No. 729,090 PATENTED MAY 26, 1903.

G. H. PARMELEE.

RAILWAY TRACK STRUCTURE.

APPLICATION FILED NOV. 13, 1902.

NO MODEL.

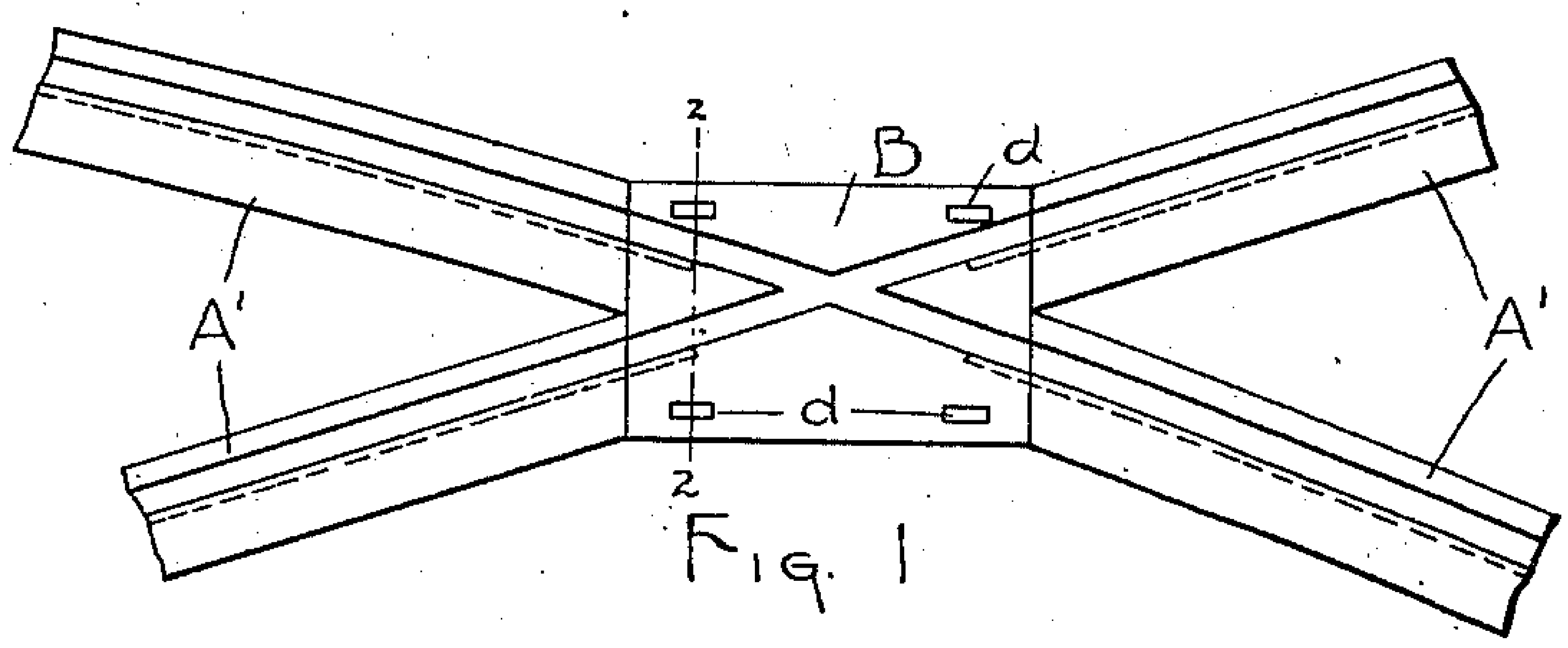

Fig. 1

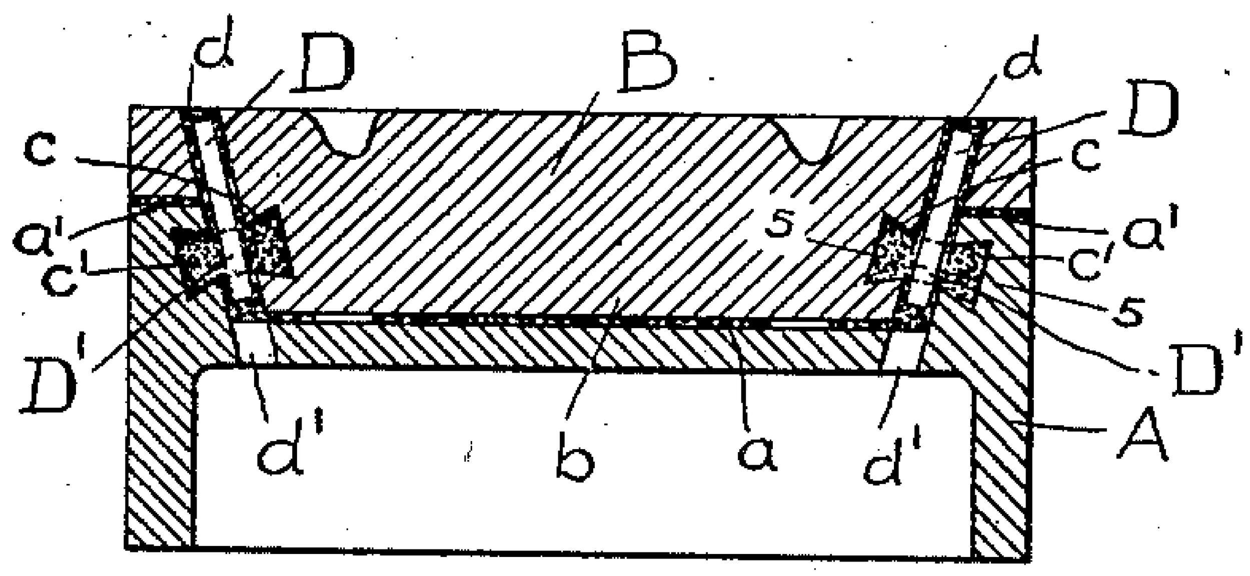

Fig. 2

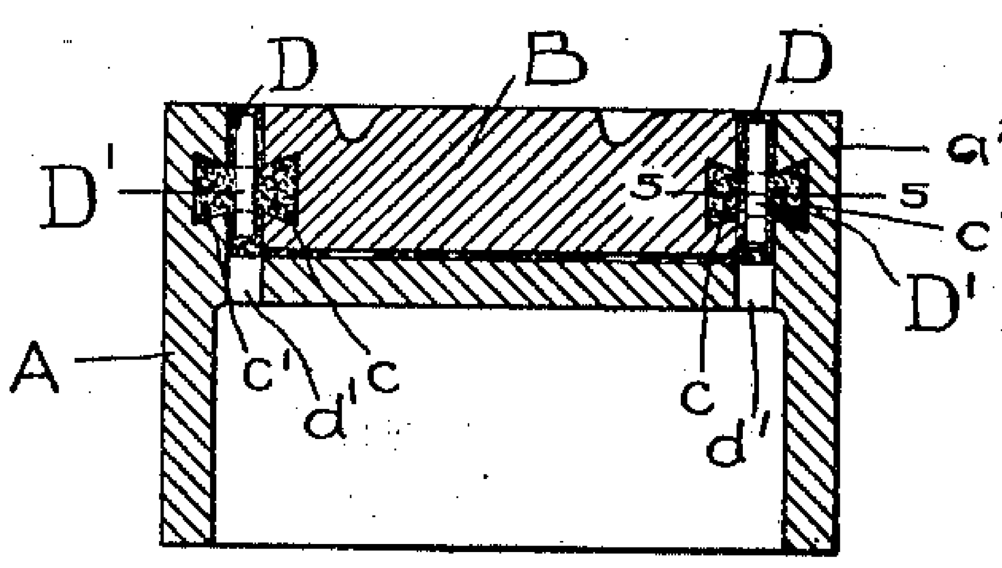

Fig. 4

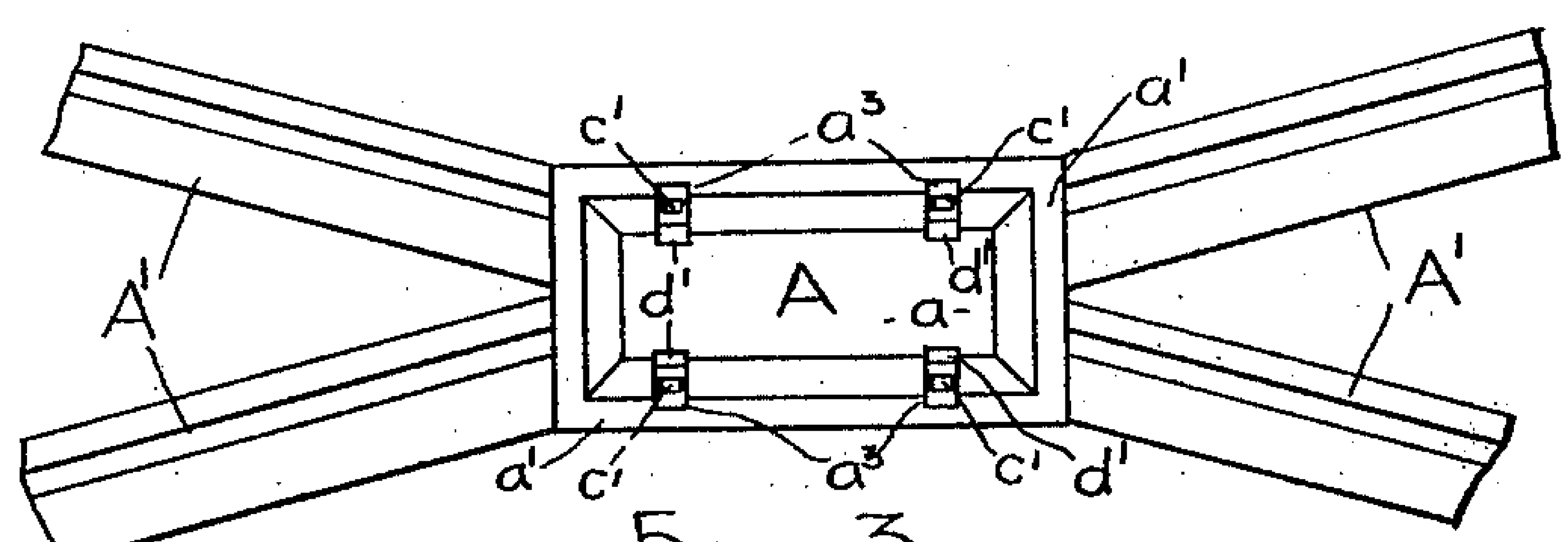

Fig. 3

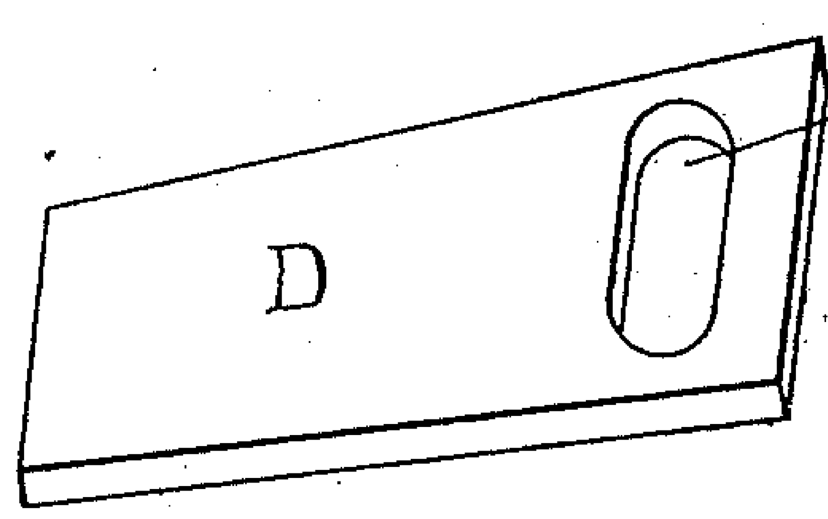

Fig. 7

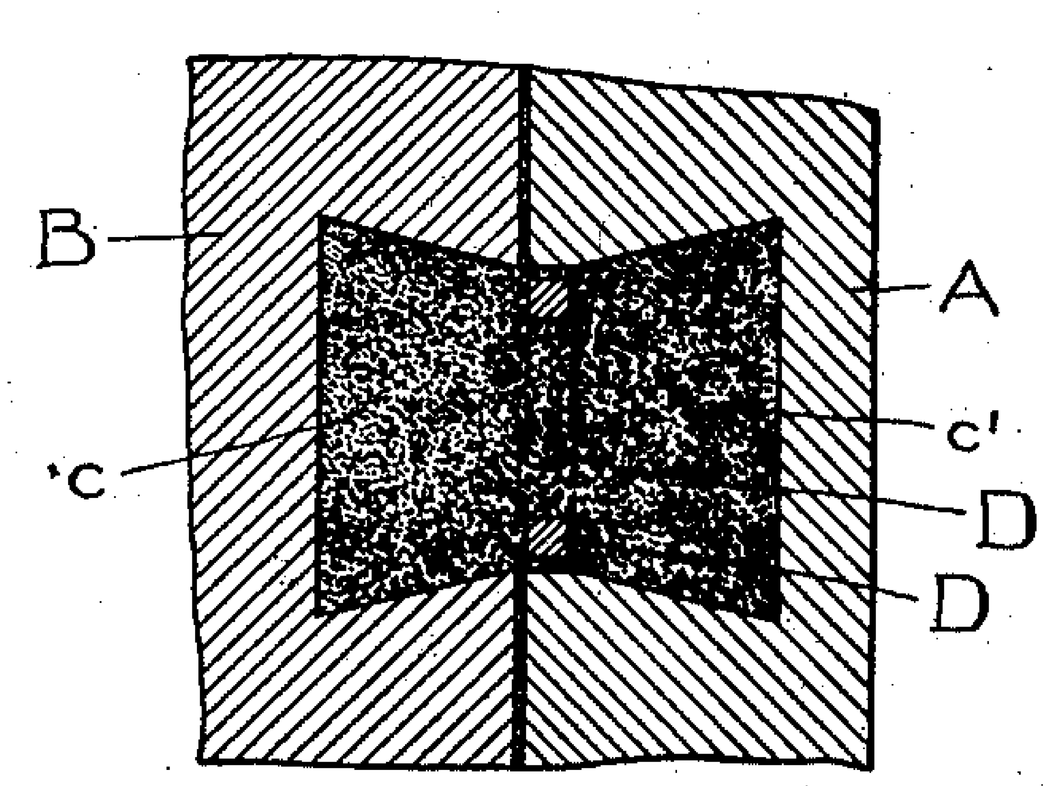

Fig. 5

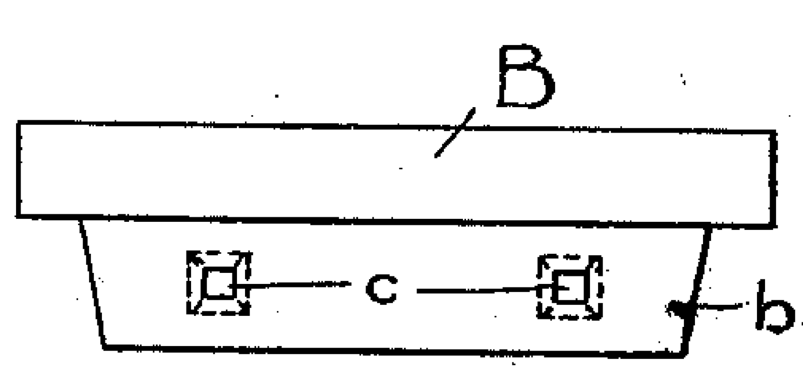

Fig. 6

WITNESSES:

A. V. A. B. McCauley.

Loretto O'Connell

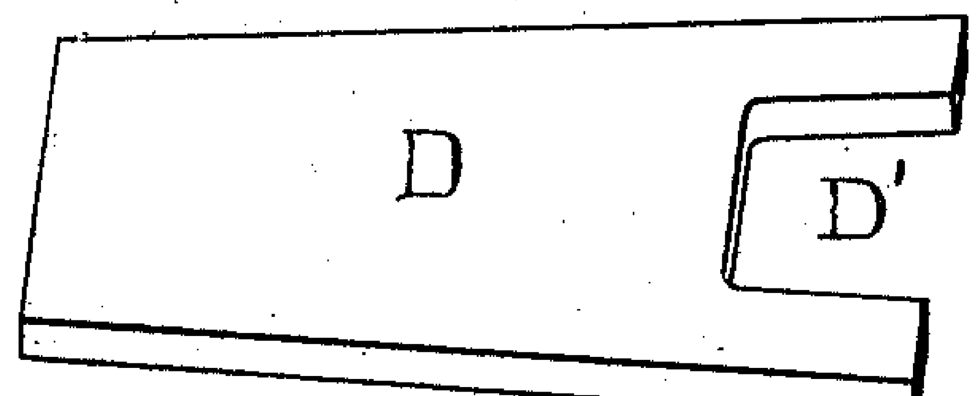

Fig. 8

INVENTOR

Geo. H. Parmelee

No. 729,090. Patented May 26, 1903.

UNITED STATES PATENT OFFICE.

