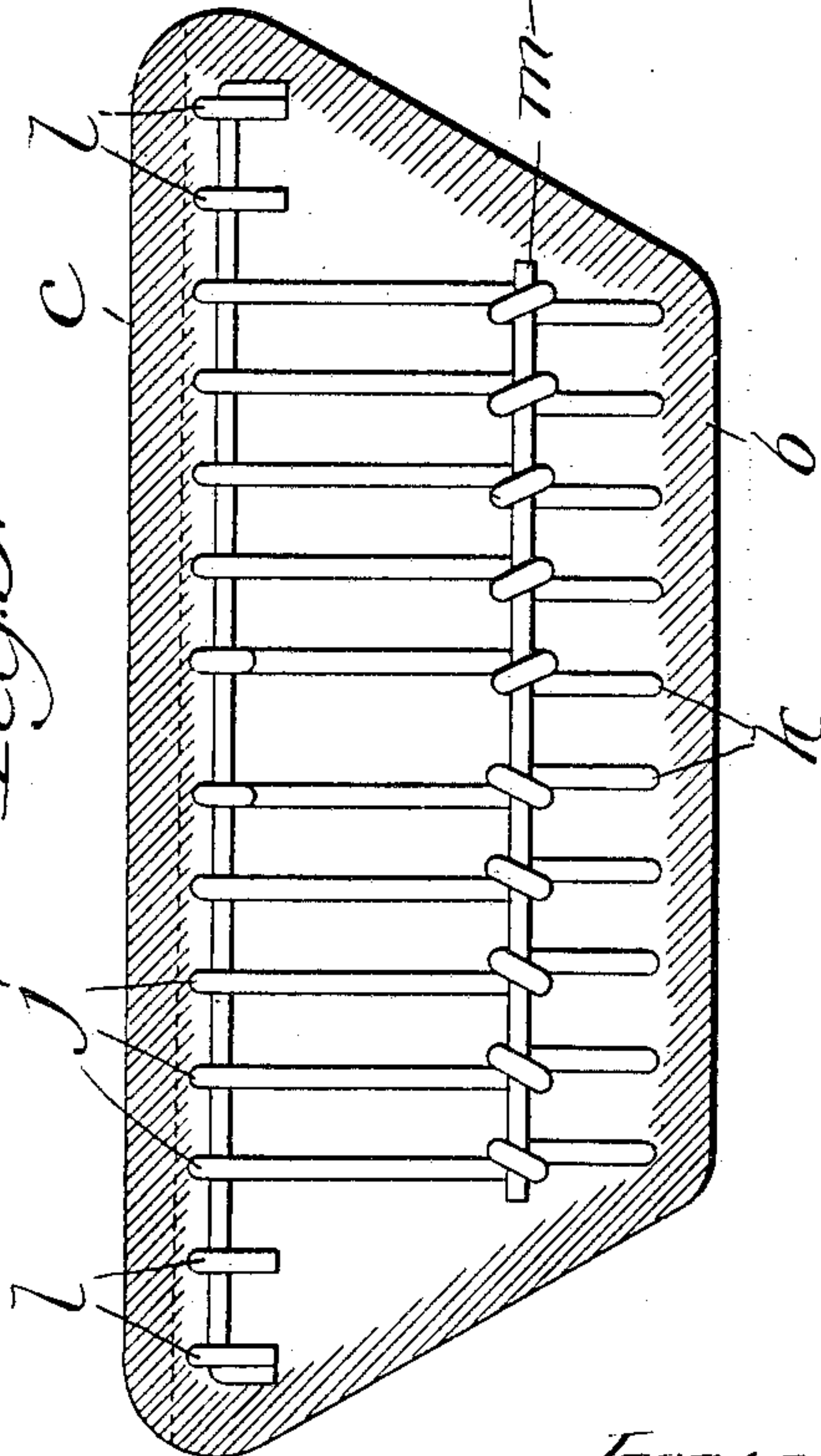


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 758,900, dated May 3, 1904.

Application filed February 8, 1904. Serial No. 192,639. (No model.)

