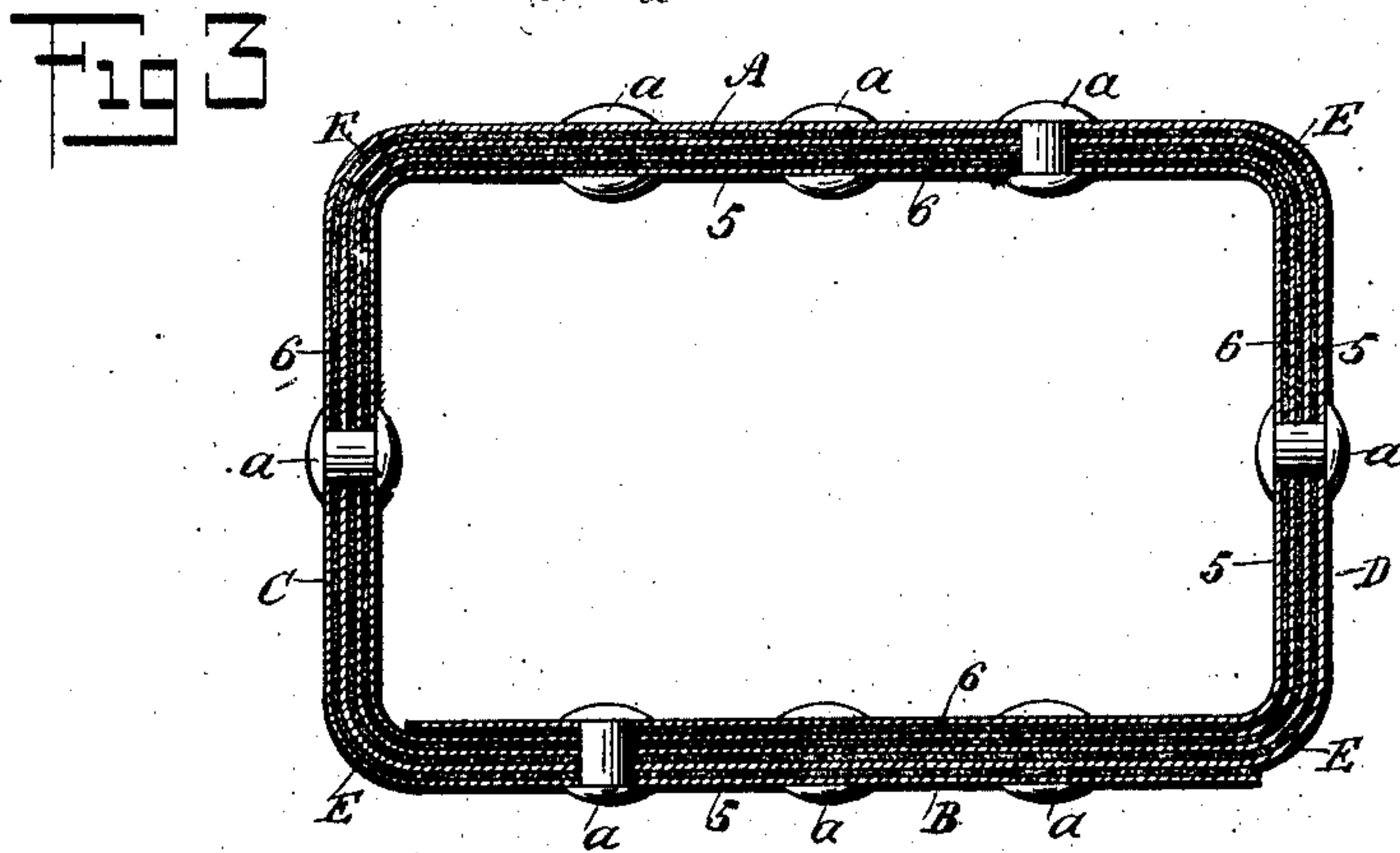
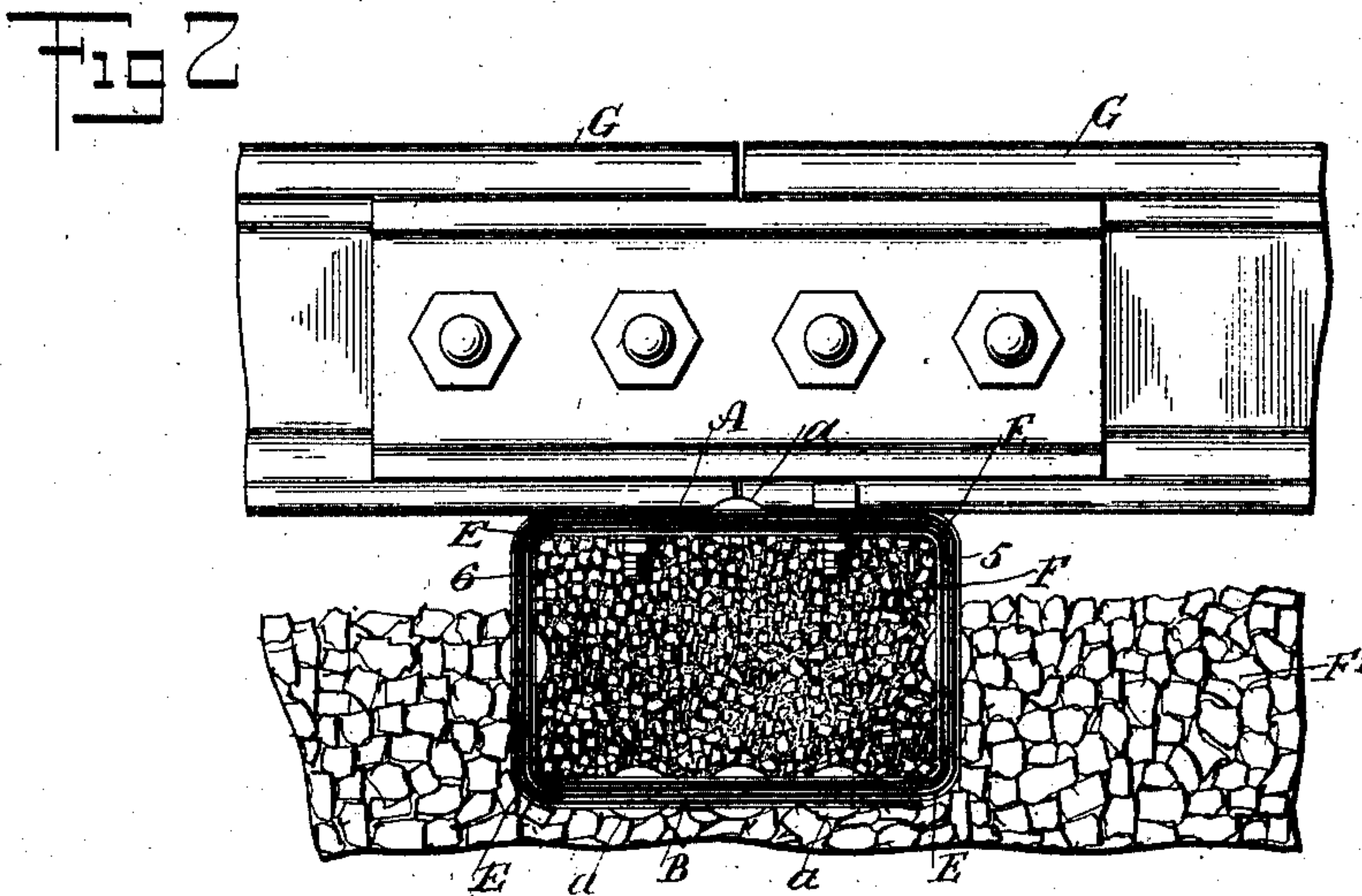
