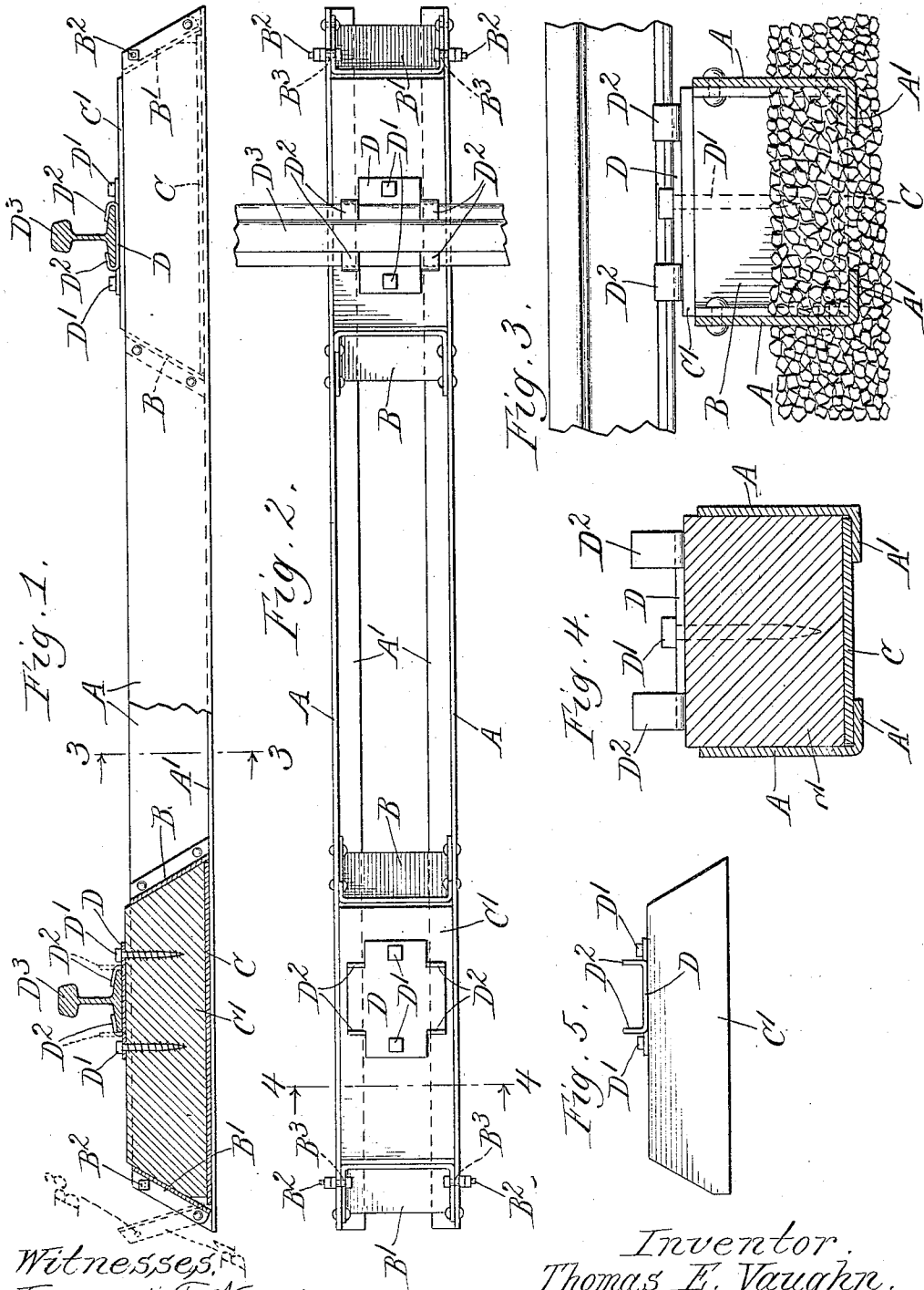


T. E. VAUGHN.
INSULATED CUSHION STEEL TIE.
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Witnesses:
Edward G. Wray.
Sophie Wray.

Inventor.
Thomas E. Vaughn.
by *Edw. G. Wray*
Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS E. VAUGHN, OF CHICAGO, ILLINOIS.

INSULATED CUSHION STEEL TIE

1,017,826.

Specification of Letters Patent.

Patented Feb. 20, 1912.

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To all whom it may concern:

Be it known that I, THOMAS E. VAUGHN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Insulated Cushion Steel Ties, of which the following is a specification.

This invention relates to metallic or steel ties.

The objects of this invention are to produce a tie which will be constructed so as to resist the stresses to which it is subjected when on the track, which will possess all the desirable characteristics of a wooden tie as to cushioning and insulation features, and which is constructed so as to be retained in position by the ballast.

Further objects will appear from the detail description taken in connection with the accompanying drawings in which:

Figure 1 shows a longitudinal part section, Fig. 2 a plan view, Fig. 3 a section along the line 3—3 of Fig. 1, Fig. 4 a section along the line 4—4 of Fig. 2, and Fig. 5 a detail of the bearing cushion in side elevation.