GEORGE H. PARMELEE, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE LORAIN STEEL COMPANY, A CORPORATION OF PENNSYLVANIA.

RAILWAY-TRACK STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 729,090, dated May 26, 1903.

Application filed November 13, 1902. Serial No. 131,083. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PARMELEE, 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.

This invention has relation to means of novel character for securing in place and removing therefrom the renewable portions or plates of railway-track structures. These renewable portions or plates are required to be very securely fastened to the body portions of the structures, being used in frogs, curve-crosses, girder-crosses, mates, and switch-pieces, where they are subjected not only to the hammering and pounding action of the modern heavy cars, but also to the action of more or less heavy miscellaneous street traffic. It is also extremely desirable that they shall be secured in such a manner that they can be readily removed and replaced when necessary, by reason of wear or defects, without taking up the entire structure and without the necessity of disturbing the adjacent pavement. This latter requirement makes the problem a somewhat difficult one, since it precludes the use of any fastening which must be applied from the sides or bottom of the structures and makes it necessary to provide fastening means which can be applied and removed from the surface of the structure.

My present invention is designed to provide simple, secure, and thoroughly practical means for fulfilling the above-stated requirements.

In another application of even date herewith, Serial No. 131,082, I have described and claimed, broadly, a fastening for the renewable portions or plates of railway-track structures, consisting of a solid body of some retaining material, such as spelter, seated in opposite pockets or cavities formed in the body portion of the structure and in the renewable portion or plate, with an integral connecting portion arranged to be reached and cut, fractured, or sheared from the surface of the structure, thereby to release the plate. The present invention employs a similar fastening; but in connection therewith I provide a fracturing or shearing device incorporated in the structure and engaging the integral connecting portion of the retaining material. This shearing or fracturing device or "key," as it is commonly termed, is so arranged that its upper end is readily accessible from the surface of the structure, and by placing a suitable drift or punch in contact therewith and driving it with a sledge the said connecting portion can be readily fractured or sheared and the plate be thereby released.

