

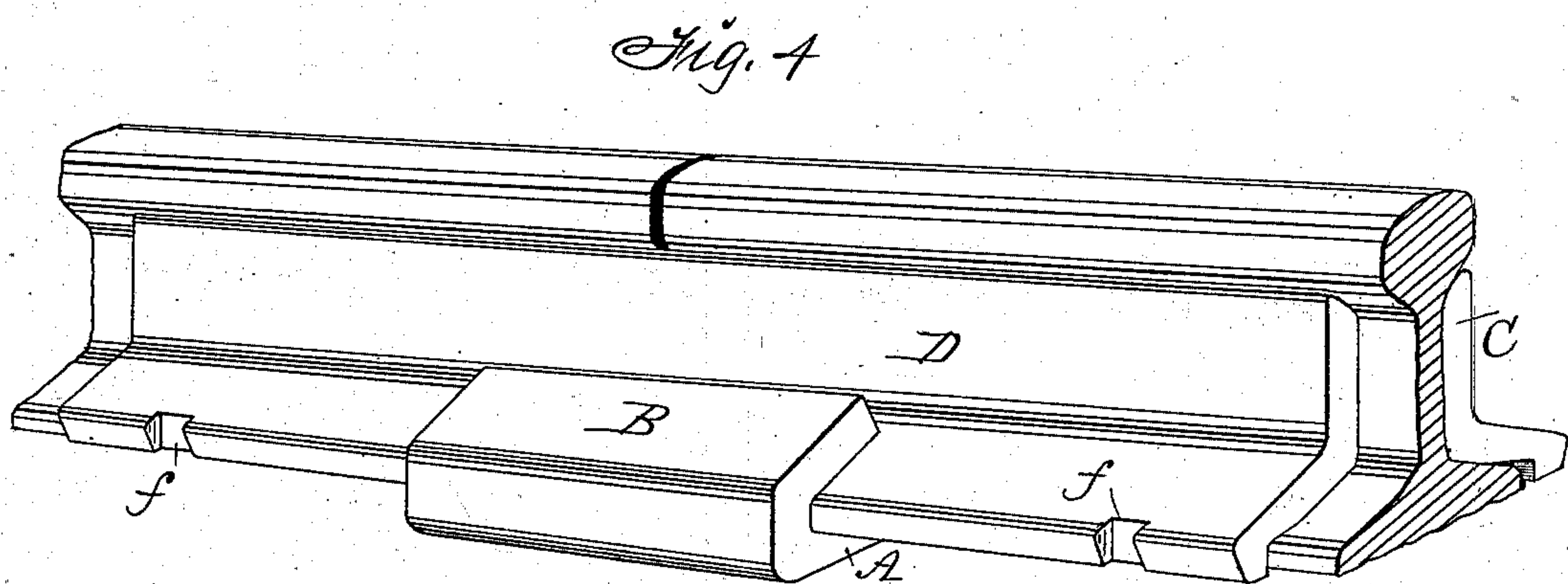
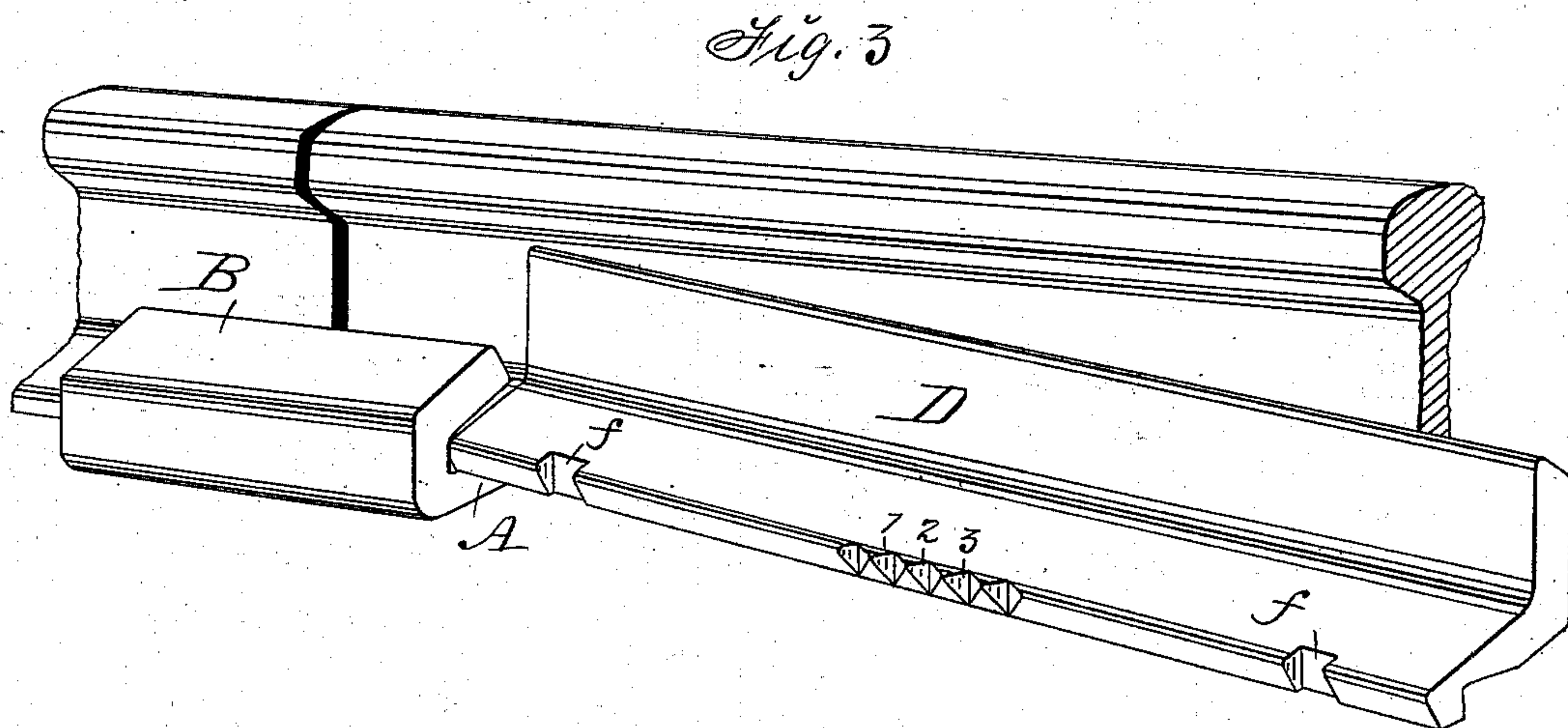
