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PATENTED DEC. 17, 1907.

F. F. STOCKWELL, JR. & H. R. LUTHER.

RAILWAY TRACK STRUCTURE.

APPLICATION FILED NOV. 11, 1903.

3 SHEETS—SHEET 1.

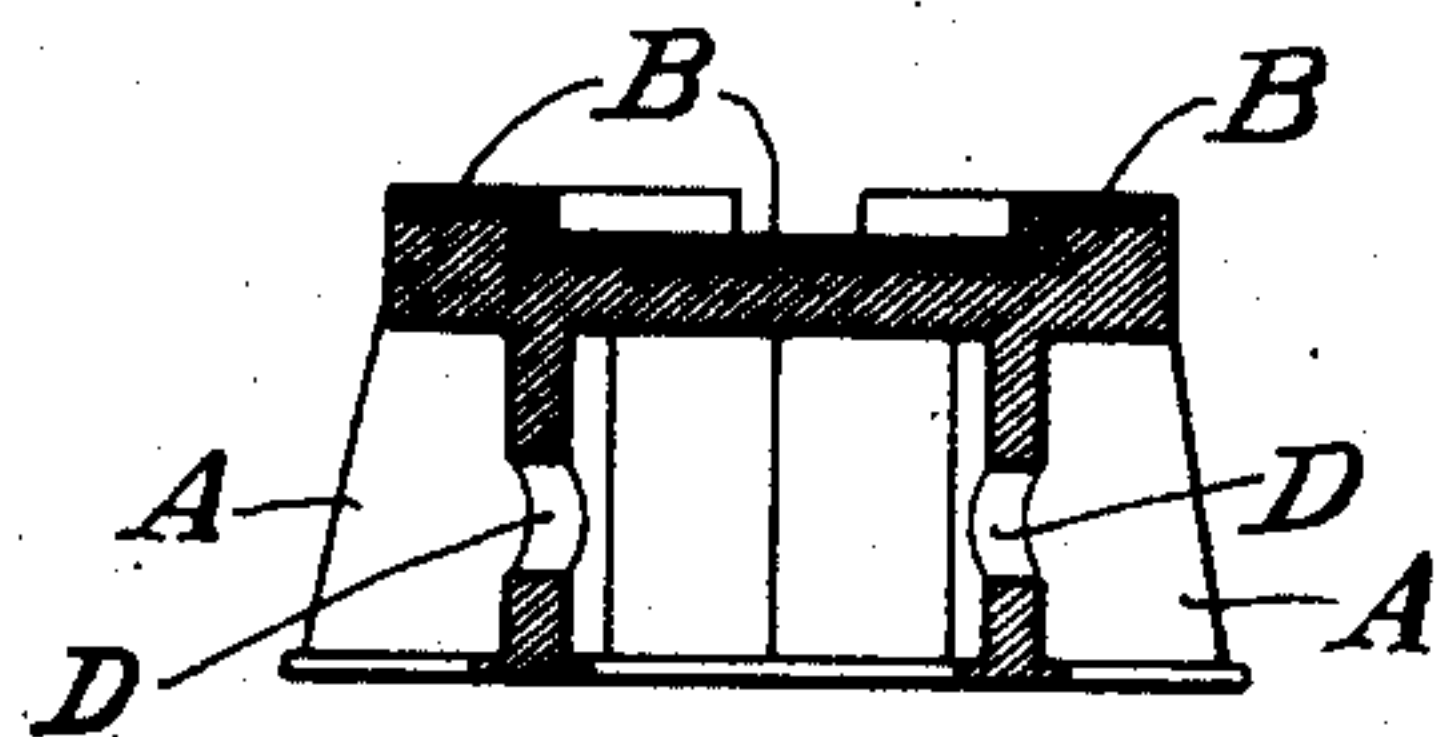
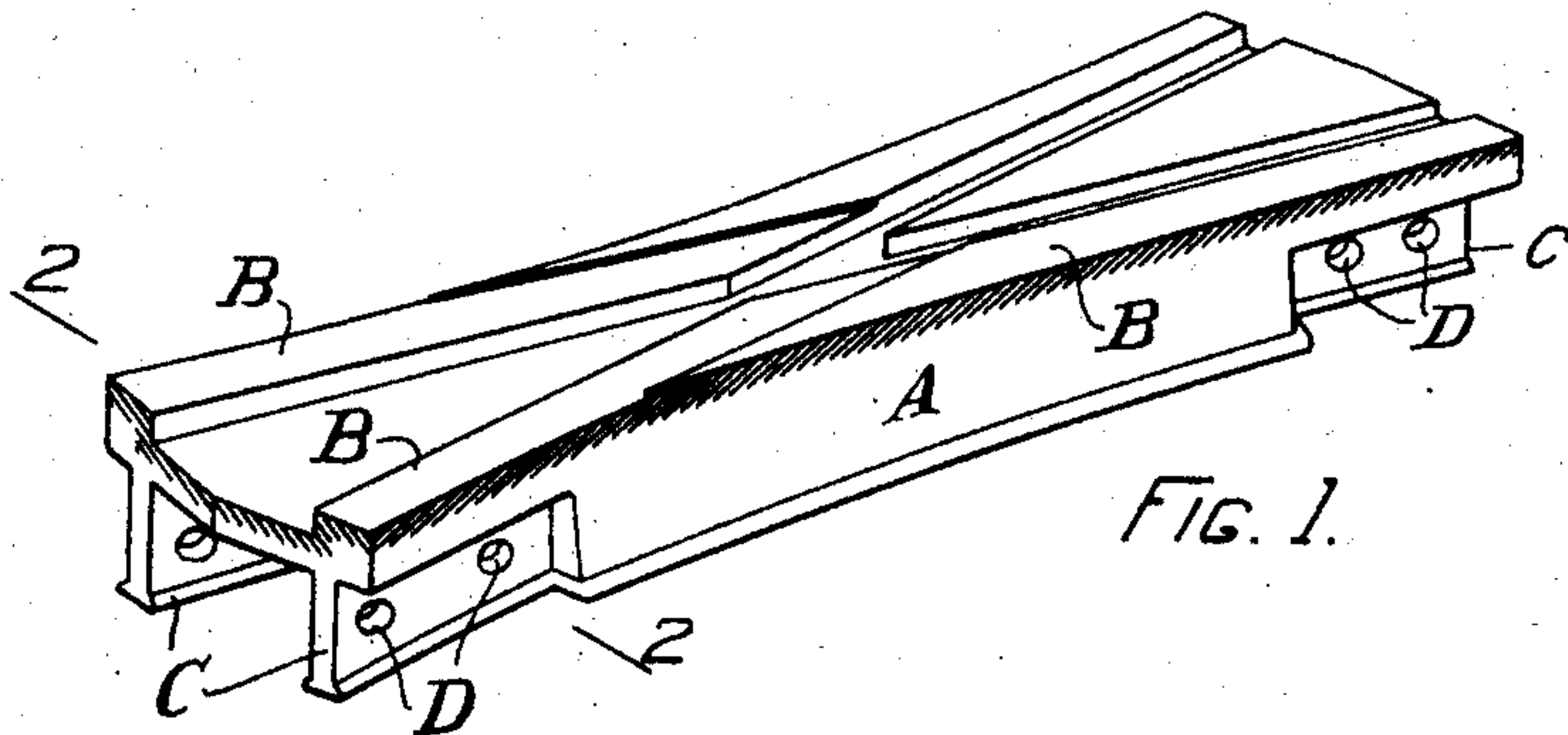


