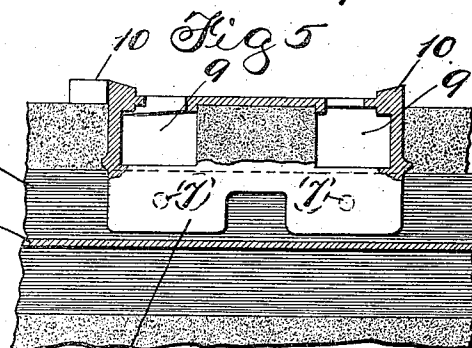
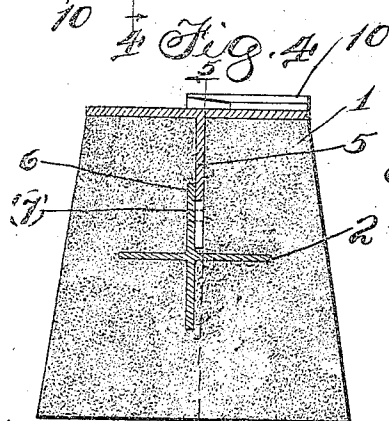
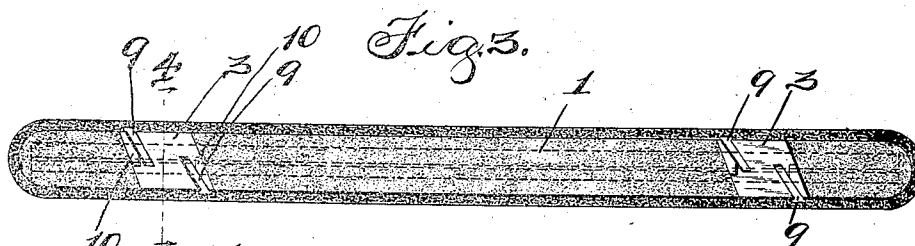
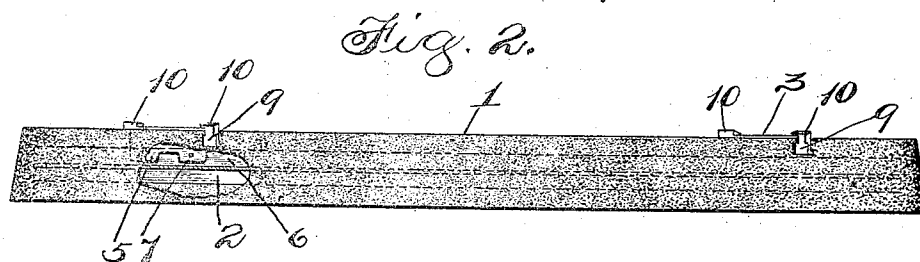
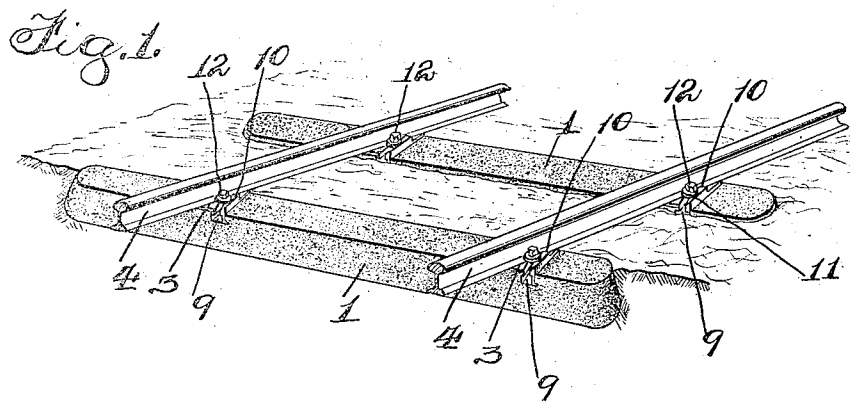


No. 816,644.

PATENTED APR. 3, 1906.

H. H. CLOUGH.
RAILWAY TIE.

APPLICATION FILED MAR. 14, 1904.



Witnesses:
J. B. Weir
K. A. Costello

Inventor:
Henry H. Clough

by *Henry H. Clough*

UNITED STATES PATENT OFFICE.

HENRY H. CLOUGH, OF ELYRIA, OHIO.

RAILWAY-TIE.

No. 816,644.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed March 14, 1904. Serial No. 197,964.

To all whom it may concern:

Be it known that I, HENRY H. CLOUGH, a citizen of the United States, and a resident of Elyria, Lorain county, Ohio, have invented certain new and useful Improvements in Railway-Ties, of which the following is a complete specification.

This invention relates to concrete ties for railway-tracks, and relates particularly to improved means for securing the tie-plates thereto.