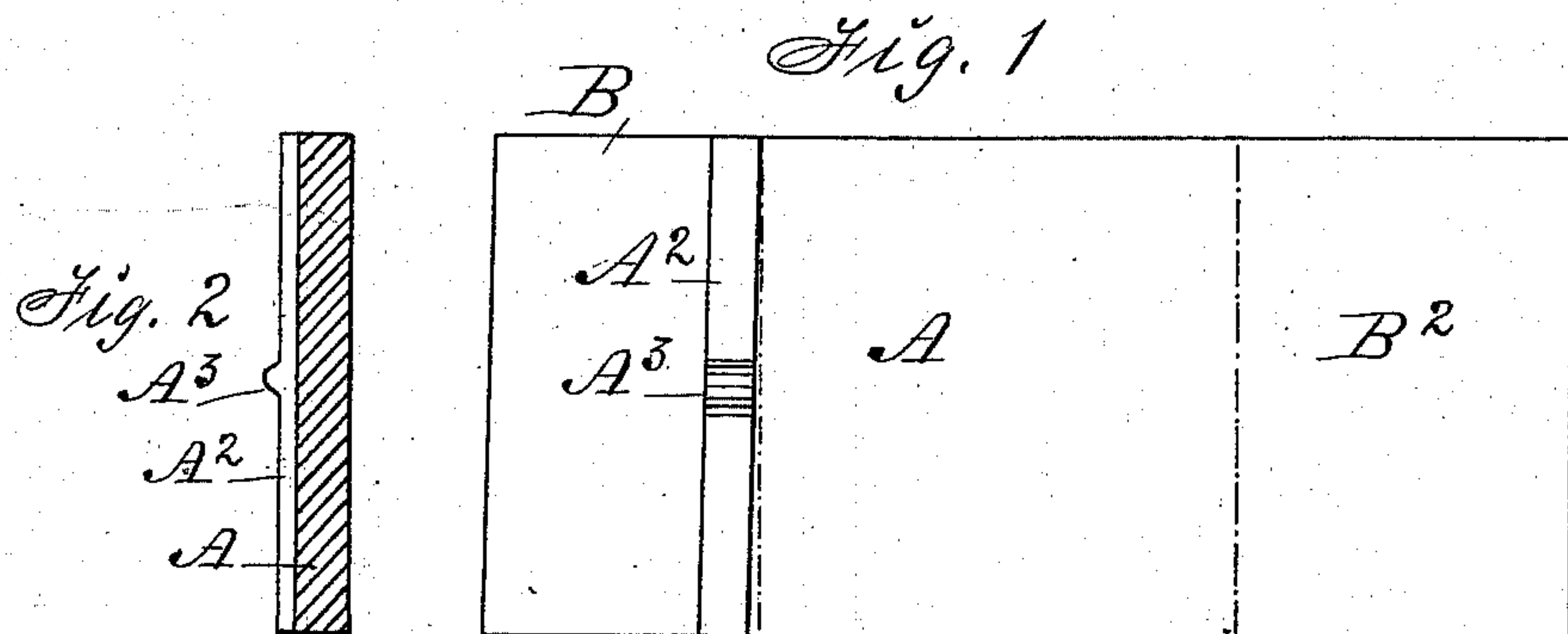
(No Model.)