FIG. 2.

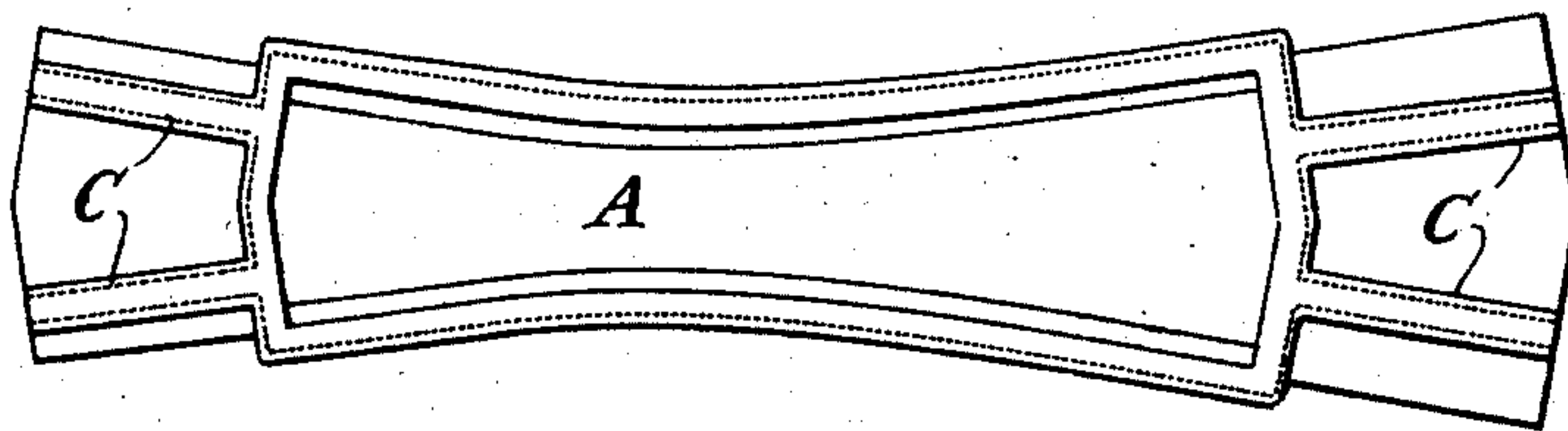


FIG. 3.

WITNESSES

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2 SHEETS—SHEET 2.