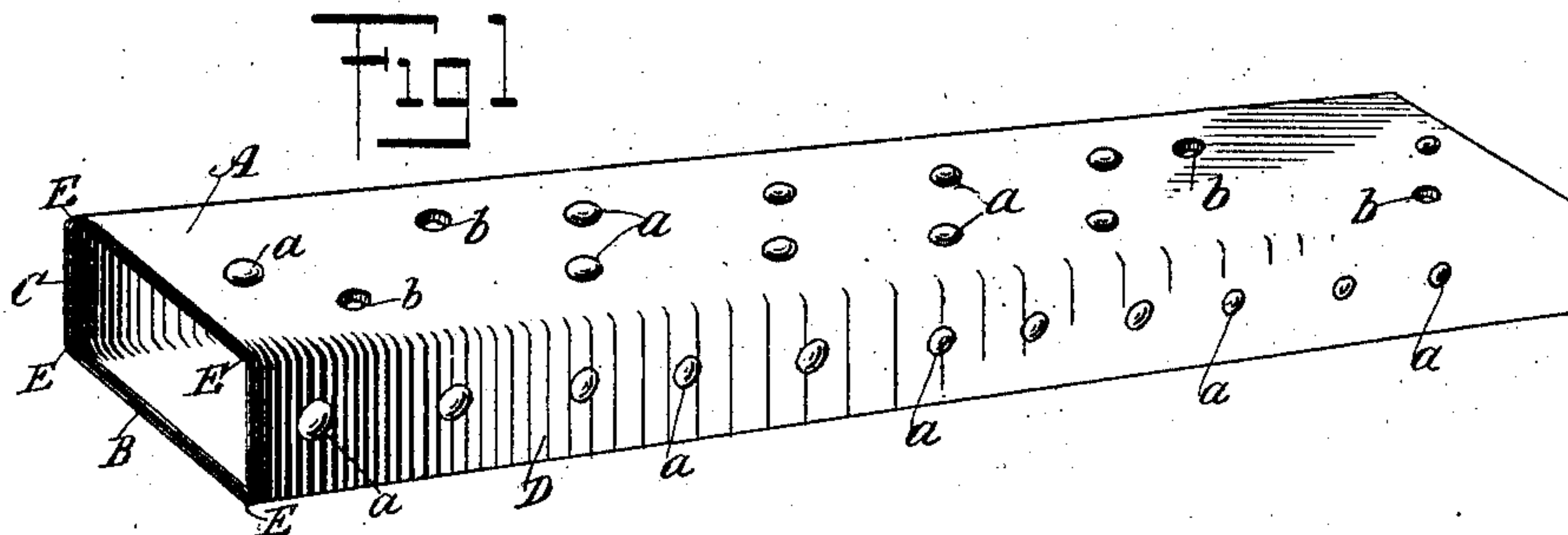