The tie consists essentially of side members connected and braced by cross members or brace plates so as to form a braced skeleton structure. The ends of the tie are constructed to receive cushion blocks preferably of wood for the purpose of supporting the rails on the tie. The brace plates in addition to performing their function as bracing means of the skeleton structure also perform the function of retaining and securing the cushion blocks in position on the tie. One of these brace plates is movable so as to permit removal and replacement of the cushion blocks.

Referring to the accompanying drawings, A designates the webs or plate of the side members, and A' the flanges which extend inwardly from the lower edges of the webs to form together a substantially open channel structure. A series of plates B, B' of channel form are flanged at their ends for attachment to the webs of the side members. A pair of these plates are placed in spaced relation near each end of the tie. The inside plates are permanently secured to the side members by rivets passing through the flanges of the plates and through the webs of the side members. The outside plates however are movably secured

to the side members, and in the specific construction shown these plates are pivotally secured at their lower ends to the side members by rivets passing through the lower ends of the flanges on the plates and through the webs of the side members. The upper ends of the plates are arranged to be secured in position by bolts B² passing through holes B³ in the flanges and webs of the plates and side members respectively. The plates B and B' are inclined, one plate of each pair being inclined toward the other to form together a substantially dove-tailed recess adapted to receive a similarly shaped cushion block C' which rests upon a plate, C on the flanges A' of the side members. This cushion block is arranged to be inserted or removed by removing the bolts B² and swinging the plate B' to dotted position Fig. 1. After the plate B' is again bolted in place, the plates B and B' will retain the cushion block in position against both longitudinal and transverse movements. The cushion block as positioned in the tie projects slightly above the flanges so as to support the rail thereon out of contact with the metal rail body. The rail is preferably supported and secured in position by means of the rail support plate forming the subject matter of my Reissue Patent No. 13,306, reissued Oct. 31, 1911. This rail support plate D is secured on the cushion block by means of the lag screws D', and the plate is provided with upwardly extending lips D² adapted to be turned over the flanges of a rail D³ inserted therebetween as shown in the drawings, and as fully described in the patent referred to.

It will thus be seen that the invention accomplishes its objects. A tie is produced which will have maximum strength with minimum weight of material. The tie is a braced skeleton structure in which the cross or brace plates perform not only the function of bracing and strengthening means, but also the function of retaining the cushion blocks in position. These retaining means therefore do not detract from, but rather add to the strength of the completed tie. The entire tie as built up is constructed to withstand the bending and twisting stresses to which it is subjected when in use on the rail bed. The ballast can work up into the hollow tie and above the flanges A' as shown in Fig. 3 so as to efficiently hold the tie in position on the road bed. The

cushion blocks transmit the weight to the tie and form insulating blocks to insulate the rails from the road bed and thus leave the rails unimpaired for signaling purposes.

5 It is obvious that various changes may be made in the details of construction without departing from this invention, and it is therefore to be understood that this inven-
10 tion is not to be limited to the specific construction shown and described.

Having thus described the invention what is claimed is:

1. A metallic tie of channel form having vertical webs, brace plates secured to and
15 connecting said webs to form a braced skeleton structure, said brace plates being located in pairs, one pair at each end of said tie, to form cushion receiving recesses, and cushion blocks located in said recesses, the brace
20 plates of a pair being inclined one toward the other, and one brace plate of each pair being movable, to removably retain said cushion blocks against longitudinal and transverse movements with respect to the
25 tie.

2. A metallic tie comprising side members each consisting of a vertical web and a flange extending laterally and inwardly from said web, brace plates secured to said webs
30 and connecting said side members to form a braced skeleton structure, said brace plates being located in pairs, one pair at each end of said tie to form cushion receiving recesses, and cushion blocks located in said recesses

and resting on said flanges, the brace plates of a pair being inclined one toward the other and engaging the ends of a cushion block to retain the cushion blocks against longitudinal and transverse movement with respect to the tie.

3. A metal tie comprising side plates hav-
40 ing inwardly extending flanges along their bottom edges at right angles to said plates, rail carrying cushions mounted upon said flanges at either end and having angular
45 ends, spacing channels in opposition to said ends and connecting said plates, some of said channels pivotally mounted with means for holding them in position.

4. A metal tie comprising side plates, in-
50 wardly extending flanges along their bottom edges, rail carrying cushions mounted upon said flanges at either end and having angular ends, spacing channels in opposi-
55 tion to said angular ends and rigidly carried by the side plates, together with spacing channels at the ends of the tie in opposition to said cushion and rotatively mounted upon the side plates.

5. A tie comprising a metallic body hav-
60 ing spacing members and insulating cushions held in position by said spacing members, one of said spacing members pivotally mounted.

THOMAS E. VAUGHN

Witnesses:

FRANCIS W. PARKER, Jr.,
SOPHIE B. WERNER.