

No. 705,057.

Patented July 22, 1902.

G. M. ERVIN.
RAILWAY TRACK STRUCTURE.
(Application filed Nov. 13, 1901.)

(No Model.)

2 Sheets—Sheet 1.

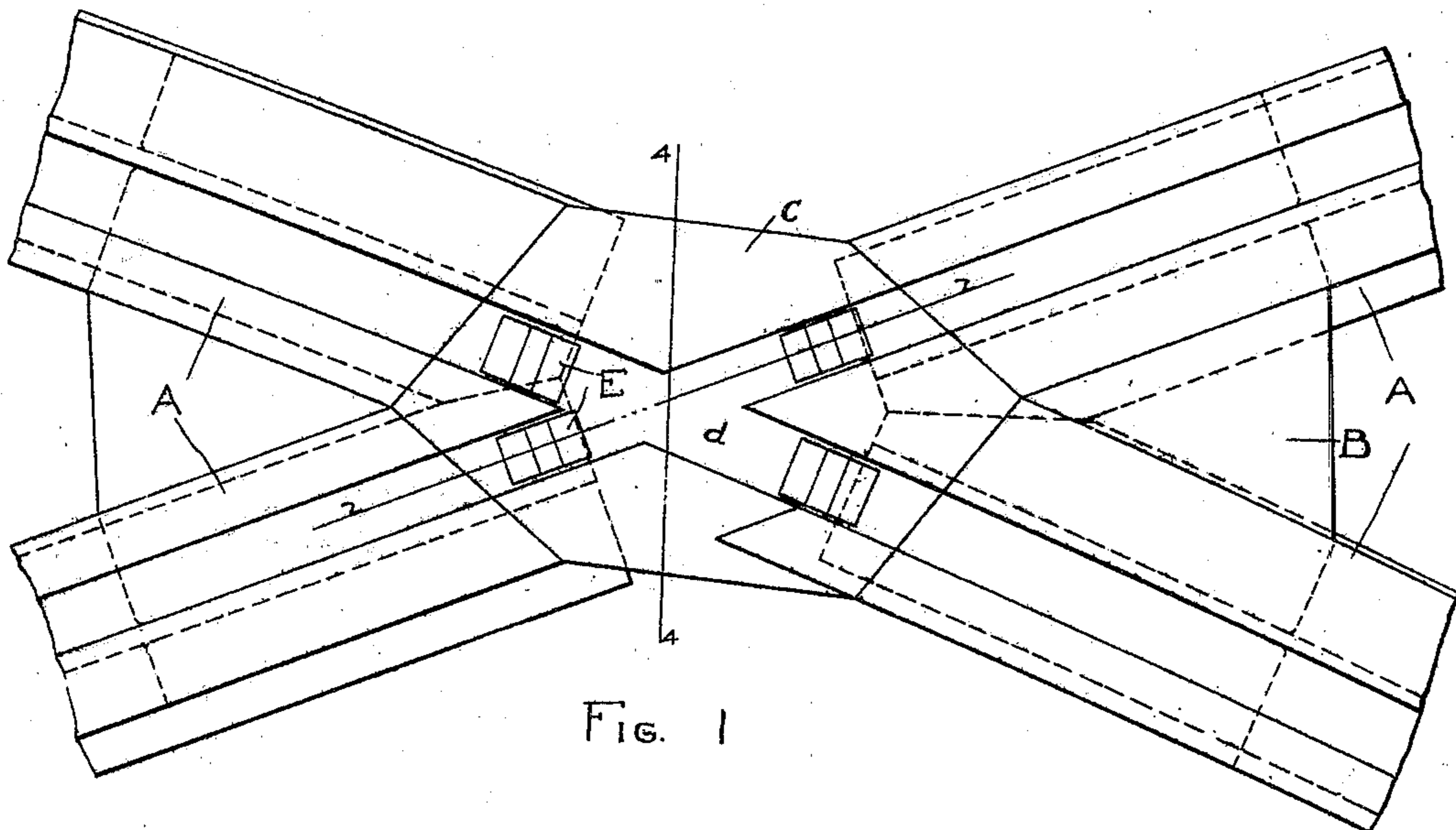


FIG. 1

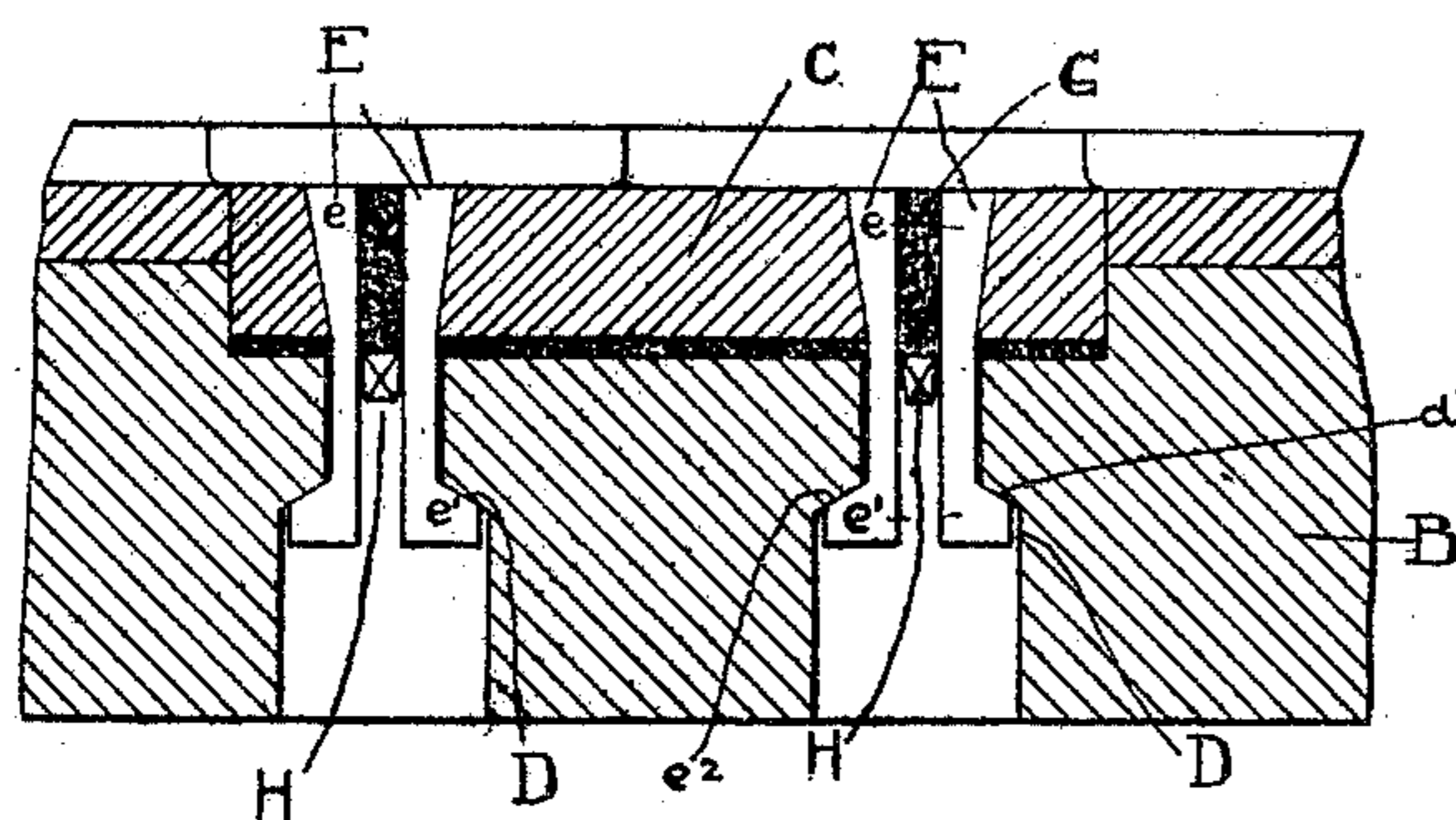