2 Sheets—Sheet 1.

T. E. BILLINGTON.
RAILWAY RAIL JOINT AND LOCK.

No. 284,169.

Patented Sept. 4, 1883.



Witnesses:
E. H. Faylor,
H. A. Stoltenberg.

Inventor:
Thomas E. Billington,
By Thomas G. Orwig, Attorney.

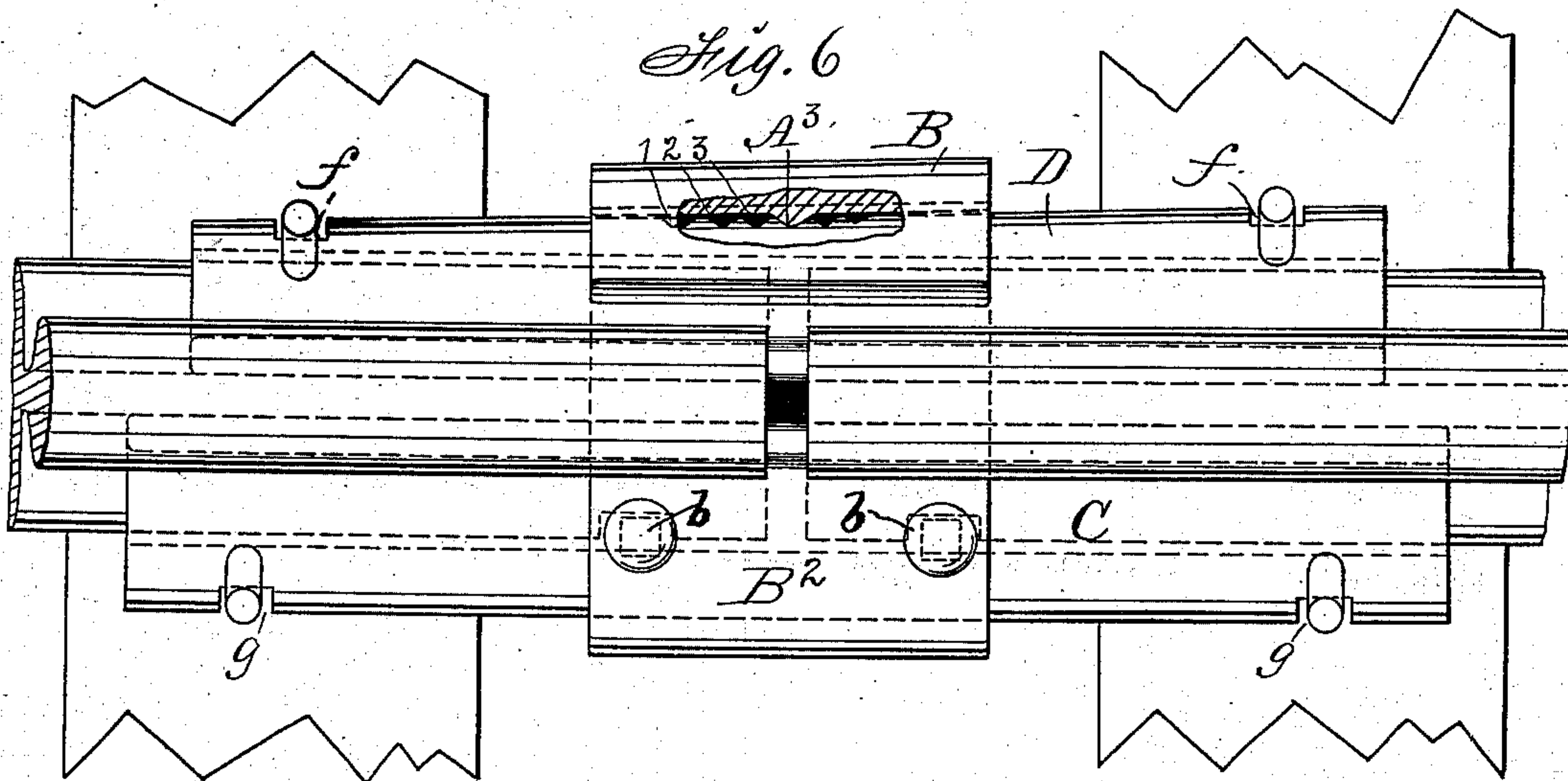
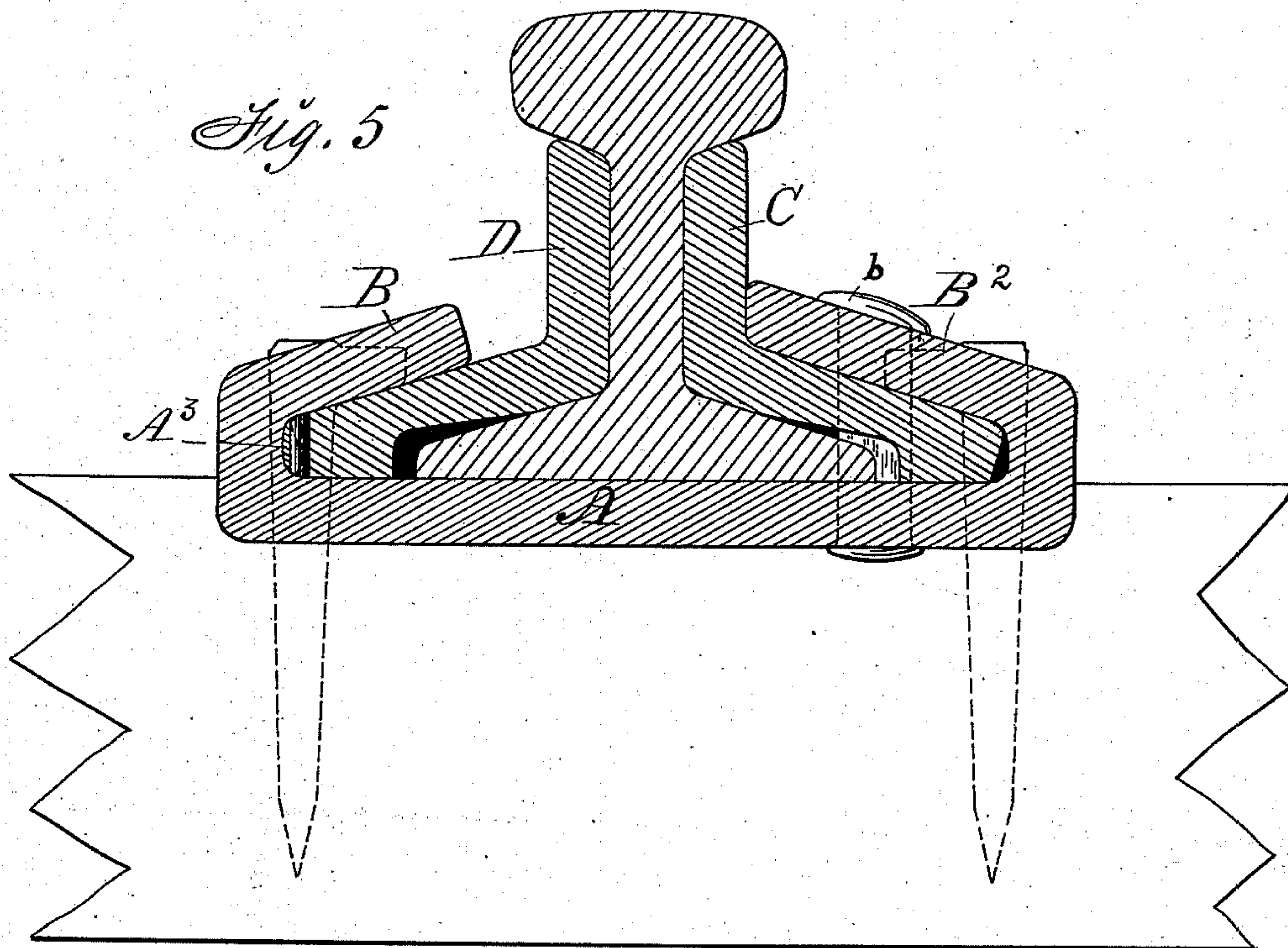
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T. E. BILLINGTON.
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UNITED STATES PATENT OFFICE.

