

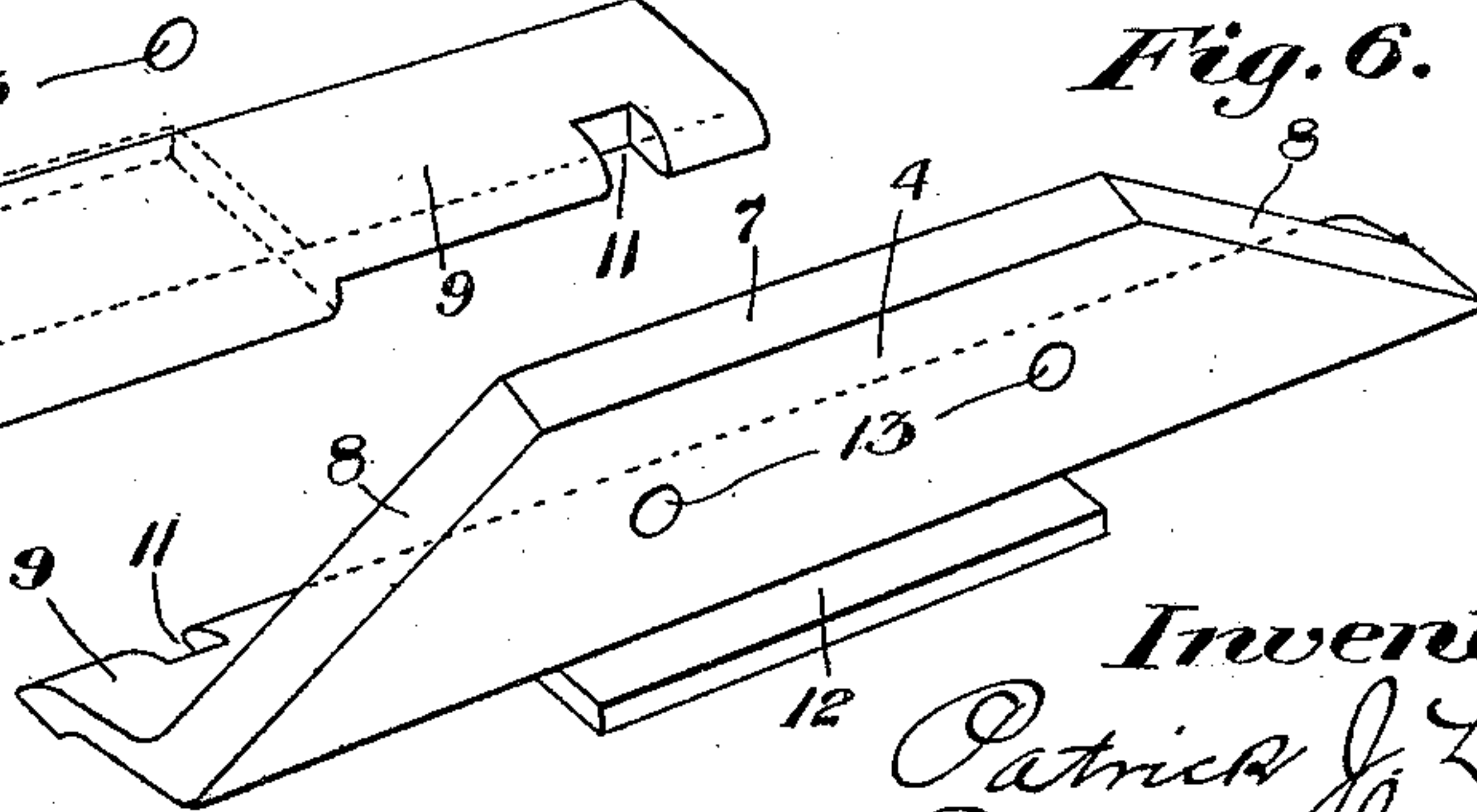