J. GEARON, SR.
RAILROAD CROSS TIE.
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963,542.

Patented July 5, 1910.



WITNESSES

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JOHN GEARON, SR., OF CHICAGO, ILLINOIS.

RAILROAD CROSS-TIE.

963,542.

Specification of Letters Patent.

Patented July 5, 1910.

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To all whom it may concern:

Be it known that I, JOHN GEARON, Sr., a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Railroad Cross-Tie, of which the following is a full, clear, and exact description.

This invention has for its object to produce a railroad cross tie of laminated material, in tubulated form, and more particularly to construct a cross tie that is hollow and formed of a sheet of plate metal and a sheet of fibrous or other suitable pliable material, lapped or wrapped together in alternate plies and consolidated by applied pressure, that gives proper form to the composite tie.

The invention consists in the novel construction and combination of rigid and pliable material in sheets, as is hereinafter described and defined in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the improved cross tie; Fig. 2 is an end view of the improved cross tie embedded in a ballasted railroad bed, and a side view of two track rails secured together at the meeting ends and mounted upon the tie, and Fig. 3 is an enlarged transverse sectional view of the improved cross tie.

Wooden cross ties are serviceable while in good condition, but are liable to rot and require replacement. Cross ties as usually formed of cast metal or of cement are non-elastic, and the traverse of track rails seated on such ties, by rolling stock, causes percussion, that is injurious to the railroad and to the cars and engines that traverse the track.

A dominant feature of this improvement comprises the novel embodiment of alternately-disposed sheets of metal preferably formed of steel and pliable fabric, such as felt cloth or heavy tarred paper, as shown, and that will now be more fully described.

In the drawings, 5 indicates a sheet of steel of suitable width and thickness, and 6 a sheet of fabric, that may be felt cloth or heavy paper that has been coated with tar or an equivalent preservative material. A plurality of sheets of the metal and of the pliable fabric are provided, the number of

these two sets of sheets being the same and their width equal.