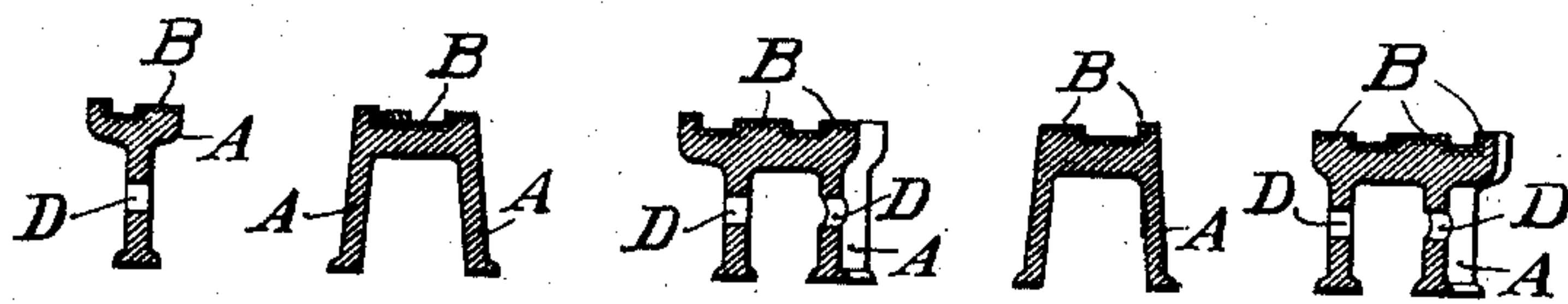
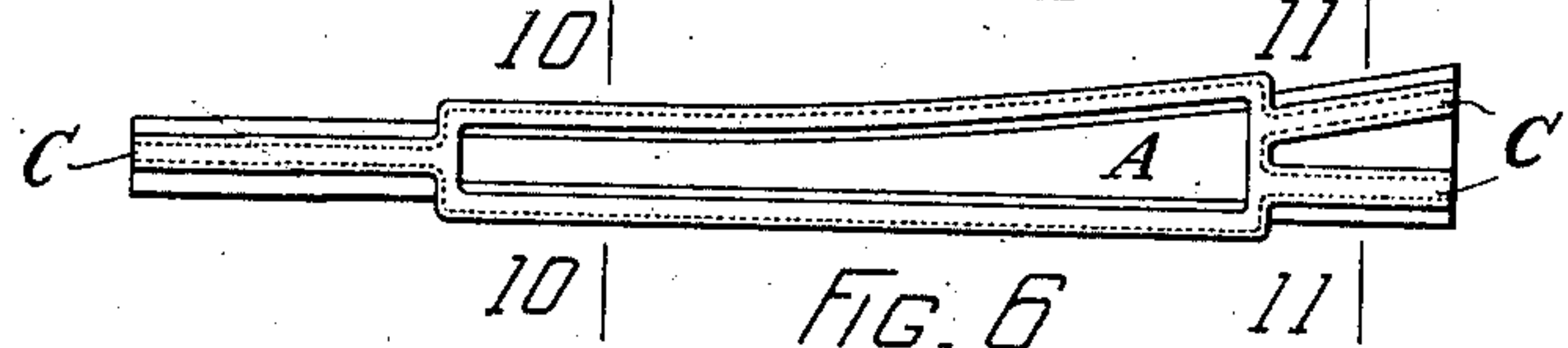