A primary object of my invention is to provide a concrete tie for railway-track construction which will be of great strength and durability, combined with tie-plates rigidly and permanently secured thereto, whereby said tie and tie-plates will form, in effect, a unitary structure.

A tie of my invention consists of the various features, combinations of features, and details of construction hereinafter described and claimed.

In the accompanying drawings a tie and tie-plate combined in accordance with my invention are fully illustrated.

Figure 1 is a perspective view of a portion of a railway-track laid with ties and tie-plates embodying my invention. Fig. 2 is a side view of a tie and tie-plates combined in accordance with my invention, said tie being broken away to show the means for securing the tie-plate thereto. Fig. 3 is a top plan view thereof. Fig. 4 is an enlarged sectional view thereof on the line 4 4 of Fig. 3, and Fig. 5 is an enlarged sectional view on the line 5 5 of Fig. 4.

Referring now to the drawings, 1 designates a concrete tie, said tie being preferably strengthened or reinforced by means of a metal bar 2, embedded therein and extending substantially the entire length thereof. As shown, the bar 2 is cross-shaped in section, comprising four webs extending upwardly, downwardly, and to both sides of the center thereof. It is obvious that this form of bar will greatly strengthen the tie without materially increasing the weight or cost thereof. Any other desired or approved form of bar may, however, be used, and I do not desire to limit myself in this respect.

The dimensions of the ties may be varied as desired or to meet requirements, and said tie may be of any desired exterior shape. As shown, the base of the tie is larger than the top thereof, its sides sloping gradually upwardly and inwardly. When embedded in the

ground, it is obvious that a tie of the described shape or conformation will be very firmly secured in position.

Rigidly and permanently secured to the upper surfaces of the ties 1 are the tie-plates 3, to which the rails 4 are in turn secured, all as clearly shown in Fig. 1 of the drawings. As shown, the tie-plates 3 are firmly secured to the ties 1 by means of projections on the under sides thereof, which are anchored or embedded in the bodies of said ties. Preferably, also, the projections on the under sides of said plates 3 in addition to being embedded in the bodies of the ties 1 are firmly attached or connected to the metal bars 2 embedded in said ties. In the preferable construction shown the plates 3 are provided on their under sides with webs or flanges 5, which extend downwardly beyond the upper edges of the upwardly-extending flanges 6 of the bars 2 and are rigidly secured thereto by any suitable means, as by lugs 7 thereon, which engage suitable holes formed in said flanges 6 of the bars 2.

In forming the ties the bars 2 and plates 3 are placed in the tie-molds in proper relative positions, with the lugs 7 on the webs or flanges 5 in engagement with the holes or openings in the flanges 6 of said bars 2. The concrete is then placed in the mold and compacted until said mold is filled, when the concrete closely surrounds the bars 2 and the webs or flanges 6 on the plates 3 and permanently locks the lugs 7 in the holes of the bars 2. This arrangement does away with the use of bolts, while securing an equally rigid interlocking of the tie-plates, longitudinal bar, and tie, and as the lugs 7 may be cast integral with the tie-plates it renders the construction of the cheapest as well as most permanent character. The concrete is then allowed to set, after which the ties are removed from the molds and allowed to harden. By forming the ties with their upper smaller surfaces downward it is obvious that the shape of said ties will greatly facilitate removing said ties from the molds.

Any desired or approved means may be employed for securing the rails 4 to the tie-plates 3. In the preferable construction shown said rails 4 are secured in position in the following manner: Formed in the tie-plates 3 are T-slots 9, which extend inwardly from the sides of said plates, said T-slots preferably extending inwardly from opposite sides of said plates to points slightly beyond

the centers thereof, so that their inner ends will overlap. Formed on the upper surface of the tie-plates 3, at the sides of the T-slots 9 remote from the rail-seats on said tie-plates, are raised portions 10, which are of substantially the same height as the thickness of the bases or flanges of the rails. The bases of the rails are clamped in position upon the tie-plates 3 by means of clamping-bars 11, the inner ends of which bear upon the bases of the rails and the outer ends upon the raised portions 10. Bolts 12, the heads of which are secured in said slots and which extend upwardly through suitable holes in said clamping-bars, operate to draw said clamping-bars into desired engagement with the bars of the rails.

The tie-plate and rail-securing means shown and described are not claimed herein, but are made the subject of a separate appli-

cation filed in the Patent Office concurrently herewith and numbered serially 197,965.

I claim as my invention—

A railway-tie, comprising a concrete body portion, a longitudinally-extending bar embedded therein, tie-plates provided with ribs embedded in the concrete and depending into lateral contact with said bar, and integral lugs on said ribs projecting into holes in said bar and locked therein by the surrounding mass of concrete, substantially as described

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two subscribing witnesses, this 10th day of February, A. D. 1904.

H. H. CLOUGH.

Witnesses:

HENRY W. CARTER
K. A. COSTELLO.