

No. 640,654.

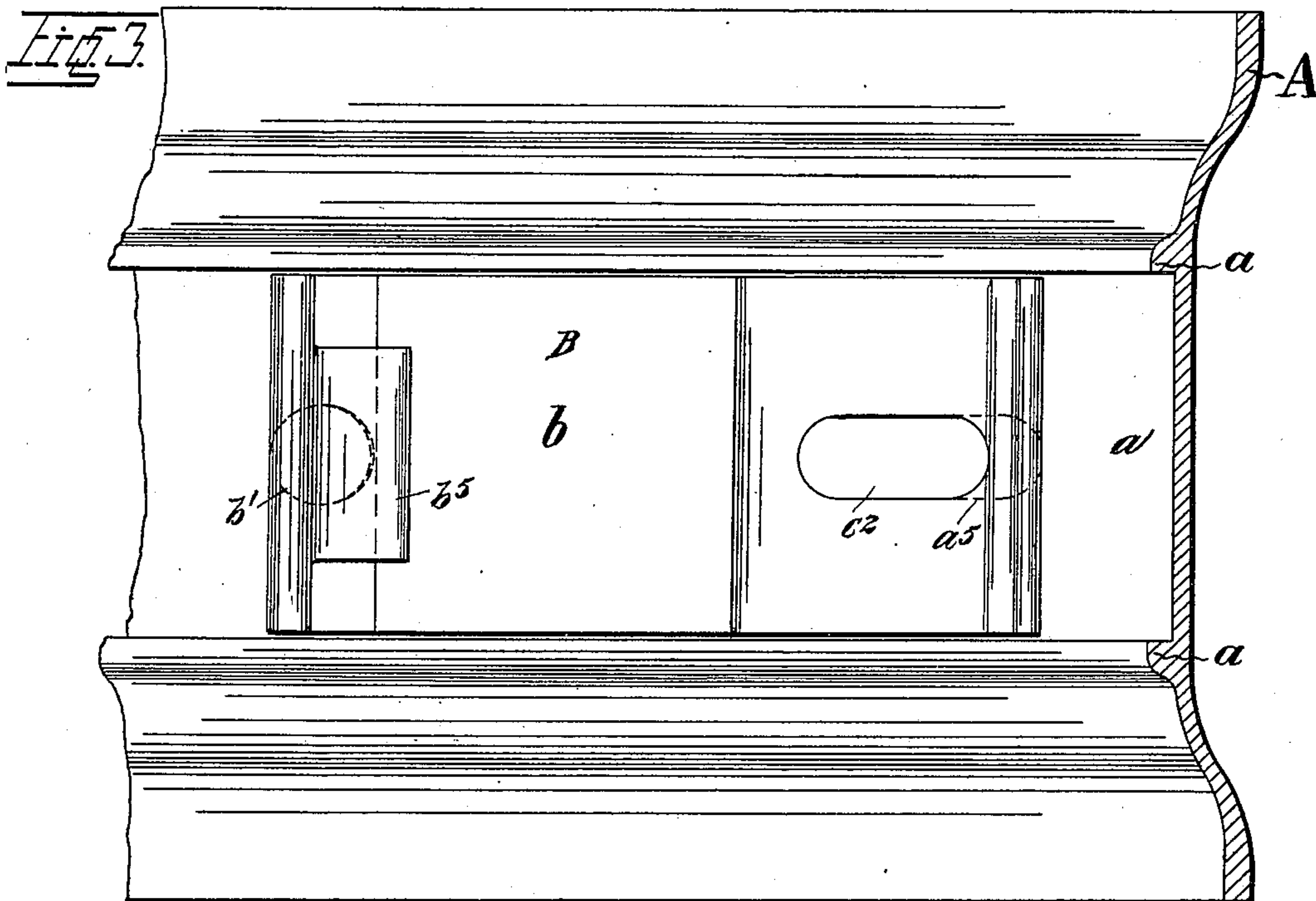