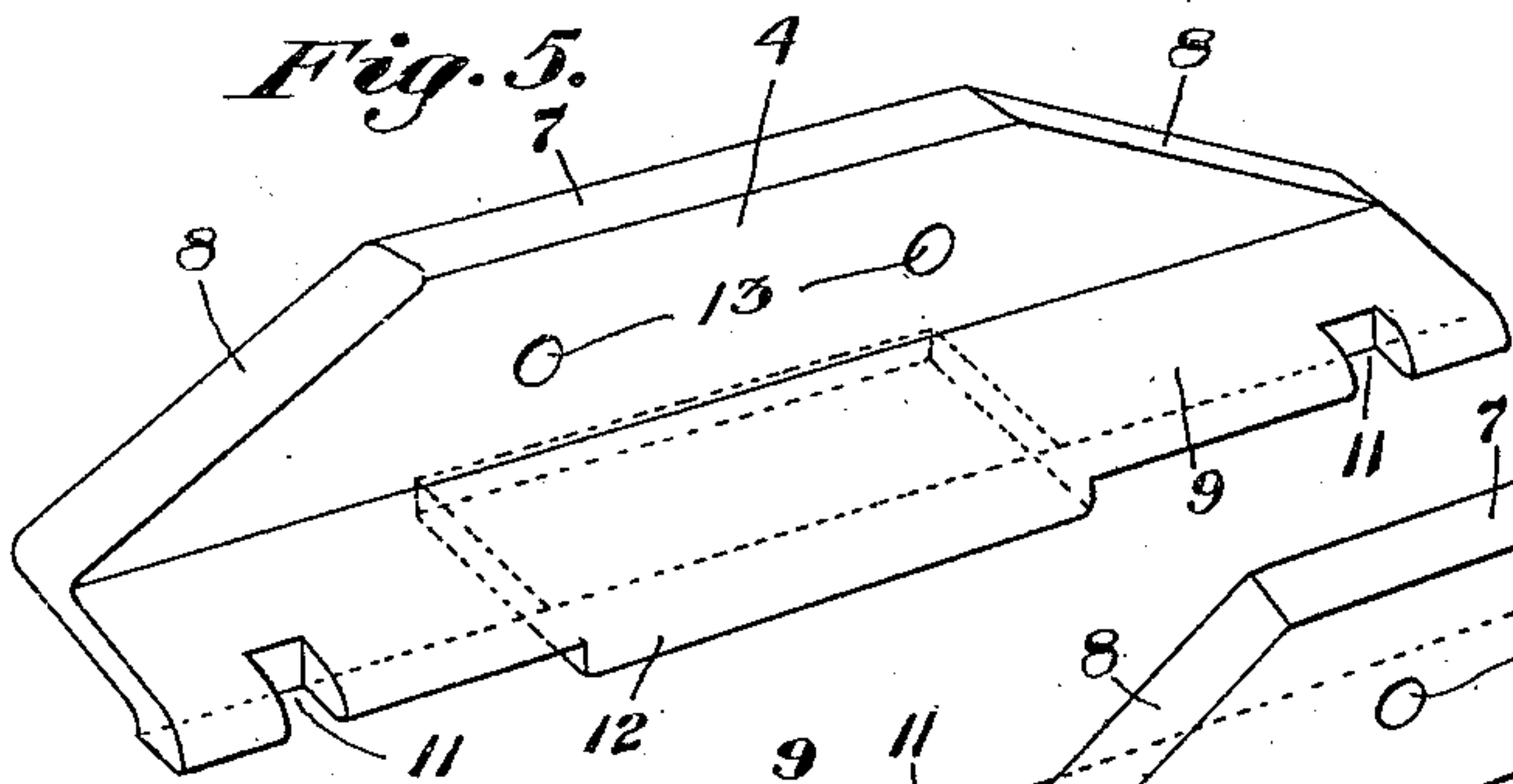
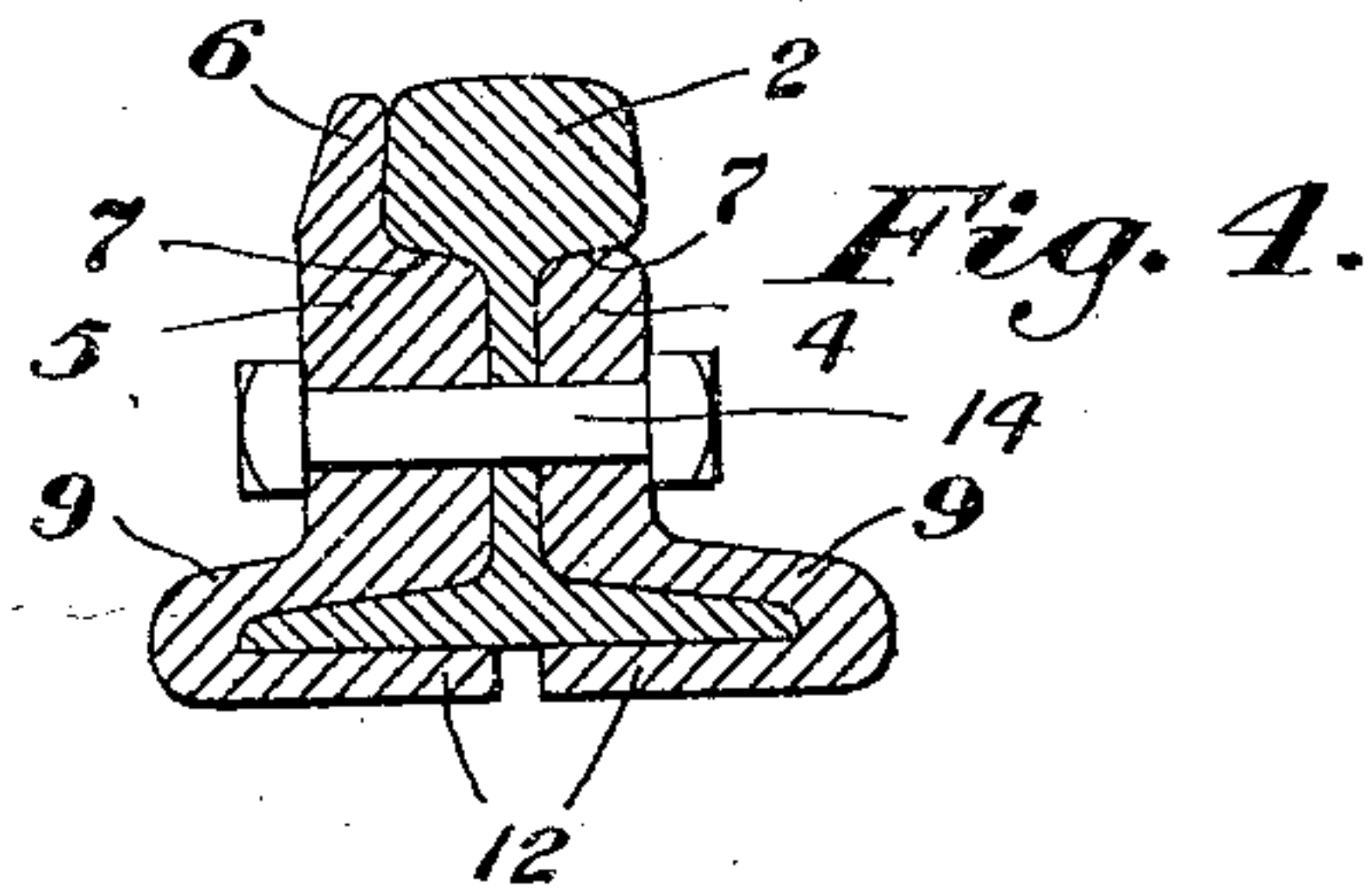