FIG. 2

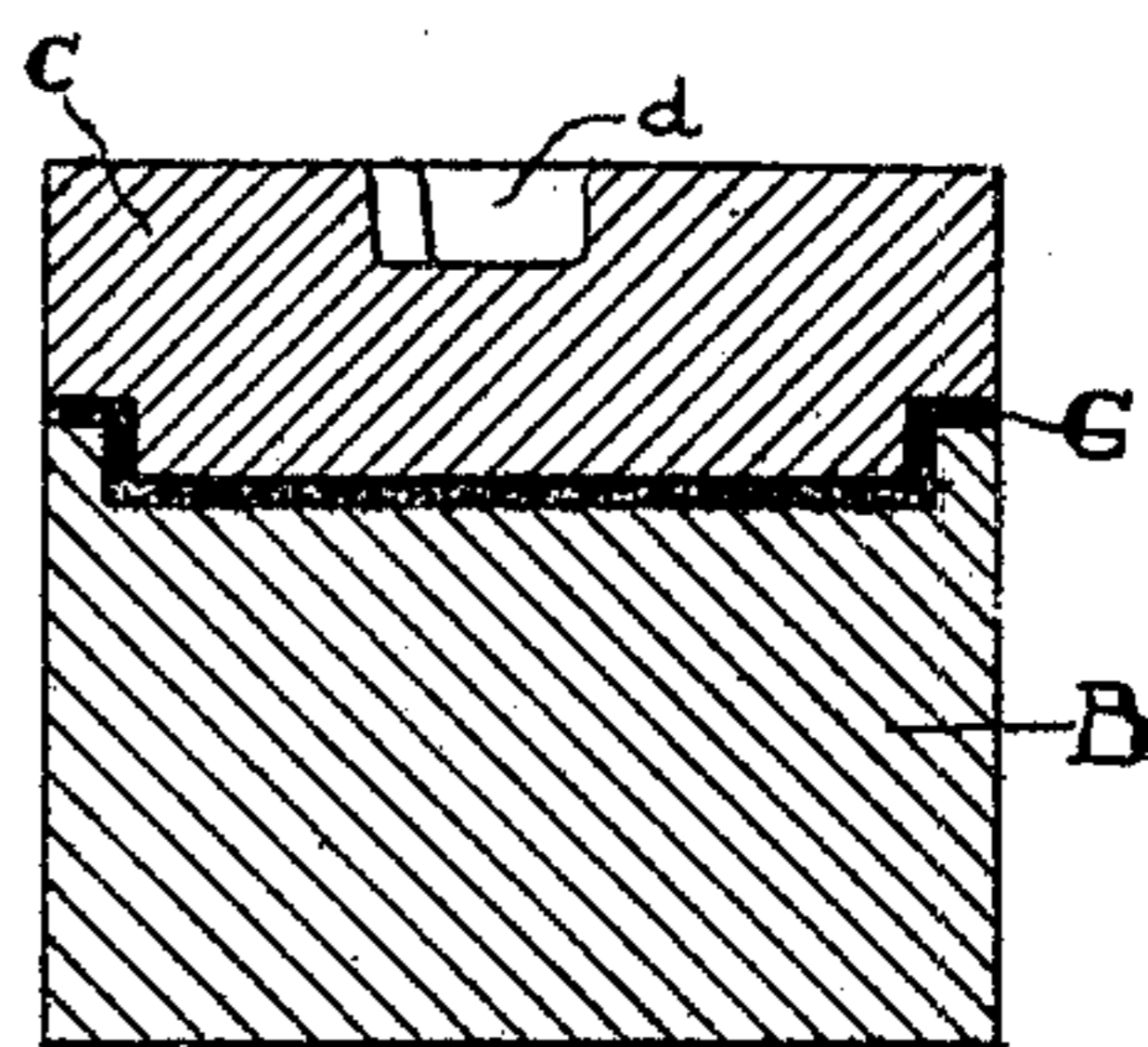


FIG. 4

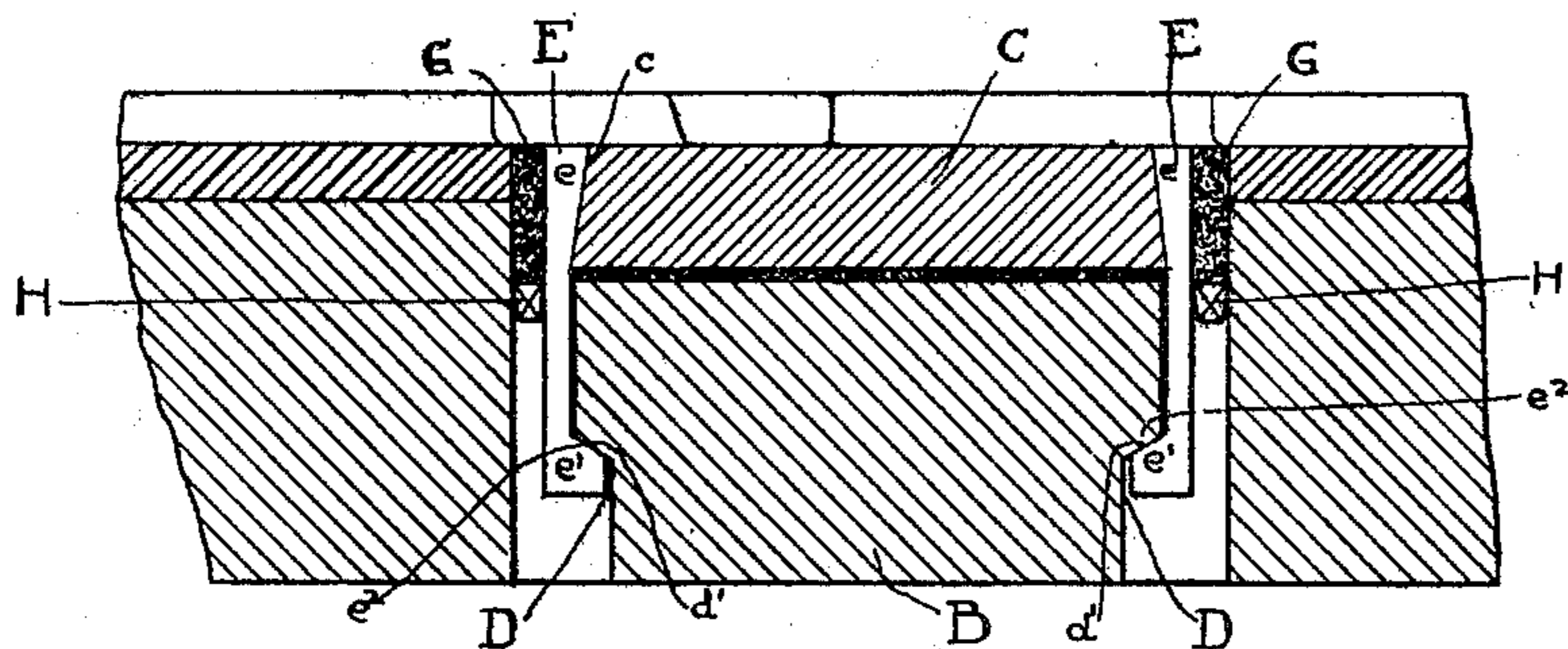