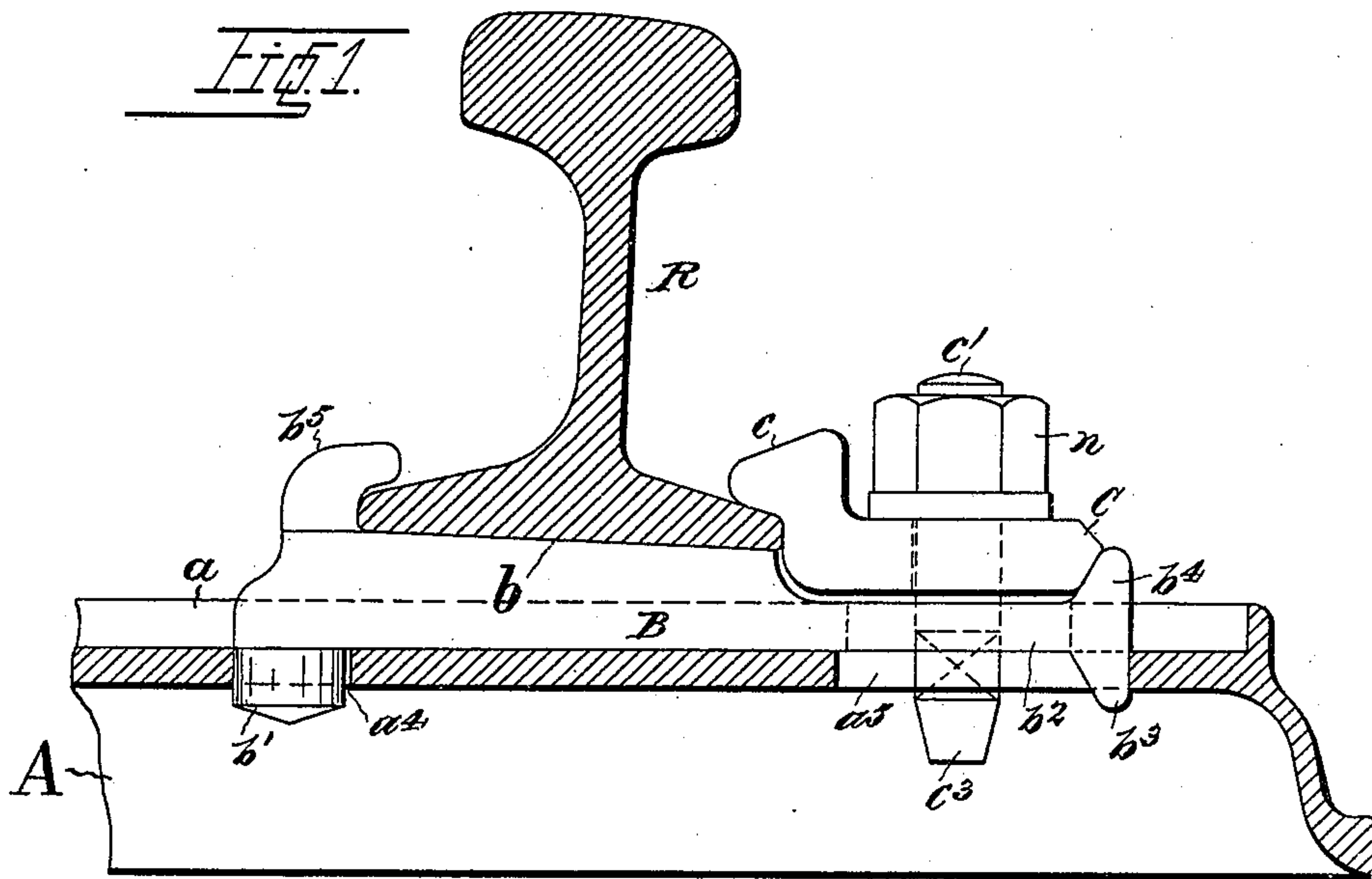
Patented Jan. 2, 1900.