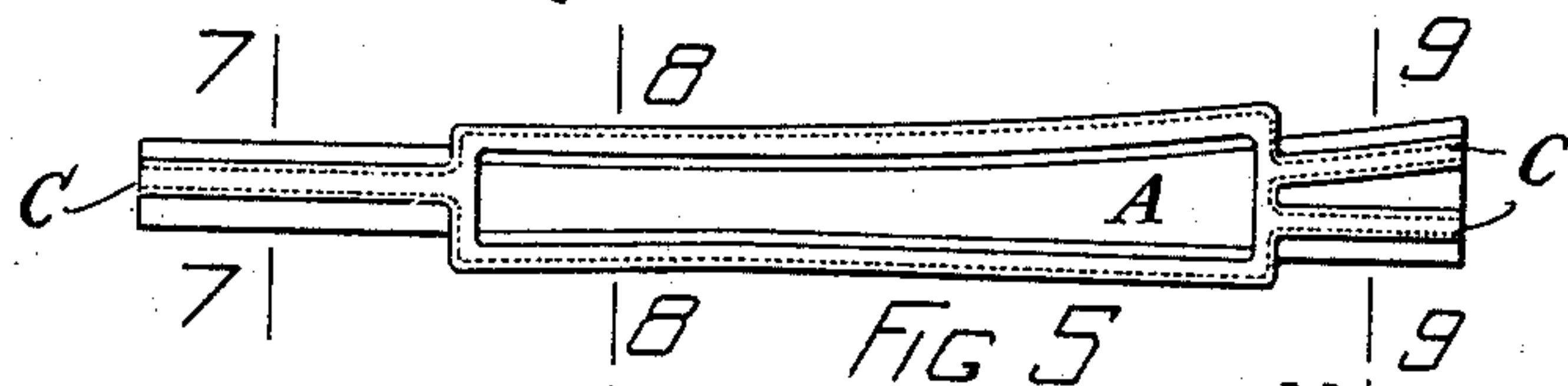
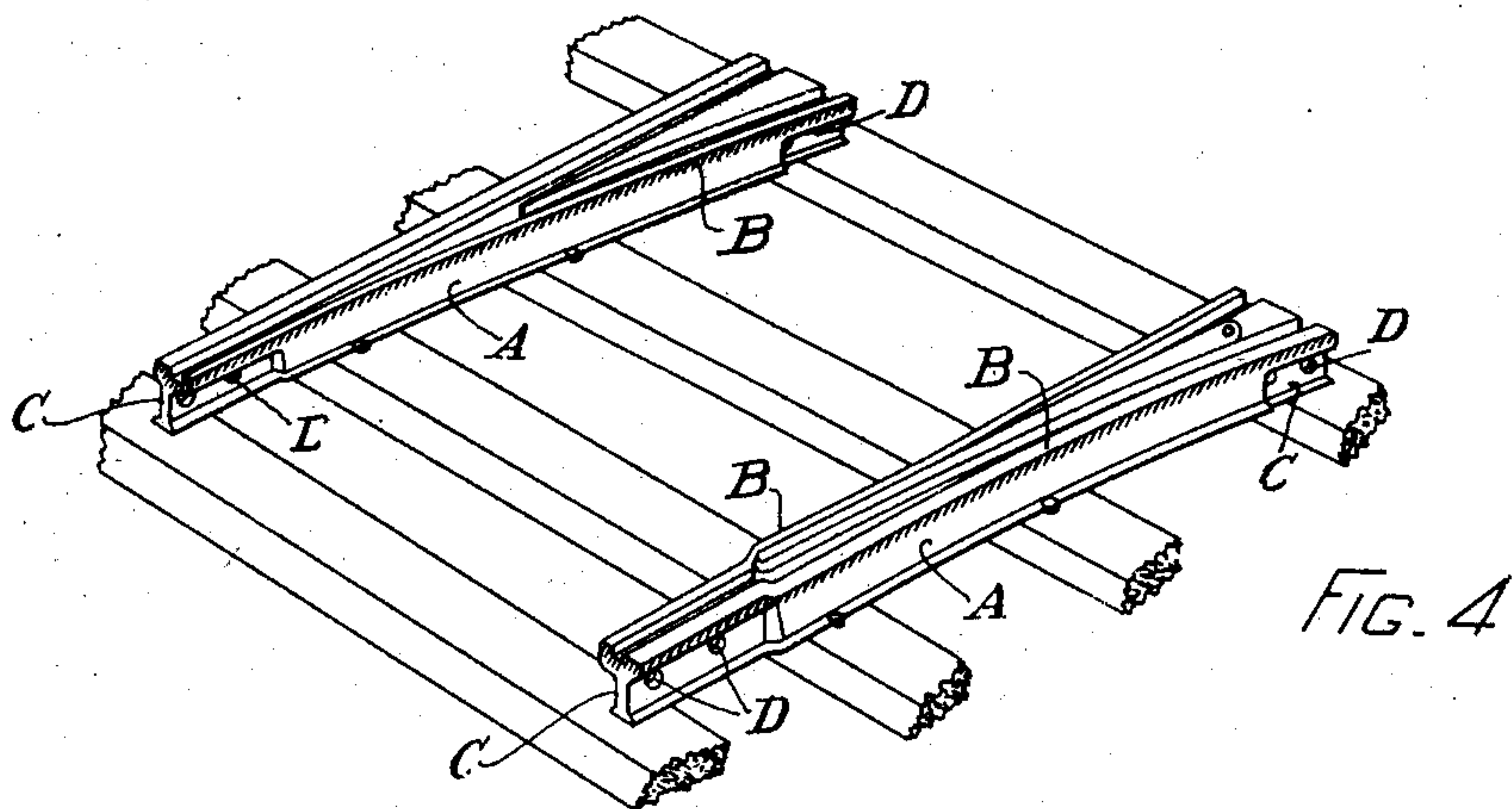