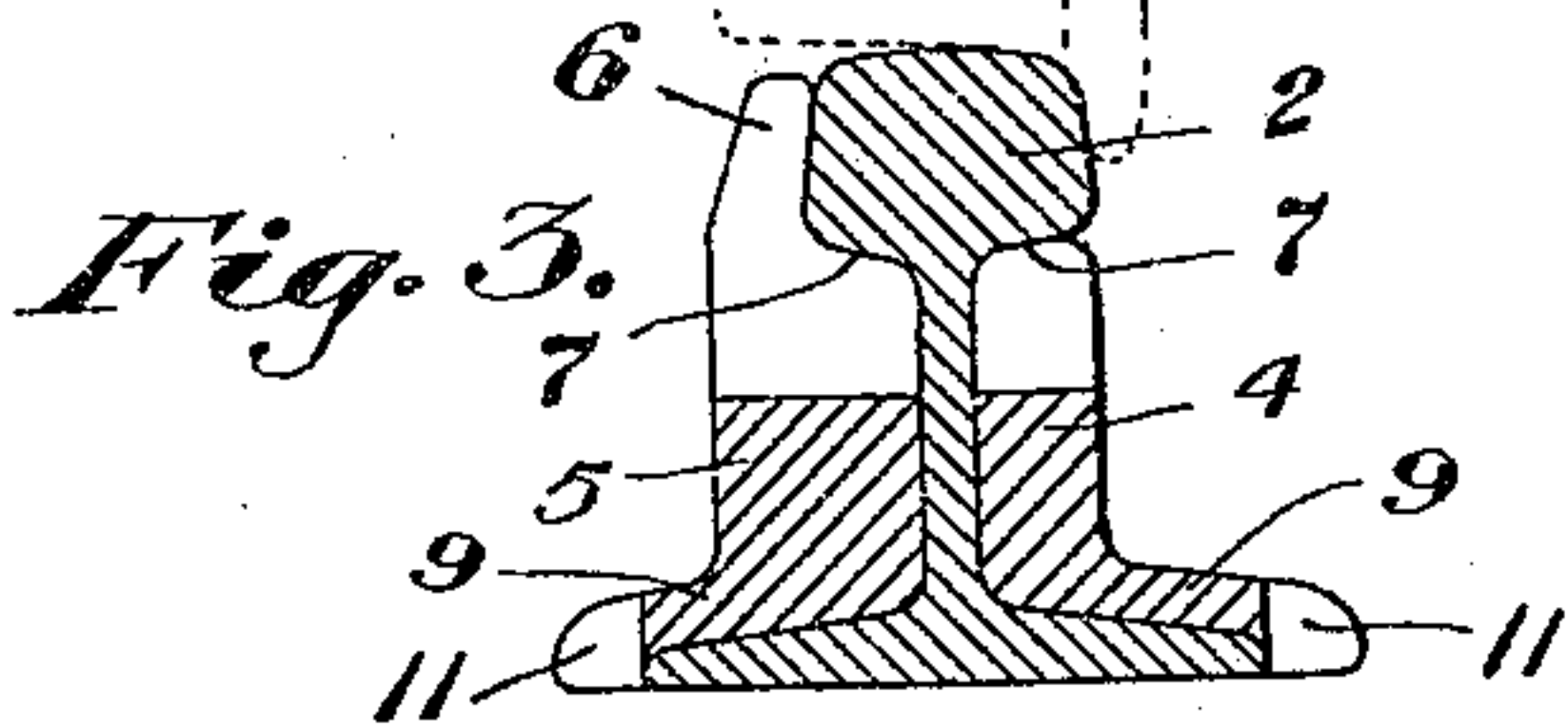