A. HAARMANN.
PERMANENT WAY.

(Application filed June 27, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

Ed. Ober.

B. H. Sommers

Inventor,
August Haarmann!
by *[Signature]*
Atty.

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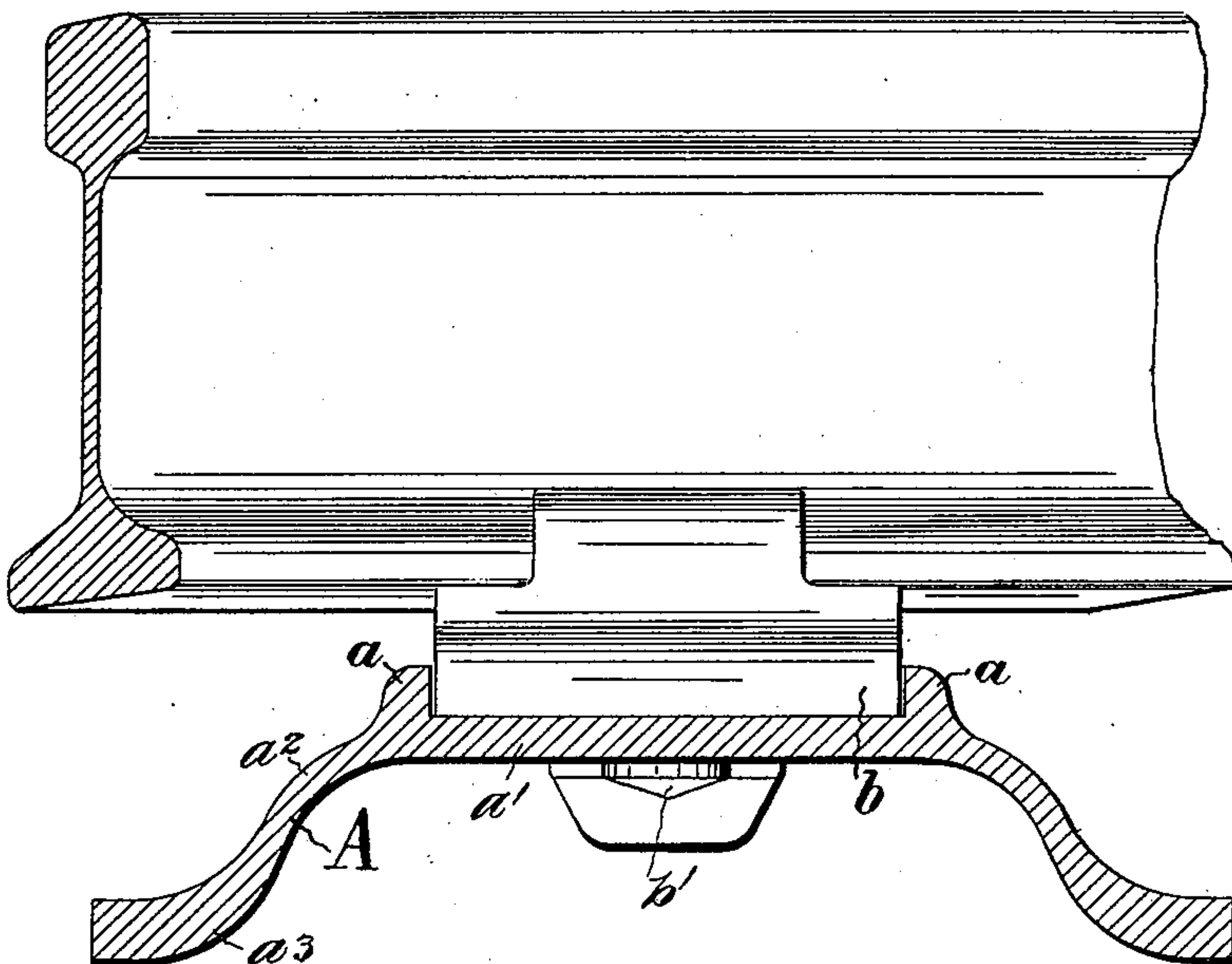
A. HAARMANN.
PERMANENT WAY.

(Application filed June 27, 1899.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

AUGUST HAARMANN, OF OSNABRÜCK, GERMANY.

PERMANENT WAY.

SPECIFICATION forming part of Letters Patent No. 640,654, dated January 2, 1900.

Application filed June 27, 1899. Serial No. 722,087. (No model.)

To all whom it may concern:

Be it known that I, AUGUST HAARMANN, general director, a subject of the German Emperor, residing at Osnabrück, Germany, have
5 invented certain new and useful Improvements in Permanent Ways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as
10 it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

15 This invention has relation to metallic ties for railways. Various forms of metallic ties have been proposed before my invention. As is well known, cast-iron ties will not answer for heavy traffic, and the form of the ties heretofore proposed has been such that they could
20 not be rolled, or, if capable of being rolled, they do not possess the required strength.

One of the great disadvantages in metallic ties as heretofore constructed lies in the small
25 space between the surfaces of the rail and tie and in the fact that the side flanges or walls form an acute angle or a more or less acute angle with the top of the rail, which is incompatible with strength, and whenever said
30 flanges or side walls have been provided with a base-flange the latter also forms either a right angle or a more or less acute angle with said side walls. This latter feature renders the packing of the tie very difficult, this being
35 usually done with a pick of peculiar construction, by means of which the ballast or the material of the road-bed is driven into the tie and packed.

The object of my invention lies in the construction of a metallic tie of the greatest possible strength with a minimum of weight, which can be readily rolled and readily packed. This I accomplish by giving the tie the form
40 of an arch in cross-section, or as much so as is compatible with the provision of a bearing-face for the rails, and by providing the side walls of such a tie with basal flanges of increased thickness and curving or flaring outwardly from the curved or concavo-convex
50 side walls, so that in packing such a tie the material driven in by the pick meets with no resistance, but follows freely the curvilinear

internal surfaces of the said side walls, thus facilitating and expediting the packing or bedding of the tie.

