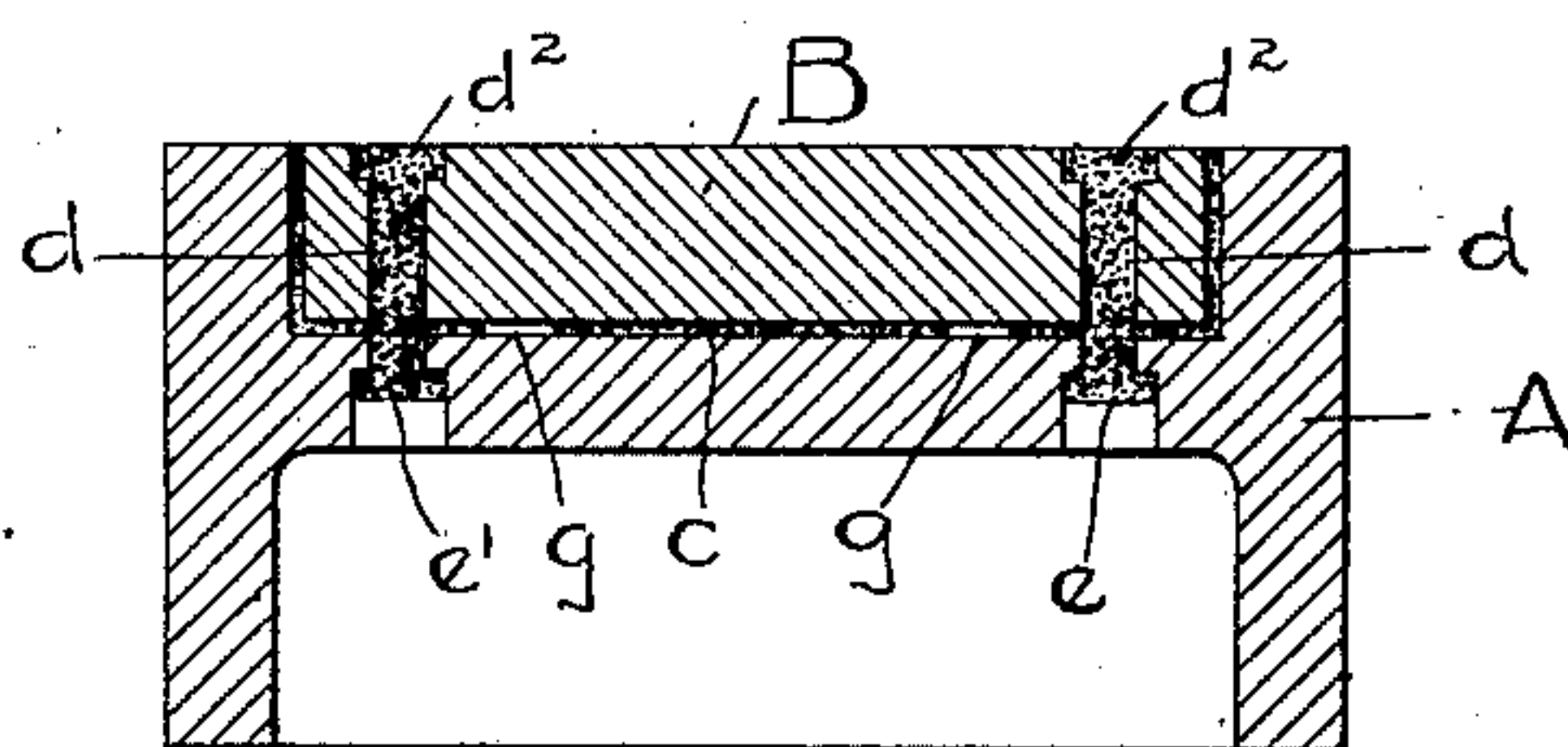