FIG. 3

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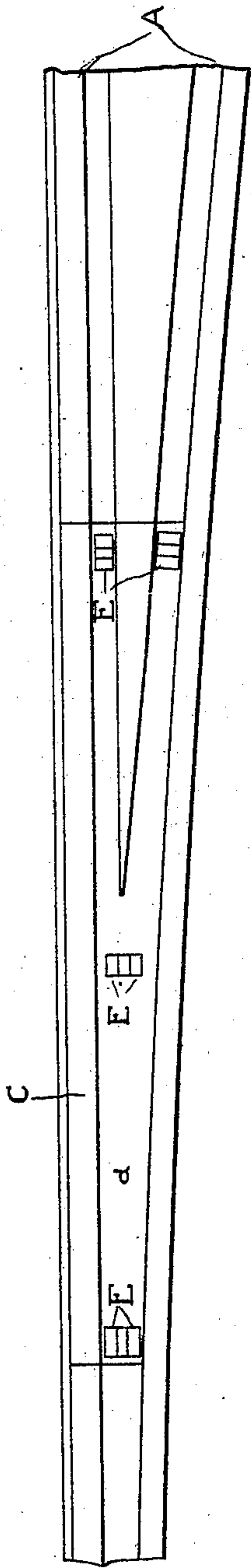