To increase the strength of the tie, I form on its upper face, intermediate of its longitudinal edges, two unbroken longitudinal ribs that extend from one end to the other, said ribs also serving to hold the rail-chair against displacement transversely of the tie.

My invention has for its further object the provision of means for supporting the rails at a proper distance from the upper or bearing surface of the tie, and this I accomplish by means of a chair, and a chair-clamp adapted to secure such chair to the tie by means of a single bolt provided with a cross-head straddling a longitudinal slot in said tie and passing through a slot in the base of the chair.

That my invention may be fully understood I will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a fragmentary longitudinal sectional view of a metallic tie embodying my invention, illustrating the means for securing the rail thereto. Fig. 2 is a cross-sectional view of Fig. 1, and Fig. 3 is a fragmentary top plan view of the tie.

As shown in Fig. 2, the metallic tie A has a flattened roof a' , bounded on each side by an unbroken longitudinal rib a , from which extend the side walls a^2 of concavo-convex form and terminating in outwardly flaring or extending basal flanges a^3 , the surfaces of which are also curvilinear or substantially concavo-convex, the convexity of the side walls being external, while that of the basal flanges is internal, forming a substantially arched-structure—namely, a structure of the greatest possible strength with a minimum weight of metal, increased by the longitudinal ribs a . In practice I form the basal flanges a^3 of increased thickness, as shown, so as to afford a firm bearing on or in the road-bed. The described form of side walls a^2 and basal flanges a^3 facilitates the packing of the tie, as hereinabove mentioned.

Between the ribs a on the roof or bearing-face a' of the tie, at proper points near each end, I form a hole a^4 , Fig. 1, and at a suitable distance therefrom a longitudinal slot a^5 , and between said ribs a is fitted a chair B,

provided with a lug b' ; fitting into hole a^4 in the tie, and with an extension b^2 , T-shaped in side elevation, whose downwardly-projecting flange b^3 abuts against the outer end wall of slot a^5 in tie A.

The chair portion proper, b , on which the rail R is seated, is, as shown, of greater thickness than the extension b^2 , so as to support said rail at a proper elevation above the tie, and said chair has an overhanging flange b^5 for the foot of the rail.

In practice the seat-surfaces b of the chairs B are preferably inclined toward the outer ends of the tie, so that any strain at right angles to the rails will be exerted on the tie in opposite directions. The chair is secured to the tie by means of a clamping-plate C , also fitting the space between the ribs a and having a flange c engaging the rail-foot, the outer end of the plate C abutting against the vertical flange b^4 of the extension b^2 of the chair B , said plate C having a bolt-hole for the passage of a T-bolt c' , which extends through a slot c^2 , Fig. 3, in said plate and through a slot a^5 in the tie, the T-head c^3 of said bolt straddling the last-named slot, the bolt being secured by means of a suitable nut n , thus firmly securing the chair B against displacement longitudinally and transversely of the tie.

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

1. A metallic railway-tie having a flat bearing-surface bounded on each side by an unbroken longitudinal rib, and having its side walls arched or curving outwardly and terminating in basal flanges of increasing thickness the internal faces of which curve inwardly, for the purpose set forth.

2. A metallic tie provided on its upper face with unbroken longitudinal ribs, and a rail-chair provided with a flange constructed to engage the foot of a rail and with a lug fitting a hole in the upper part or roof of the tie, and with a slotted and T-shaped extension, the downward flange of which abuts against the outer end wall of a longitudinal slot in the aforesaid roof of the tie, in combination with a slotted clamping-plate constructed to engage the foot of the rail and abut against the upwardly-projecting flange on the chair extension, and means for securing said plate to the chair extension and tie, for the purpose set forth.

3. A metallic tie provided on its upper face with unbroken longitudinal ribs, and a rail-chair provided with a flange constructed to engage the foot of a rail, and with a lug fitting a hole in the upper part or roof of the tie, and with a slotted and T-shaped extension, the downward flange of which abuts against the outer end wall of a longitudinal slot in the aforesaid roof of the tie; in combination with a slotted clamping-plate constructed to engage the foot of the rail and abut against the upwardly-projecting flange on the chair extension, and a T-bolt extending through the slots in the tie and chair extension and through a hole in the clamping-plate, and a suitable nut for securing said bolt, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

AUGUST HAARMANN.

Witnesses:

HENRY HASPER,
WALDEMAR HAUPT.