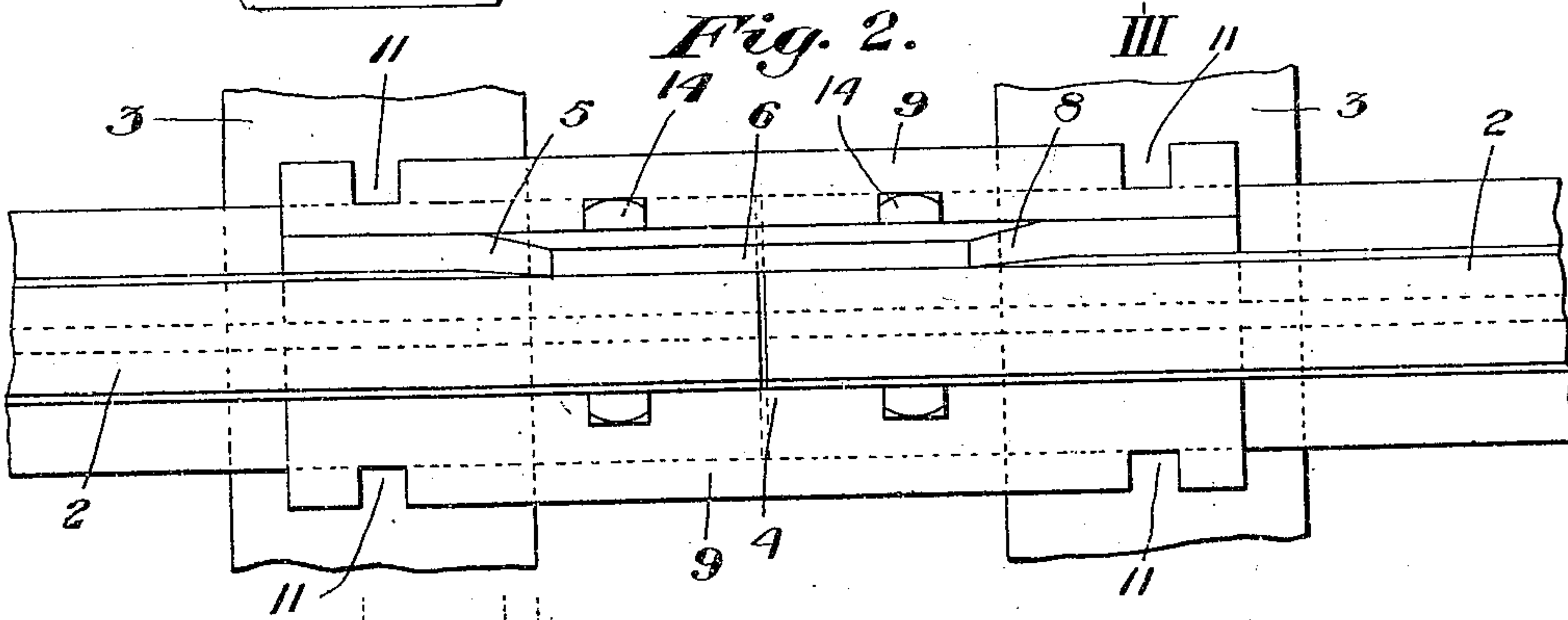