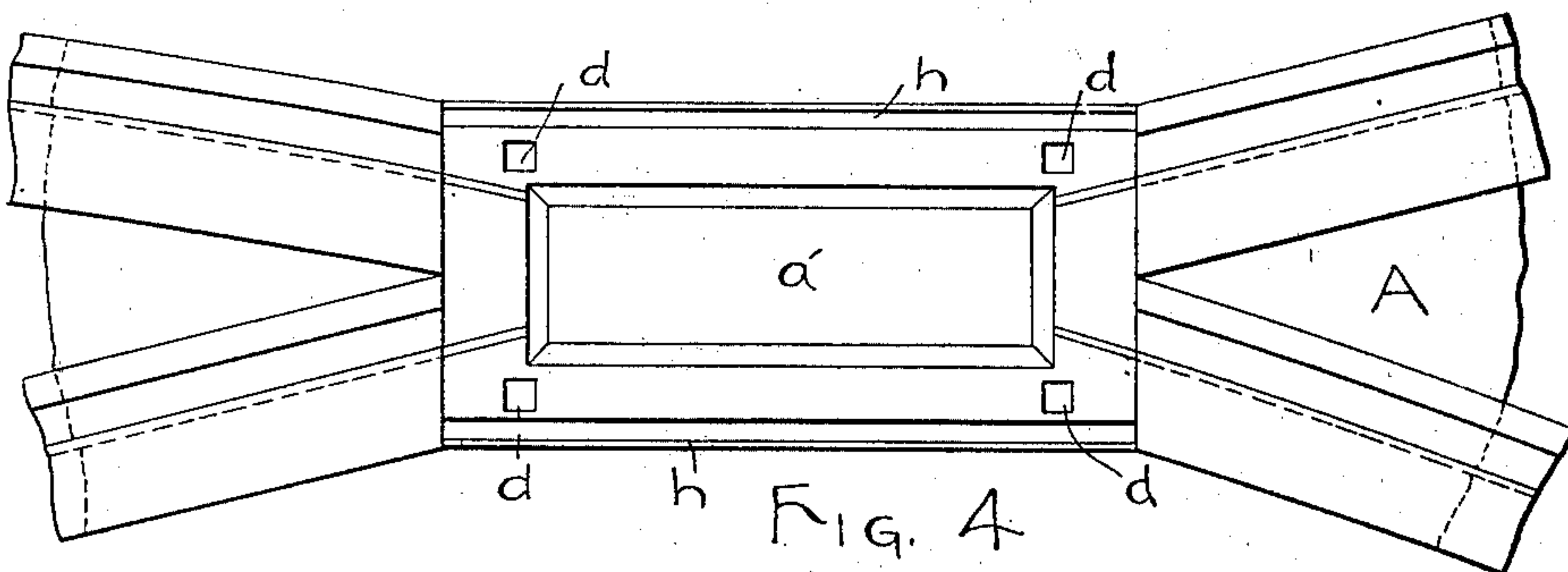
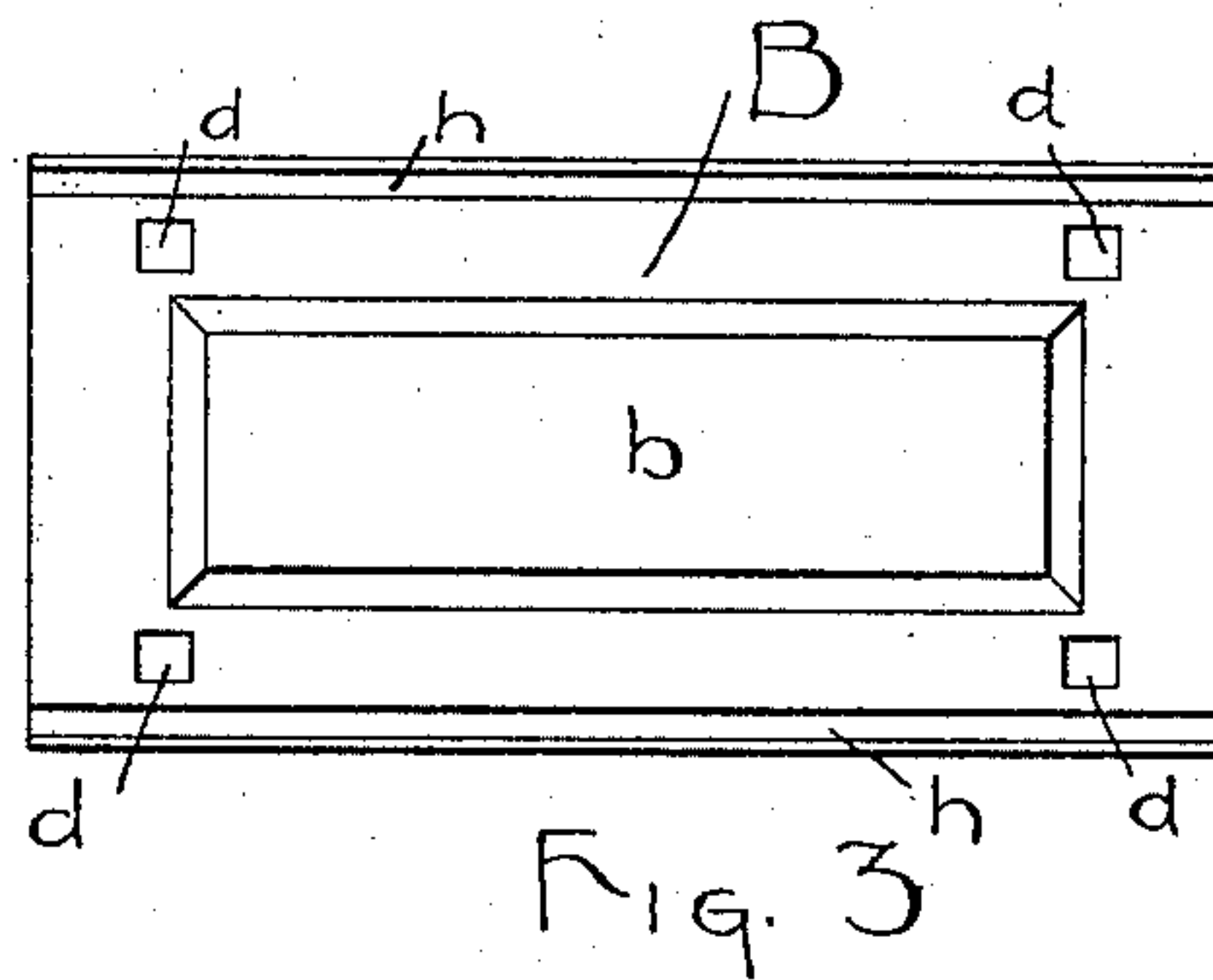