The present invention also provides means for taking up shrinkage of the retaining material employed, and thereby tending to prevent looseness in the fastening which might otherwise result.

The 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 my invention; Fig. 2, a section on the line 2 2 of Fig. 1; Fig. 3, a plan view of the structure of Fig. 1 with the plate removed; Fig. 4, a transverse vertical section of a track structure, showing a modification; Fig. 5, a section on the line 5 5 of Figs. 2 and 4; Fig. 6, a side view of the plate of Figs. 1 and 2 removed, and Figs. 7 and 8 detail views of different forms of fracturing members or keys.

In the figures, A designates the body portion of the structure, and A' the diverging rail members thereof. The latter may be cast integrally with said body portion or they may be cast into the same, my invention being equally applicable to both types of construction.

B designates the renewable portion or plate, which is track-surfaced in alinement with the abutting portions of the structure and forms the track intersection. In the construction shown in Figs. 1, 2, 3, and 6 this plate is formed with a central depending portion or extension b, preferably of wedge form, and the body portion A is provided with a pocket or cavity a to seat said extension. This pocket or cavity, which is surrounded by a horizontal ledge a', is made enough smaller than the extension b to leave a surrounding space for the retaining material, as shown. Cored in the sides of this extension b are pockets or cavities c, and in the lateral walls of the pocket a are similar cavities c', which are directly opposite the cavities c. Cored through the marginal portion of the plate B directly over each of the cavities c is a slot d, and cored through the bottom of the body portion A in line with each of the slots d is an opening d'. D is a shearing member or key. After this plate has been seated in the structure one of these keys is dropped loosely into each of the slots d in such position that the opening D' thereof is between the mouths of the pockets or cavities c c'. The openings d' are plugged up with wood or clay to prevent the retaining material from flowing out therethrough while it is being poured, and the keys D can be held in proper position by resting their lower ends upon these plugs. Either the plate or the body portion A may be cored out, as shown at a^3, Fig. 3, to receive the thickness of the key. The keys having been placed, the retaining material in a liquid state is poured into the slots d around the keys and flows underneath and around the extension b, fills the pockets c c', and also underneath the marginal portion of the plate, as shown, being prevented from running out at the sides by means of suitable clamps or dams. It also fills the slots d around the keys. While this material is being poured the plate is preferably clamped firmly to its seat. When the retaining material cools, it forms a complete bed for the plate and also forms solid bodies engaging the pockets c c', these bodies in each pair of pockets being connected by an integral portion which extends through the opening D' in the key, as shown in Fig. 5. The plate is thus securely held to its place. Inasmuch as the retaining metal will shrink somewhat in cooling, I prefer to make the pockets c c' of dovetailed form, largest at their inner ends, in order to take up such shrinkage. The pockets may, however, be made of any suitable shape.

By providing the plate with the extension b I am able to do away with the side walls a^2, (shown in Fig. 4,) as such extension bedded, as it is, with retaining material provides a deep bearing for the plate against lateral blows and thrusts. Doing away with these side portions results in an economy of metal and also reduces the weight of the structure and the amount of metal surface in the street. For some classes of work, however, it may be desired to retain these side walls, as shown in Fig. 4. In such cases the plates are seated and the pockets c c' arranged as shown in Fig. 4.