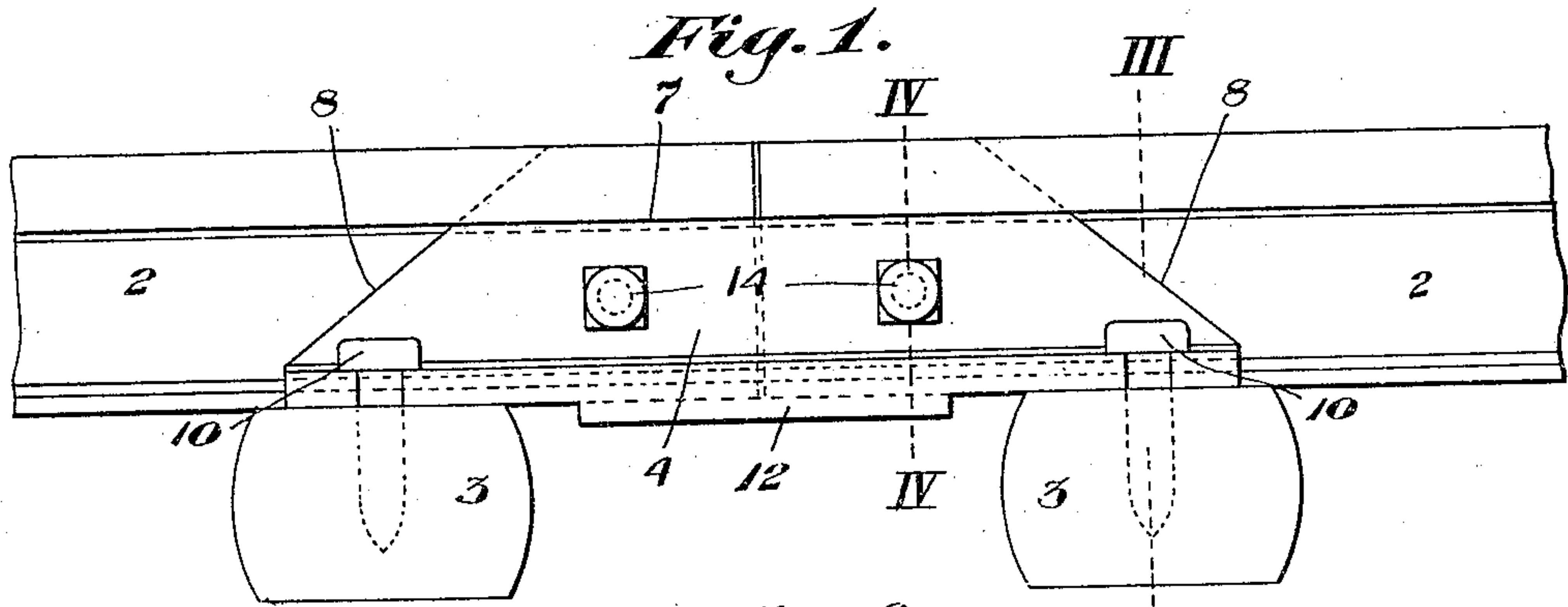
No. 806,741.