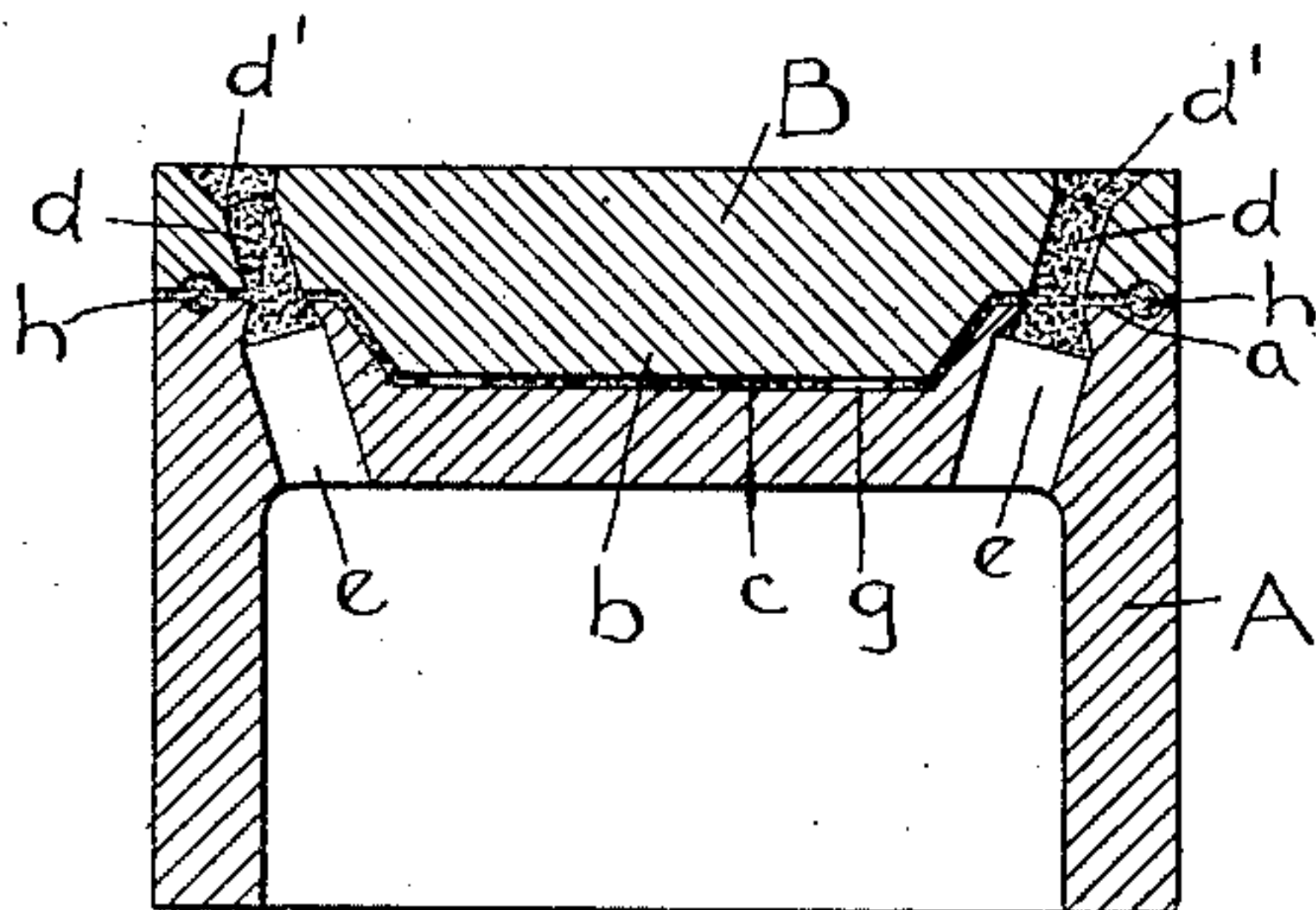