THOMAS E. BILLINGTON, OF DES MOINES, IOWA.

RAILWAY-RAIL JOINT AND LOCK.

SPECIFICATION forming part of Letters Patent No. 284,169, dated September 4, 1883.

Application filed December 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. BILLINGTON, of Des Moines, in the county of Polk and State of Iowa, have invented an Improved Railway-Rail Joint-Lock, of which the following is a specification.

My invention is an improvement of the rail-joint lock represented in the United States Letters Patent No. 218,990, issued to Elijah F. Locke, August 26, 1879, and my object is to simplify its construction, reduce its cost and the number of its parts, facilitate its application and removal, and improve its efficiency in keeping the abutting ends of two rails firmly in position and line as required to maintain an even track, and to prevent the ends of the rails from becoming unduly worn by the friction, pressure, and concussion of the wheels of passing trains incident to loose joints and uneven surfaces in continuous railway-tracks.

My improvement consists, first, in the manner of forming an elastic clamp and base-plate or chair and combining a jaw or fish-plate therewith; second, in forming the detachable top plate wedge-shaped and adapted to engage the elastic clamp and base-plate or chair, and also the rails, all as hereinafter fully set forth.

Figure 1 of my accompanying drawings is a top view of the wrought-metal blank from which I form my elastic clamp and base-plate. Fig. 2 is a transverse section of Fig. 1. Fig. 3 is a perspective view, showing my two plates in position relative to each other and the ends of two rails as required preparatory to locking them together. Fig. 4 is a perspective view, showing the two plates and the ends of two rails locked together as required to produce a firm rail-joint. Fig. 5 is a transverse section, and Fig. 6 a top view of the joint and lock. Together these figures clearly illustrate the construction, application, and operation of each part of my complete invention.

A represents the base-plate and chair-blank. It has a narrow raised surface, A^2 , extending across the top, slightly inclined at the point or line where it is to be bent to produce a clamp.

A^3 is a tooth formed integral with the raised surface and plate to engage notches in the top plate.