PATENTED DEC. 5, 1905.

P. J. HANEY & P. J. LALLEY.

RAIL JOINT.

APPLICATION FILED APR. 3, 1905.



Witnesses:

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# UNITED STATES PATENT OFFICE.

PATRICK J. HANEY, OF BEAVERFALLS, AND PATRICK J. LALLEY, OF FALLSTON, PENNSYLVANIA.

## RAIL-JOINT.

No. 806,741.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed April 3, 1905. Serial No. 253,416.

*To all whom it may concern:*

Be it known that we, PATRICK J. HANEY, residing at Beaverfalls, and PATRICK J. LALLEY, residing at Fallston, in the county of Beaver and State of Pennsylvania, citizens of the United States, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of the specification, in which—

Figure 1 is a view in side elevation of a rail-joint, showing the application of our improved connecting fish-plates. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a cross-section on the line III III of Fig. 1. Fig. 4 is a similar view on the line IV IV of Fig. 1. Figs. 5 and 6 are perspective views from opposite sides of the inner fish-plate.

Our invention refers to improvements in rail-joints, and refers more particularly to the construction of the connecting fish-plates and their manner of incorporation with the meeting ends of the connected rails, the object being to provide a joint wherein the rails themselves rest directly upon the ties, while the fish-plates embrace and support the rails at the sides underneath the flanges and also the heads of the rail in such a manner as to provide a supporting-truss of great strength, the fish-plates being so designed at their upper supporting portion as to solidly support the rail-heads.

Referring now to the drawings, 2 2 are the ends of adjacent rails resting upon the usual ties 3 3 and meeting about midway of the ties.

4 is the inner fish-plate, the outer face of which is practically flush with the inner face of the rails, so as to provide sufficient clearance for the wheel-flanges, while the outer fish-plate 5 is provided with a supplemental upper portion 6, extending up to the level of the top of the rail at its outer side, as clearly shown in Figs. 3 and 4, the fish-plate being correspondingly thickened, its outer face extending vertically below such upper extension 6. Both the inner and outer fish-plates have a bearing portion 7 fitting snugly underneath the head of the rail, which bearing portion is purposely made of reduced length, or, in other words, shorter than the full length of the bar or of the usual length of such devices as commonly used. The object of this construction is to shorten the supporting area

underneath the head of each rail, thus materially assisting in keeping the rails in perfect alinement by overcoming the leverage of the weight of the rolling-stock in approaching and leaving the joint. Ordinarily where the heads of the rails are supported for the full length of the bar, which is usually from twenty to thirty inches in length, the outer upper corners of the bars act as fulcrums upon which the ends of the rails are raised, deflecting their inner ends upwardly sufficiently far to cause pounding and other injurious results, notably creeping of the rails. By our improved construction the bearing-base 7 is made comparatively short, as stated—say about ten inches—and the ends of the fish-bars are tapered off downwardly toward the ends, as indicated at 8, thereby providing truss-shaped fish-plates, the bottom flanges 9 of which extend outwardly in the usual manner and downwardly over the rail-flanges, terminating at the level of the bottom thereof. These bottom portions are of the usual length—say twenty to thirty inches—and rest upon the ties, to which they are secured by spikes 10, inserted in lateral cavities 11 in the flanges 9, whereby the inner face of the spike bears against the rail-flange, the same construction being used in both fish-bars on opposite sides. At their middle portions the fish-bars are provided with downwardly and inwardly extending reinforcing-webs 12, which embrace the flanges at each side and extend inwardly to within a short distance of each other, practically meeting, as shown in Fig. 4. The object of this construction is that the meeting ends of the rails are closely confined and the fish-bars are greatly reinforced at the point of greatest strain, so that when the weight is directly over the joint the webs 12 contribute to the stiffening and holding power of the fish-plates. Each plate is provided with two or more bolt-holes 13, one or more at each side of the joint, by which the bars are tightly connected together by bolts 14, passing through the webs of the rails in the usual manner.