*To all whom it may concern:*

Be it known that we, FREDERIC A. DELANO, residing at Chicago, and CHARLES H. CARTLIDGE, residing at Lagrange, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

The invention relates particularly to that class of railway-ties which are formed of cement or similar material reinforced with metal members, so as to take up the tension, all of which will more fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient railway-tie formed of cement and properly reinforced.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists principally in a railway-tie composed of a body portion formed of concrete or similar material reinforced by metal truss members longitudinally disposed and extending from points near the bottom of said body portion to the upper parts thereof, and having supplementary truss-rods extending from the end portions of the tie to points inside of the usual railway-rails.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation or one type of a railway-tie as it appears when constructed in accordance with these improvements; Fig. 2, a plan view of the same; Fig. 3, a diagrammatic plan view showing the metal rods as they are disposed at one end of the tie and with the contour of the tie in dotted outline; Fig. 4, a longitudinal sectional elevation of one end of a tie as it appears when constructed in accordance with these improvements; Fig. 5, an end view of a tie as it appears when constructed in accordance with these improvements, showing the truss members in full lines; and Fig. 6 an enlarged cross-sectional elevation taken on line 6 of Fig. 4 looking in the direction

of the arrow and showing the metal truss members in full lines.

In the art to which this invention relates it is well known that, owing to the scarcity of timber from which suitable railway ties or sleepers can be made railway ties or sleepers formed of wood are becoming very expensive and as a consequence that it is not only desirable but in some cases necessary to design satisfactory ties or sleepers that may be formed of other material than wood and at such a price as to warrant the commercial use thereof. To accomplish this result, we provide a tie of concrete or similar material so reinforced by ductile metal members as to take the tension thereof and minimize the danger of cracking or breaking, all of which will be more fully hereinafter set forth.

In constructing a railway-tie in accordance with these improvements we make a solid body portion *a* of concrete or similar material, having a narrow base portion *b* and relatively wider upper portions *c* at each end thereof, while the center portion *d*, when viewed in plan view and particularly the upper portion, is narrower at the top than at the end portions. To hold the railway-rails *e* in position, rail-seats *f* are provided formed of metal or any other desired material and embedded in the upper portion of the body portion, preferably during the process of forming the same. Securing-bolts *g* are provided threaded at their upper portions and provided with lock-nuts *h*, which assist in holding the clamps *i* against the base-flanges of the rails, and thereby the rails, securely in position. These securing-bolts are also screw-threaded at their bottom portions, into which the cement which forms the body of the tie enters to anchor them in position.

To minimize the danger of breaking of the concrete body portion during its shipment or use, metal truss members are provided formed of a plurality of metal rods or bars *j*, extending longitudinally through the solid mass of concrete and from points *k* at the bottom portion and immediately under the rail-seats to points at the upper portion of the body near



the center and ends thereof, thus forming, as above suggested, truss members which take up the tension of the tie. Supplementary truss members *l* are provided and extend from 5 points near the end of the tie to points inside of the rail-seats and substantially parallel with the upper surface of the tie. A plurality of cross-rods *m* is provided and passed through loops in the truss-rods to hold such parts together during the process of forming the tie 10 and to prevent displacement thereof when the tie is in use.

We claim—

1. As a new article of manufacture, a railway-tie composed of a body portion formed of concrete or similar material reinforced by metal truss members longitudinally disposed and extending from points near the bottom of said body portion to the upper parts thereof 15 and having supplementary truss-rods extending from the end portions of the tie to points inside of the usual railway-rails, substantially as described.

2. As a new article of manufacture, a railway-tie composed of a solid body portion formed of concrete or similar material having a narrow base and a relatively wider upper portion, metal truss members extending longitudinally therethrough from points near the 25 lower to the upper portion thereof, and supplementary truss members extending from points near the end thereof to points inside of where the railway-rails are usually laid, substantially as described.

3. As a new article of manufacture, a railway-tie composed of a body portion formed of concrete or similar material with a narrow base portion and a relatively wider upper portion, rail-seats embedded therein, and metal 35 truss members formed of a plurality of metal rods extending longitudinally through the

mass of concrete from the lower part of said body portion beneath the rail-seats to the upper portion at the ends and center thereof, substantially as described. 45

4. As a new article of manufacture, a railway-tie composed of a body portion formed of concrete or similar material with a narrow base portion and a relatively wider upper portion, rail-seats embedded therein, metal truss 50 members formed of a plurality of metal rods extending longitudinally through the mass of concrete from the lower part of said body portion beneath the rail-seats to the upper portion at the ends and center thereof, and 55 supplementary metal truss members extending from the ends through the mass of concrete to points inside the rail-seats, substantially as described.

5. As a new article of manufacture, a railway-tie composed of a body portion formed of concrete or similar material with a narrow base portion and a relatively wider upper portion, rail-seats embedded therein, metal truss 60 members formed of a plurality of metal rods extending longitudinally through the mass of concrete from the lower part of said body portion beneath the rail-seats to the upper portion at the ends and center thereof, supplementary metal truss members extending 65 from the ends through the mass of concrete to points inside the rail-seats, and a plurality of connecting-rods extending transversely through the mass of concrete and joining the members of the longitudinal truss-rods together at several points, substantially as described. 70 75

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