B is the end and portion of the blank A designed to be doubled upward and inward to

produce a clamp. B^2 is the opposite end and portion bent in the same manner, by means of suitable machinery, to form a support for a jaw or fish-plate, C, that is fixed thereto by means of bolts or rivets $b b$, that extend through the plate A and its bent extension B^2 to fasten the angle-plate, jaw, or fish-plate C, and also to serve as stops in restricting the longitudinal movements of the rails that have notches in the edges of their flanged bottoms to admit the bolts $b b$, as indicated by dotted lines in Fig. 6.

D is the top plate, made slightly tapering, longitudinally, and of elbow shape in its cross-section. Its under side conforms in shape with the sides of the rails which it is designed to engage and to key or lock together on the base-plate and clamp A B. The horizontal portion of the upper surface of this top plate and key conforms in shape with the elastic clamp B that extends from the base-plate or chair A. A series of notches, 1 2 3, having uniform inclines on each side of each notch, are formed in its lower edge to engage the tooth A^3 , that is formed integral with the extension and elastic clamp B, as clearly shown in Fig. 6, and as required to prevent any longitudinal movement of the top plate relative to the base-plate while in use.

$f f$ are notches formed in the lower edge of the key and top plate, D, through which notches spikes are to be driven into the wooden ties. $g g$ are corresponding notches in the edge of the jaw or fish-plate C.

My improved base-plate or chair A, having a tooth, A^3 , and an elastic clamp, B, formed integral therewith, is preferably made of wrought-iron. The top plate and key, D, is also formed complete in one piece by casting in a mold or cut from plate-iron and shaped by means of suitable dies. These two pieces may vary in size, weight, and configuration as required to suit different sizes and forms of railway-rails.

In the practical use of my improved plates, when forming a rail joint and lock therewith, I fasten the rails to wooden ties in a common way by means of spikes, and then place my base-plate or chair against the abutting ends of the two rails that project over the ties in such a manner that the jaw or fish-plate will engage the sides of the rails and cover the horizontal flange and edge, as clearly shown in Fig. 5.

I then put the top plate and key, D, in position, as shown in Fig. 3, and by means of a suitable hammer or maul drive it under the elastic clamp B, that extends inward from the outer edge of the base-plate or chair A and into position, as shown in Fig. 4. By then driving spikes through the notches *f* and *g* in the projecting ends and edges of the top plate and key, D, and the jaw or fish-plate C, and into the wooden ties that support the rails, the complete joint and track will be firmly fixed and all the parts securely locked together, as required to produce and maintain a continuous even surface on top of the continuous track composed of a series of rails, and also as required to allow independent longitudinal contraction and expansion to each rail. The tooth A³, formed integral with the elastic base-plate A B to engage the serrated or notched central portion of the edge of the top plate and key, D, will readily slip in and out of the notches 1 2 3 as the plate is moved longitudinally by the force of blows on its ends. To unlock and remove the plates I simply drive the top plate and key in an opposite direction from that in which it was forced to lock the parts together.

I am aware that a railway-chair having jaws to engage the opposite sides of the ends of two abutting rails has been locked to the rails by

means of a wedge driven under the rails longitudinally, and a wedge driven transversely through openings in the chair to engage the head of the longitudinal wedge; but my manner of forming and combining a chair and single wedge to produce a railway joint and lock is novel and greatly advantageous.

I claim as my invention—

1. The improved tapering railway-joint top plate or key, D, having notches 1 2 3 in its edge, and its under surface shaped to fit against and over the abutting ends of rails, and its top and outside surface shaped to conform with the inside and under surface of the elastic clamp B, in combination with my base-plate and clamp A B C, having a tooth, A³, substantially as shown and described, for the purposes specified.

2. The improved railway joint and lock composed of the base-plate A B B², having a tooth, A³, and a jaw or fish-plate, C, the abutting ends of two rails, and the detachable top plate and key, D, having a series of notches, 1 2 3, in its edge, substantially as shown and described.

THOMAS E. BILLINGTON.

Witnesses:

THOMAS G. ORWIG,

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