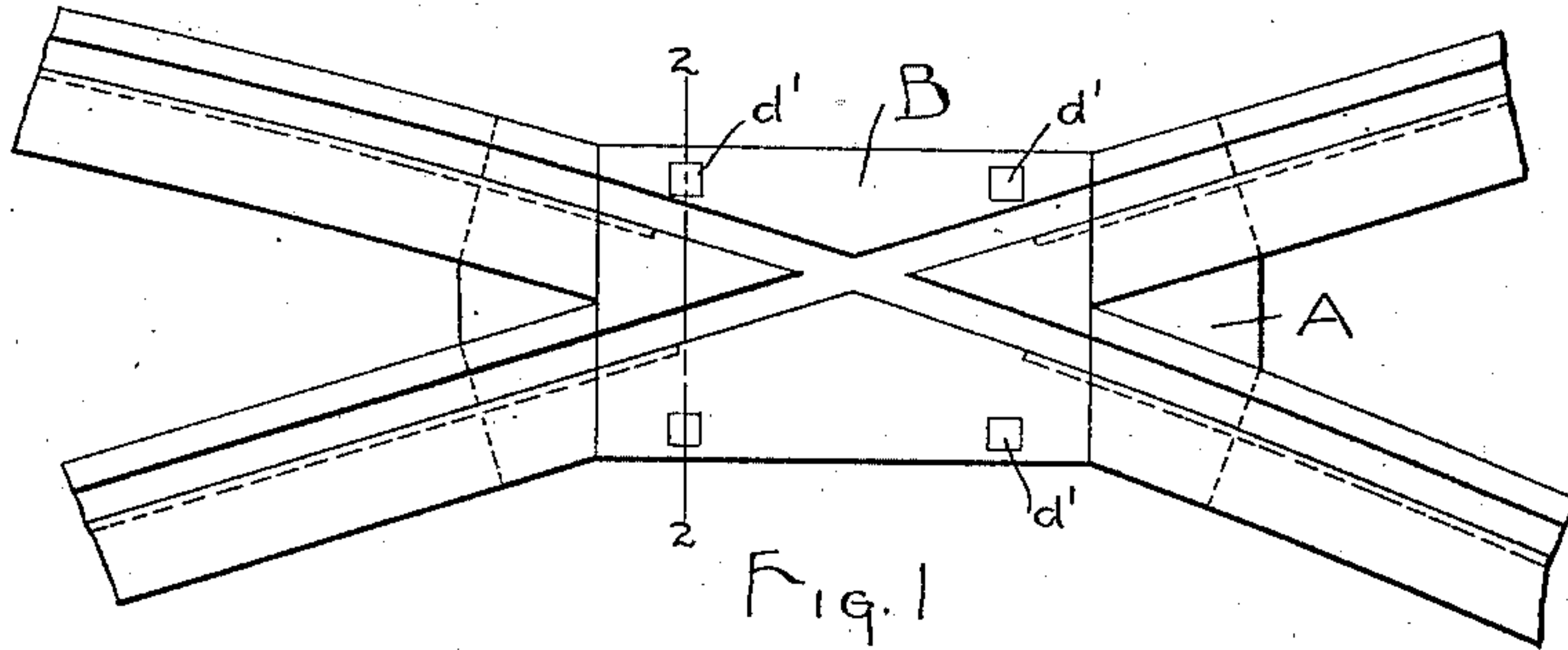