It will be observed that by the foregoing construction the joint is very compact and solid, that the rail-heads are supported in a manner designed to overcome the objections noted, that the base of the joint is sufficiently long to securely rest upon and between the ties, while the depending reinforcing portions



12 of the joint have sufficient clearance between the ties, resulting in the location of the joint between them, which is the approved practice. By making the fish-bars separate  
 5 and in the manner described their application or removal is facilitated, thus simplifying the operation of connecting the rails, while in case of damage or injury to either bar it is not necessary to dispense with the other, but to merely  
 10 renew one.

The bearing-faces 7 fit underneath the heads at each side, and clearance is provided on the inner side for the wheel-flanges, while the outer bar 5 is greatly strengthened and reinforced by means of its thicker body portion due to the upward extension 6, which also braces the rails laterally against outward motion. When assembled, the joint is very tight and serviceable and well adapted to the conditions and shocks to which such devices are subject. It may be made in any length desired or to suit various weights of rails and may be changed in various details of construction by the skilled mechanic; but all such  
 25 changes or variations are to be considered as within the scope of the following claims.

What we claim is—

1. A separable two-part rail-joint having base portions adapted to bear against the web and flanges of the rails for the full length of the joint, intermediate under portions adapted to project inwardly underneath the rail-flanges, and upper head-bearing portions of less length with downwardly-sloping end portions, substantially as set forth.  
 35

2. A separable two-part rail-joint having base portions adapted to bear against the web and flanges of the rails for the full length of the joint, intermediate under portions adapted to project inwardly underneath the rail-flanges, upper head-bearing portions of less length with downwardly-sloping end portions, and a supplemental upwardly-extending reinforcing portion at one side adapted to lie flush with the top of the rail, substantially as set forth.  
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3. In a rail-joint, the combination with the meeting ends of adjacent rails, of an inner and

an outer fish-bar embracing the web and flanges of the rail at each side, provided with 50 under reinforcing portions intermediate of the ends of the bar extending inwardly underneath the rail-flanges, the bars having inwardly and upwardly sloping end portions terminating in shortened head-bearing portions, 55 the outer one of said bars having a supplemental extension projecting upwardly to the level of the top of the rail, substantially as set forth.

4. In a rail-joint, the combination with the 60 meeting ends of adjacent rails, of an inner and an outer fish-bar embracing the web and flanges of the rail at each side, provided with under reinforcing portions intermediate of the ends of the bar extending inwardly under- 65 neath the rail-flanges, the bars having inwardly and upwardly sloping end portions terminating in shortened head-bearing portions, the outer one of said bars having a supplemental extension projecting upwardly to the 70 level of the top of the rail, said fish-bars being provided with spike-openings and secured to the ties at each side of the rail-joint, substantially as set forth.

5. In a rail-joint, the combination with the 75 meeting ends of adjacent rails, of an inner and an outer fish-bar embracing the web and flanges of the rail at each side, provided with under reinforcing portions intermediate of the ends of the bar extending inwardly under- 80 neath the rail-flanges, the bars having inwardly and upwardly sloping end portions terminating in shortened head-bearing portions, the outer one of said bars having a thickened body portion and a supplemental extension 85 projecting upwardly to the level of the top of the rail, said fish-bars being provided with spike-openings and secured to the ties at each side of the rail-joint, substantially as set forth.

In testimony whereof we affix our signatures 90 in presence of two witnesses.

PATRICK J. HANEY.  
 PATRICK J. LALLEY.

Witnesses:

CLARK S. ANDERSON,  
 EVA M. ANDERSON.