FIG. 5

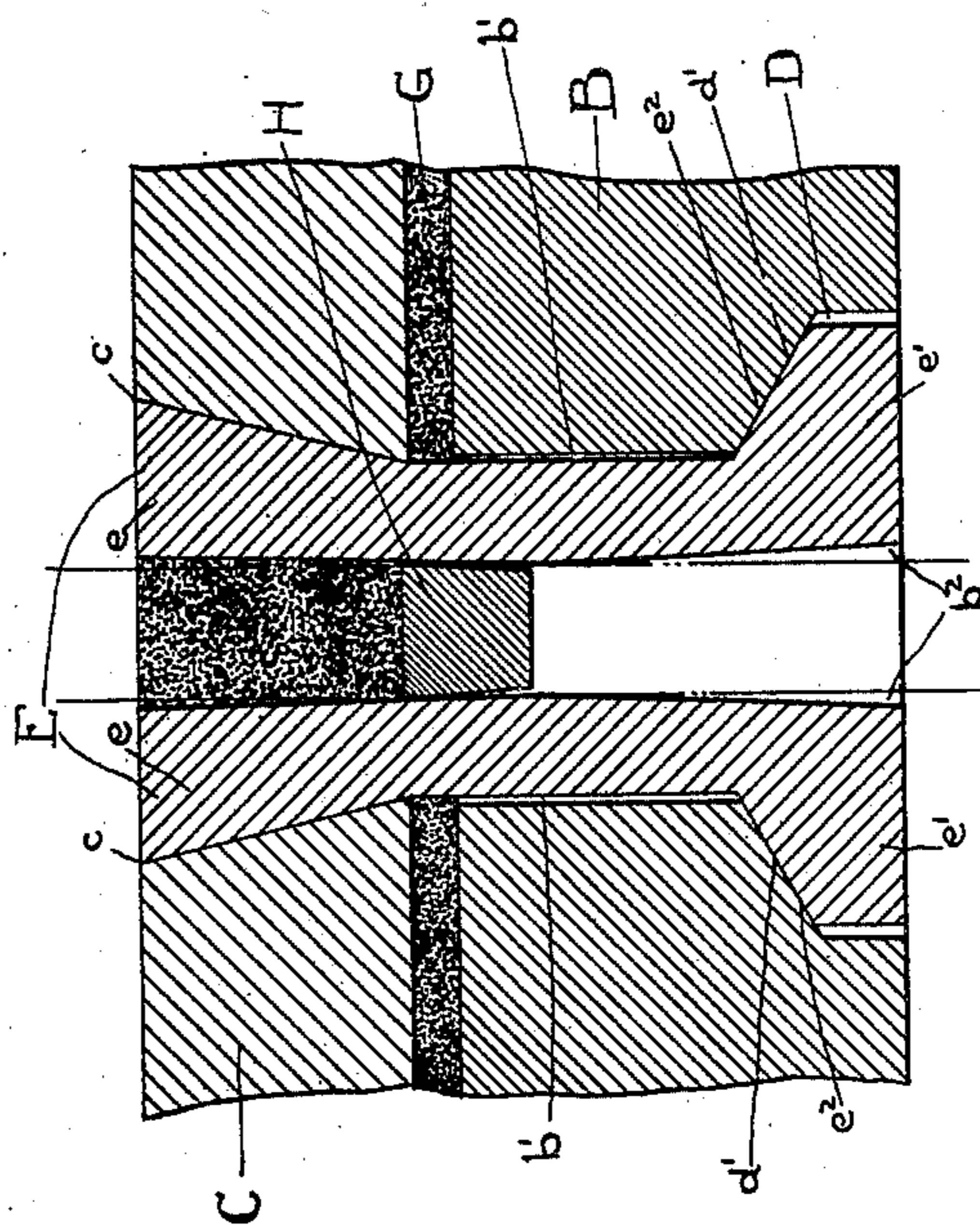


FIG. 6

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UNITED STATES PATENT OFFICE.