No. 729,067.

PATENTED MAY 26, 1903.

J. HART.
RAILWAY TRACK STRUCTURE.
APPLICATION FILED NOV. 13, 1902,

NO MODEL.



WITNESSES:
A. F. A. B. M. Casley.
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UNITED STATES PATENT OFFICE.

JAMES HART, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE LORAIN STEEL COMPANY, A CORPORATION OF PENNSYLVANIA.

RAILWAY-TRACK STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 729,067, dated May 26, 1903.

Application filed November 13, 1902. Serial No. 131,089. (No model.)

To all whom it may concern:

Be it known that I, JAMES HART, 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 means for securing in place the renewable portions or plates of railway-track structures. These renewable portions or plates, which are of a very hard and durable quality of steel, are now very largely employed, especially in street-railway work. They are track-surfaced in alinement with the abutting portions of the track and usually constitute all those portions of the structure which receive the greatest wear—that is to say, the intersecting or meeting portions of the track-surfaces. The severe usage which these structures receive in the streets, not only from the modern heavy car traffic, but also from miscellaneous street traffic, makes it necessary that the renewable portions or plates shall be very securely fastened in place in order that they may not become loose in service. The fastenings, however, are required to be of such character that they can be readily removed to permit the plate to be unseated and removed and replaced when necessary. It is also desirable to so arrange the fastening that this can be done without disturbing the adjacent pavement.

My invention is designed to provide a fastening which will possess the above-stated requirements; and it consists in the employment of a retaining material engaging pockets or seats in the plate and in the body of the structure, such pockets or seats being so arranged that by cutting away small portions of the retaining material accessible from the surface of the plate the remaining portions thereof may be readily driven out, leaving the plate free to be removed.

My invention also consists in the novel construction and combination of parts, all substantially as hereinafter described, and

pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a frog or curve-cross embodying the invention; Fig. 2, a section on the line 2 2 of Fig. 1; Fig. 3, a bottom plan view of the plate removed; Fig. 4, a plan view of the body portion of the structure with the plate removed, and Fig. 5 a transverse vertical section showing a modification. Figs. 2, 3, 4, and 5 are drawn to a larger scale than Fig. 1.

The letter A designates the body portion of the structure, having a seat *a* for the renewable track-surfaced portion or plate B and formed with the cavity *a'*, adapted to seat a downward extension *b* of said plate. The latter is made somewhat smaller than the cavity in order to leave a surrounding space for the retaining material C. Cored through the marginal portion of the plate are openings *d*, terminating at the surface of the plate in enlarged portions *d'*, and cored through the seat *a* are registering openings *e*. The openings *e* are smallest at their upper ends, from which they are enlarged downwardly.