In the manufacture of the hollow cross ties of my invention, from sheets of steel plate and layers of paper or other pliable fabric, these two materials are disposed one on the other alternately until a proper thickness is obtained, the paper and steel plate breaking joints with each other. It is to be understood that a former or mandrel of cylindrical form is employed to support the laminated materials, so that the tie body, in its first stage of construction, is rendered tubular, having a width that represents the length of the tie when it is completed. The hollow tie body is now flattened on two opposite sides, by passing it between a pair of power-driven rollers (not shown), which simply changes the form of the tie so that it has parallel sides and a proper thickness, but remains hollow throughout its length. The tie body may have two other parallel sides formed thereon, by passing the hollow laminated body thereof between a pair of power-driven rollers, which are separated a proper distance, these latter mentioned sides being parallel with each other, and disposed at right angles with the sides that represent the upper and lower surfaces of the tie body.

A suitable number of rivets *a* are inserted in spaced perforations formed in the walls of the tie body, these serving to hold the sheets of steel and pliable material closely contacting with each other. In giving form to the tie body, rounded corners *E* are produced, which is of advantage, as the material is not fractured and full strength is had by the tie at all points in its hollow body. In the normally top wall *A* of the tie body, perforations *b* may be formed, as shown in Fig. 1, these perforations being so relatively positioned that they may accommodate bolts for an attachment of rail clamps or chairs, such as are usually employed for securing track rails *G* in place on cross ties of ordinary construction.

To arrange cross ties of the improved construction in position for service, it is preferred that ballast, such as broken stone *F*, be closely packed within each tie, and the ties in spaced order be embedded in ballast *F'* that is placed on the road bed, as indicated in Fig. 2. It will be noted that the ballast filling *F* within the cross ties will afford support thereto, so that the upper

walls of the ties will be adapted to sustain the imposed weight of heavy trains that may traverse the track rails G. The ballast also anchors the cross ties in an obvious manner.

5 The combination of elastic steel plates and pliable sheets of felted or equivalent pliable material, as hereinbefore explained, confers sufficient elasticity to the tie bodies to adapt them for absorbing shocks which they sus-
10 tain, due to the traverse of heavy rolling stock over the track rails and ties, which increases the durability of the railroad and of the cars that pass over it.

In further explanation of the advantages
15 obtained by the construction of the cross tie as hereinbefore described, it will be evident that the formation of the hollow tie body, from alternately-disposed sheets of steel plate and layers of paper, felt cloth or other,
20 pliable fibrous material, giving the tie body parallel top and bottom sides, adapts each sheet of steel plate to have a proper degree of elasticity, so that while the upper half-section of the tie body is supported by the
25 filling of ballast, it is adapted for coöperation with the lower half-section thereof, similarly to the action of an elliptical plate spring, both sections sustaining an equal portion of load strain imposed upon the tie.

30 It will be apparent that the dimensions and weight of the improved cross tie may be increased to compensate for the weight sustained by it. The load strain sustained by the improved cross tie is in direction of
35 the grain of the sheet metal, so that the maximum strength of said material sustains the load imposed on the tie.

The advantageous disposal of the material composing the improved cross tie permits a
10 reduction in weight, so that the ties are capable of production at a moderate cost, and

if protected from oxidation by a proper coating, have been found to be very durable.

It will be apparent that the improvement may be used on bridges, viaducts and ele- 45 vated railroads, and it is to be understood that I claim the application of the improvement for such metal structural work, as it may be found of advantage to employ it.

Having thus described my invention, I 50 claim as new and desire to secure by Letters Patent:

1. A cross tie having a hollow body formed of a continuous sheet of steel and a continuous sheet of pliable fibrous material 55 disposed in alternate layers, said sheets being wrapped together so as to produce the tie body.

2. A cross tie having a hollow body formed of alternately-disposed layers of 60 steel and felt cloth, all secured together, said body having parallel top and bottom walls.

3. A cross tie having a hollow body formed of alternate layers of steel and pliable fibrous material, all secured together, 65 said body having parallel sides, and parallel top and bottom walls.

4. The combination with a hollow cross tie formed of a sheet of steel and a sheet of pliable material rolled together to form a 70 tie, said tie having parallel top and bottom walls, parallel side walls and rounded corners, of a filling of broken stone disposed within the tie body for the support of its walls.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 75

JOHN GEARON, Sr.

Witnesses:

EDWARD GEARON,
A. H. DAUM.