GEORGE M. ERVIN, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE
LORAIN STEEL COMPANY, A CORPORATION OF PENNSYLVANIA.

RAILWAY-TRACK STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 705,057, dated July 22, 1902.

Application filed November 13, 1901. Serial No. 82,103. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. ERVIN, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Railway-Track Structures, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to certain new and useful improvements in railway-track structures of that type in which the parts or surfaces subject to the greatest wear are formed by a hard-metal wear-plate or plates secured in the structure. Structures of this general type are of various specific forms, such as frogs, girder-crossings, curve-crosses, tongue-switches, mates, and slot structures. It is very desirable in all these structures that the plate or plates shall be fastened in the structure in such a manner as to permit them to be readily removed when worn or defective and replaced by a new one and also that this may be done without disturbing the structure in its position in the track and without disturbing the adjacent pavement. The fastening must also be of a very secure nature, in order that the plate may not work loose under the more or less constant pounding which it sustains in service. The function of removability without disturbing the adjacent pavement necessarily precludes the use of fastening or holding-down means, which must be secured or released from the sides or from the bottom of the structure and makes it difficult to provide means of satisfactory character. Another difficulty is the necessity for providing for variations in the thickness of the plates and for adjustments to properly align the surface of the plate with the adjacent track members. In the type of construction which has heretofore been largely used the pocket or recess for the plates has been provided with one or more lateral walls for the purpose of providing a bearing for fastening devices which engage the plate or to hold in place a soft-metal retaining material poured around the plate. The objection to this construction is that the provision of the side walls necessitates the use of a very considerable amount of extra metal in the

body of the structure, which increases the expense of manufacture and makes the structure unnecessarily bulky and heavy.

The object of my invention is to obviate the use of these side walls for the plate-pockets and to provide a plate-fastening of simple character which can be applied and removed from the top of the structure and which will fulfil the other requirements above stated.

With this object in view my invention consists in the combination, with a track structure having a plate seat or pocket and a plate seated therein, of one or more fastening devices or holding-down members extending through said plate and having a holding-down engagement with the body portion of the structure, together with means whereby such engagement may be effected and released from the top of the structure.

The invention also consists in the novel construction of the fastening or holding-down members and also in other features of construction, arrangement, and combination of parts in furtherance of the above-described objects, all substantially as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, Figure 1 is a plan view of a frog embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a view similar to Fig. 2, but showing a modification. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is a plan view showing the invention applied to a switch mate. Fig. 6 is an enlarged detail view showing the plate-fastening.

In the figures the letter A designates the rail members of the structure, which are shown as united by a body B, of cast metal, in which is formed the seat for the hard-metal plate C. The invention is, however, equally applicable to structures in which the rail members and central body form an integral casting. It will be noted that the seat for the plate C is formed without side walls and that there results consequently a very considerable reduction in the amount of metal in the body B.

The plates C, which are preferably cast from a suitable steel alloy in accordance with the well-known practice, are provided with one or more vertical apertures having tapered

or inclined walls *c*. These apertures are shown as being formed in the flangeways *d*; but obviously they may be formed elsewhere in the plate, their number and location depending upon the size of the plate. The seat for the plate is provided with registering apertures cored in the body B, their lower portions having the offsets D, whose upper walls are preferably, though not necessarily, inclined, as indicated at *d'*.

E designates the fastening or holding-down members, which are in the form of metal keys having each a head portion *e*, tapered to correspond approximately to the inclination of the wall *c* of the aperture, and an offset foot portion *e'*, beveled at its upper edge *e''* to correspond approximately to the incline at *d'*.

The plate is seated and secured in the following manner: It is placed in its seat and is properly leveled up with respect to the adjacent track-surfaces by means of thin blocks or shims placed underneath it and holding it somewhat away from the walls of its seat to form a space, which is afterward filled with spelter G or other similar material. The fastening members E are then dropped into place and are forced into holding engagement with the plate and structure by means of a suitable wedge H, driven in between them. The spelter G is then poured in place. To remove the plate, the spelter is chipped out above the wedges H, and the latter can then be drifted or driven through and out at the bottom of the structure, thereby releasing the fastening members. This can be facilitated by giving the latter a clearance at *b'* and also by tapering their inner edges at *b''*, so as to enlarge the space between them after the wedge has passed a certain point. The clearance at *b'* will enable the fastening members to spring somewhat, so as to allow the wedge to pass the tight point. It will be readily seen that the plate may have a sufficient latitude of adjustment on the tapered heads of the fastening members to compensate for variations in thickness, &c.