FIG. 7 FIG. 8 FIG. 9 FIG. 10 FIG. 11

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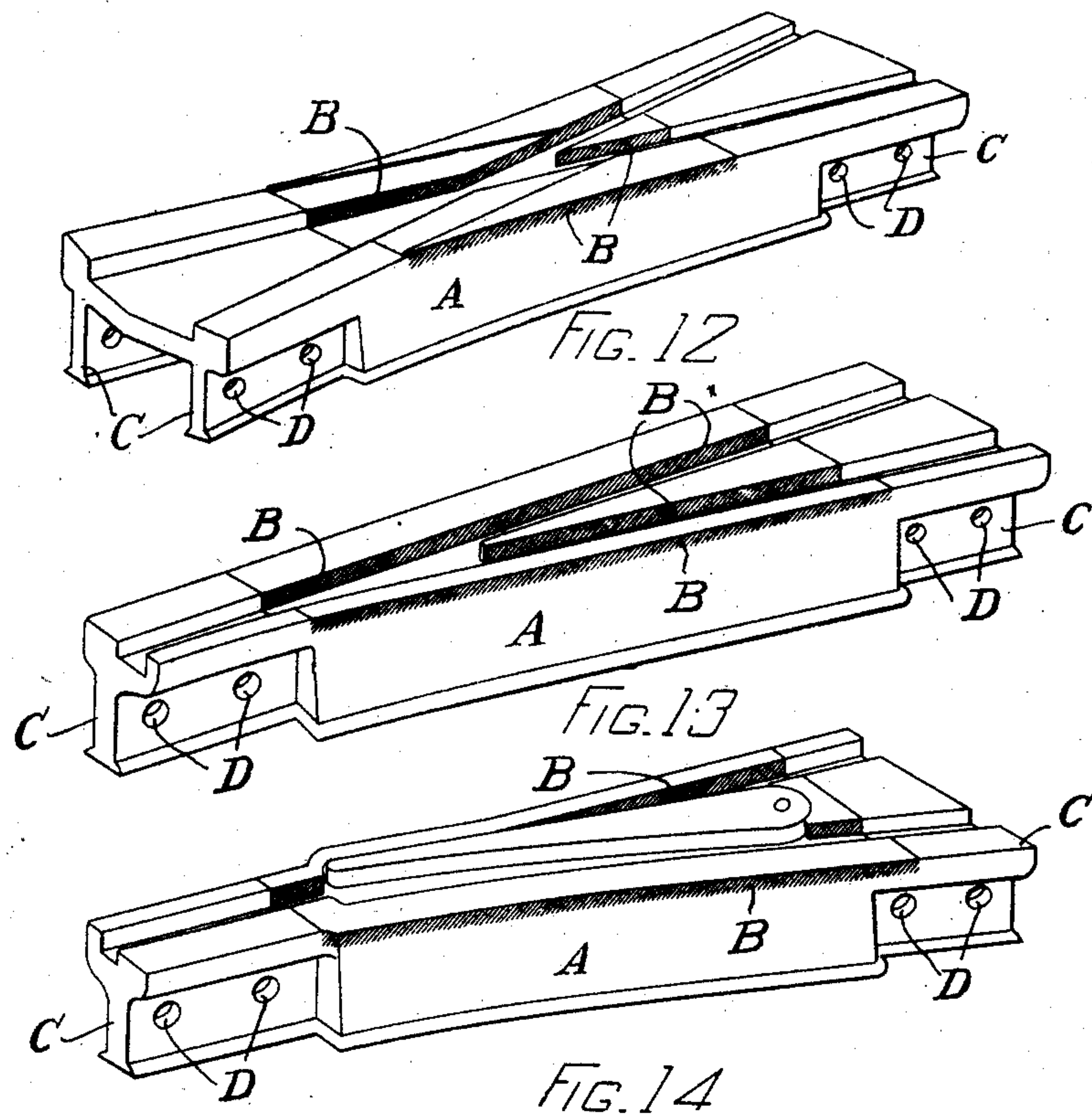
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3 SHEETS—SHEET 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

FREDERIC F. STOCKWELL, JR., OF SOMERVILLE, AND HENRY R. LUTHER, OF NEWTON CENTER, MASSACHUSETTS.

RAILWAY-TRACK STRUCTURE.

No. 873,912.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed November 11, 1903. Serial No. 180,791.

To all whom it may concern:

Be it known that we, FREDERIC F. STOCKWELL, Jr., of Somerville, in the county of Middlesex and State of Massachusetts, and HENRY R. LUTHER, of Newton Center, county of Middlesex, and State of Massachusetts, have invented certain new and useful Improvements in Railway-Track Structures, of which the following is a specification.

Our invention relates to that class of railway track structures known as switches, mates, frogs, crossings and similar structures in which the rails comprising the tracks meet, or converge or cross.

At the meeting point of the rails in a frog or switch, a point is formed which is narrower than the adjacent rails, and is therefore, subject to greater wear. The same is true of the floor or riser in a frog or crossing, and is due to the narrow bearing surface presented by the flange of the wheel in passing over the riser.