To remove the plate, the retaining material is chipped away from the upper end of the key and a drift is applied thereto and driven with a sledge until the connecting portion of the retaining material which extends through the key is fractured or sheared and it and the key are driven far enough into or through the opening d' to release its holding action. The key is preferably made wider toward its lower end, as shown, in order that it may more readily clear itself in driving. When all the fastenings have been released in this manner, the plate can be readily lifted out. The cross-sectional area which can be fractured or sheared in this manner necessarily depends upon the character of the retaining material which is employed. With ordinary commercial spelter, which is a good material for the purpose, a cross-section one inch square or somewhat larger may be readily fractured or sheared. After the plate has been removed the structure is prepared to receive a new plate by cleaning out the retaining material in the pocket a and in the pocket c'. The latter may be done by chipping, drilling, or melting.

While I have shown my invention in connection with a frog or curve-cross, it will be obvious that it may be used in various other track structures—such as crossings, mates, switch-pieces, &c.—in which renewable wear portions or plates are provided. For an ordinary frog or curve-cross two or three of the fastening devices at each side of the plate will be sufficient. For longer plates, such as are used in mates, the number of fastenings may be increased in proportion to the length of the plate. It is also obvious that my invention is susceptible of various modifications in the shape and arrangement of the plate, the pockets, and of the shearing or fracturing members or keys. Hence I do not wish to be limited to the particular embodiments which I have herein shown and described.

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 a renewable portion or plate, and a shearable or fracturable fastening therefor, of a shearing or fracturing member or key incorporated in the structure and engaging the said fastening.

2. In a railway-track structure, the combination with the body portion of the structure, a renewable wear portion or plate and the bodies of retaining material seated partly in the plate and partly in the casting and having integral connecting portions, of shearing members or keys incorporated in the structure and engaging said connecting portions, said members or keys being accessible from the surface of the structure for driving.

3. In a railway-track structure, the combination with a body portion of the structure, a renewable portion or plate, and retaining ma-

terial engaging pockets in said plate and body portion, of the shearing or fracturing members or keys embedded in said retaining material and arranged to be driven to shear or fracture the same.

4. In a railway-track structure, the combination with the body portion, and a renewable portion or plate, said body portion and plate having oppositely-situated pockets or cavities therein, of a shearing member or key having an opening therethrough which registers with said pockets or cavities, and retaining material filling said pockets or cavities and extending through said opening.

5. In a railway-track structure, the combination with the body portion having a plate seat and cavity and a plate having an extension seating in said cavity, said extension and the walls of said cavity having oppositely-situated pockets therein and the plate having slots therethrough above said pockets, of shearing or fracturing members or keys extending through said slots and having openings therethrough opposite the said pockets and retaining material bedding the said plate and filling said pockets and opening, substantially as described.

6. In a railway-track structure, the combination of the body portion A having the cavity a, and the pockets c', the plate B, having the slots d, the extension b and the pockets c formed in said extension, the shearing members or keys D having openings therethrough and the retaining metal bedding said plate and its extension and filling the said pockets and extending through the said openings, substantially as described.

7. In a railway-track structure, having a removable wear portion, retaining material forming a fastening for the said plate, and shearing or fracturing members embedded in said retaining material.

8. In a railway-track structure, the combination with a body portion, of a wear portion or plate seated therein, said wear portion or plate and the casting having opposite pockets or cavities formed therein, said pockets or cavities being largest at their inner ends.

9. In a railway-track structure, the combination with the body portion, the plate, and the retaining material forming a fastening for said plate, of the tapered fracturing or shearing members or keys embedded in said retaining material.

10. In a railway-track structure, the combination of the body portion, having the plate-seat formed with dovetailed pockets or cavities, the plate having similar pockets or cavities, the retaining material filling the same, and the tapered shearing or fracturing members engaging the retaining material between the said pockets or cavities and accessible for driving from the surface of the structure.

11. In a railway-track structure having a bed or body portion, and a renewable wear-plate, a fastening for said plate consisting of a body of relatively soft retaining material having enlarged portions engaging respectively the body portion and the plate, and a fracturable or shearable portion connecting said enlarged portions.

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

GEORGE H. PARMELEE.

Witnesses:
LORETTO O'CONNELL,
H. W. SMITH.