In the modification shown in Fig. 3 but one fastening member is seated in the aperture, the wedge H being driven between its inner edge and the opposite wall of the structure.

It is obvious that the shape of the plate and the particular location of the apertures for the fastening members will vary according to the particular structure. It is also obvious that the shape of the fastening members and the manner of seating the same may be varied without departing from the spirit and scope of my invention. Hence I do not wish to be limited to the particular embodiment of my invention which I have herein shown and described.

Although I have only illustrated and described the invention as applied to frogs and mates, it is equally applicable to other structures in which two or more tracks meet or cross each other.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a track structure having a plate seat or pocket, and a plate seated in the same, of one or more fastening devices or holding-down members extending through said plate and having a holding-down engagement with the plate and the body portion of the structure, together with means for effecting and releasing such engagement from the top of the structure, by lateral movement of said devices or members.

2. The combination in a track structure, of a body portion having a pocket or recess therein, a plate seated in said pocket or recess, and one or more holding-down members extending through said plate and having a holding-down engagement with the plate and the body portion of the structure, and a downwardly-seating wedge which secures said member or members in such engagement.

3. In a track structure, the combination with a body portion having a pocket or seat therein, a plate in said pocket or seat, said body portion and plate having registering apertures therein, one or more fastening members seated in said apertures, and having offset end portions engaging the walls of the same, and laterally-acting means for holding said member or members in such engagement.

4. In a track structure, the combination with a body portion having a seat or pocket therein formed with an aperture through its bottom, a plate in said seat or pocket having an aperture registering with that of said body portion, a fastening member extending through the said apertures and having headed ends engaging offset walls thereof, and a laterally-acting wedge for securing the member in engaging position.

5. In a track structure, the combination of a body portion to which the rail members are attached or secured, a wear-plate seated in a pocket or recess of said body portion, the body portion and plate formed with registering apertures therethrough having portions of their walls inclined or beveled, a pair of fastening members seated in each of said apertures and having headed portions engaging said beveled walls, and a removable wedge driven between the said members.

6. In a track structure, the combination with a body portion, and a wear-plate seated therein, of a fastening member seated in registering apertures of the body portion and plate, and a wedge removably driven in said aperture and securing said member.

7. In a track structure, the combination with a body portion, and a wear-plate seated therein, of a fastening member or members seated in registering apertures of said body and plate and having a holding-down engagement with the walls of said apertures, and a wedge seated in said apertures and securing the said members, and adapted to be freed by driving it through to the bottom of the structure.

8. In a track structure, the combination
with a body portion, and a wear-plate seated
therein, of fastening members seated in aper-
tures of said body portion and plate, and a
5 wedge seated against said member or mem-
bers in said aperture, said member or mem-
bers being arranged to free said wedge after
it has been driven beyond a certain point.

9. In a track structure, the combination
10 with a body portion, having a pocket or re-
cess therein open at its sides, and a plate in
said pocket or recess, of one or more fasten-
ing members which engage the said body por-
tion through the plate and hold the same to
15 its seat, and means for effecting and releasing
such engagement from the top of the struc-
ture, by lateral movement of said members.

10. In a track structure, the combination
with a body portion and a wear-plate seated

therein, of one or more fastening members E 20
seated in registering apertures and of said
body portion and plate and engaging the same
in the manner described, and the laterally-
acting removable securing wedge or wedges H.

11. In a track structure, having a wear- 25
plate seated therein, of means for holding said
plate to its seat, comprising headed keys en-
gaging registering apertures in said body por-
tion and plate, and wedges securing said keys
and capable of being seated and unseated from 30
the top of the structure.

In testimony whereof I have affixed my sig-
nature in presence of two witnesses.

GEORGE M. ERVIN.

Witnesses:

CORA G. COX,

H. W. SMITH.