The object of our invention is to produce a railway track structure in which the wearing portion, such as the points and floor portions, or risers, have a much greater resistance to wear and abrasion than the ordinary materials used in rails and track structures, and thereby provide a track structure which will wear uniformly throughout its whole bearing surface.

A further object of our invention is to secure a hardened wearing surface in track structures containing no more of the hardened material than is absolutely necessary for the purposes desired, and to provide means whereby the wearing portion of the track structure may be made of tough, hard material, such for instance, as manganese steel, while the main body of the structure may be constructed of tough, non-breakable material, such as steel of the ordinary hardness.

In the drawings accompanying this specification—Figure 1 is a view in perspective of a frog embodying our invention showing the hardened wearing surfaces. Fig. 2 is a sectional view of said frog on line 2—2 in Fig. 1. Fig. 3 is a bottom plan view of said frog. Fig. 4 is a perspective view of a switch and mate. Fig. 5 is a plan view of the bottom of said switch. Fig. 6 is a plan view of the bottom of said mate. Fig. 7 is a cross section on line 7—7 in Fig. 5. Fig. 8 is a cross section

on line 8—8 in Fig. 5. Fig. 9 is a cross section on line 9—9 in Fig. 5. Fig. 10 is a cross section on line 10—10 in Fig. 6. Fig. 11 is a cross section on line 11—11 in Fig. 6. Fig. 12 is a perspective view of the frog showing a modified form of our invention. Fig. 13 is a perspective view of the mate embodying a modified form of our invention; and Fig. 14 is a perspective view of a switch showing the same modification.

Similar letters and figures refer to similar parts throughout the several views in the drawings.

A is the body portion of cast steel of ordinary hardness and is formed with the recesses, webs and flanges as shown in Figs. 3, 5 and 6; also in Figs. 7 to 11 inclusive, and B, B are the wearing surfaces made of specially hardened material such as manganese steel. The ends C, C, C, C, are provided with the holes D, D in their webs, and are adapted to have rails bolted or welded to them in the usual manner. All the wearing surfaces are thus formed of material especially adapted to resist the unusual wear and tear to which frogs, switches, etc., are subjected, and the wearing surfaces being welded to the main body A of the structure, accomplishes the same result that would be derived from a structure made throughout of hardened material, together with the advantages hereafter described.

In Figs. 12, 13 and 14 of the drawings, is shown a modification of our invention, in which the use of the tough, hard material has been limited to those wearing surfaces in a frog, switch or like structure which are subjected to the hardest wear and does not cover the wearing surfaces adjacent to the ends.

The process of manufacturing our improved railway track structure is as follows:—A mold is made in sand from patterns, the top B of the center piece or other track structure being the base of the mold and the tough, hardened material, such as manganese steel, is then poured into the mold and forms a coating on the bottom of the mold of the shape of the track surfaces as shown in the drawings, and the pouring is continued until the coating has become of sufficient thickness as shown in Figs. 1, 2 and 7 to 11 inclusive, and Figs. 12, 13 and 14. The remaining space in the mold is then filled up with a tough, non-breakable mate-

rial such as cast steel of ordinary hardness
in the form of the body part A, which body part
A welds upon the lower stratum of hardened
material, and the finished product is a cen-
5 ter piece or other structure having a body of
tough, non-breakable material, such as cast
steel, and wearing surfaces of hardened ma-
terial, such as manganese steel, the whole
being and forming one integral body.

10 Having described our invention, what we
claim is—

The combination in a railway track struc-
ture of track surfaces composed of a cast
hard malleable wearing material formed in
15 the shape of track surfaces by casting as
shown; a body part of cast soft malleable

material shaped and welded to the wearing
surfaces by casting, and formed to be sup-
ported on ties or other suitable foundation,
said body part having projections integral 20
therewith to which the rail ends may be se-
cured by suitable means.

In witness whereof, we have hereunto set
our hands, in the presence of two subscribing
witnesses, this the 26th day of October, A. 25
D. 1903.

FREDERIC F. STOCKWELL, JR.
HENRY R. LUTHER.

Witnesses:

R. P. ELLIOTT,
H. M. KELSO.