In assembling the structure the plate B is placed in its seat and is properly leveled therein by means of thin blocks or shims *g*. The retaining material in liquid form is then poured into one or more of the openings *d* and fills up the space underneath the plate and around the extension *b* and also the openings *d* and *e*, as shown in Fig. 2. Before this metal is poured the lower portions of the openings *e* should be filled up with plugs of wood, clay, or other suitable material, and suitable dams or clamps should be placed along the joints at the side to prevent the metal from running out. When cooled, said metal, it will be seen, not only forms a bed for the plate, but by reason of the enlarged portions of the openings *e* and *d*, which form pockets filled with the metal, the plate is securely fastened to its seat. In order to hold the retaining material underneath the marginal portion of the plate from any tendency to hammer or pound out in service, I preferably form longitudinal grooves *h* in the under side of the plate or in the surface of the

seat *a*, or in both, as shown. By means of these grooves ribs or beads of the retaining material are formed, which not only tend to prevent such material from cracking and working out, but they also give the plate a further bearing. When it is designed to remove the plate, the retaining material in the pockets or enlargements *d'* may be cut, chipped, or bored out. A punch or drift can then be applied to the cores or plugs remaining in the openings *D*, and said plugs or cores, together with the material in the pockets *e*, can be driven through to the bottom of the structure, and thus free the plate.

In some structures it may be preferable to provide the plate-seat with side walls *a'*, as shown in Fig. 5. In this figure I have also shown pockets *d''* and *e'*, which are of somewhat different shape from the pockets *d'* and *e*. Any other suitable form of pocket may, however, be used. In this construction the extension *b* on the plate is omitted, as the walls *a'* provide the required lateral bearing.

For the retaining material I prefer to employ spelter on account of its hardness and toughness as well as its comparative cheapness; but any suitable material may be employed.

While I have illustrated my invention in connection with a frog or curve-cross, it is equally adapted to other crossings and to mates, switch-pieces, and all other track structures in which a renewable portion or plate is seated and secured in the body of the structure. I also do not wish to limit myself to the precise arrangement of the fastenings herein shown and described, as they may be variously formed and located without departing from the spirit and scope of my invention. I do not, however, claim, broadly, a plate-fastening composed of a body of retaining material engaging pockets or seats in the plate and in the body of the structure and having an integral connection portion which can be removed to release the fastening, as I believe that to be the invention of George H. Parmelee, of Johnstown, Pennsylvania, as described and claimed in his pending applications Serial Nos. 131,082 and 131,083 and which I am familiar with.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railway-track structure, the combination with the body portion of the structure having a seat for a renewable portion or plate, said seat having cavities or pockets therein and openings leading from said cavities or pockets to the bottom of the structure, of a renewable portion or plate having pockets or cavities in its upper surface and openings of reduced diameter leading therefrom to the pockets or cavities in said seat, and retaining material bedding the plate and filling said

pockets or cavities, and also the openings which connect the same.

2. In a railway-track structure, the combination of the body portion and the plate seated therein, said body portion and plate having pockets or cavities therein for retaining material, said plate also having openings therethrough of reduced diameter which connect its pockets or cavities with those of said body portion, and said body portion having openings leading from its pockets or cavities to the bottom of the structure, and retaining material filling said pockets or cavities and also the openings through the plate, substantially as specified.

3. In a railway-track structure, the combination with the body portion having a plate-seat formed with pockets or cavities which are smaller at their upper than at their lower ends, and openings leading from their lower ends, to the bottom of the structure, of a plate having pockets in its upper surface which are larger at the top than at the bottom, and openings of reduced diameter leading from the bottom of said pockets to the openings in the plate-seat, together with retaining material filling the said pockets and the openings through the plate.

4. In a railway-track structure, having a renewable portion or plate, a fastening for said portion or plate consisting of a column or core of retaining material cast in place and extending vertically through the plate into the body of the structure and enlarged at its end portions.

5. In a railway-track structure, the combination with the body portion of the structure having a plate-seat formed without side walls, a plate secured to said seat, and retaining material bedding the said plate, and having ribs or beads lying between the plate and its seat, substantially as described.

6. In a railway-track structure, the combination with the body portion of the structure having a plate-seat formed without side walls, a plate secured to said seat, grooves in the seating-faces of the plate and body portion, and retaining material bedding the plate and filling the said grooves.

7. In a railway-track structure, the combination with the body portion having the plate-seat formed with a central cavity or recess, and the plate having an extension fitting said cavity or recess, of the retaining material bedding said plate and engaging grooves formed in one or both of the seating-surfaces of the seat and plate near the longitudinal edges thereof, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES HART.

Witnesses:

LORETTO O'CONNELL,
H. W. SMITH.