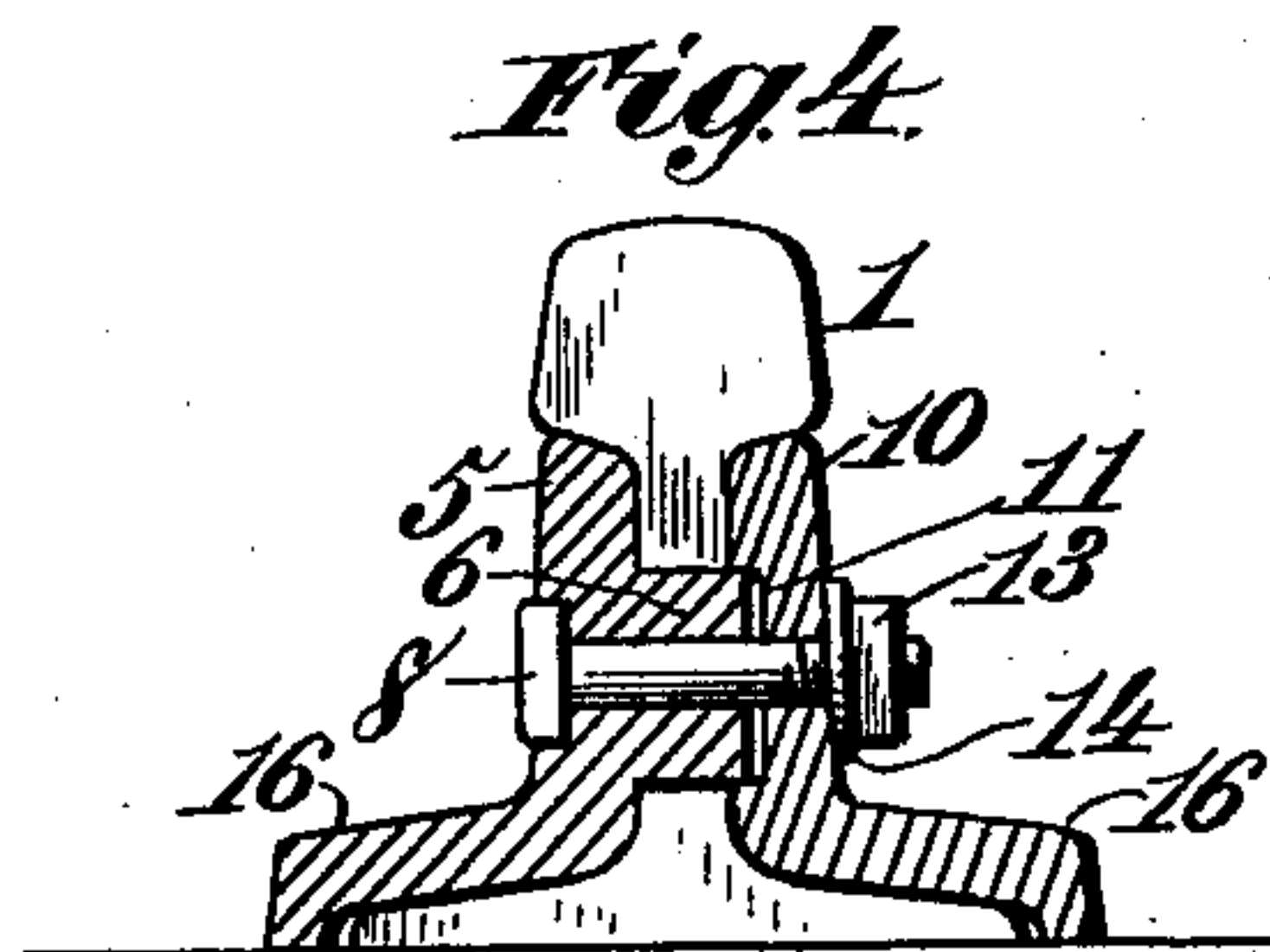
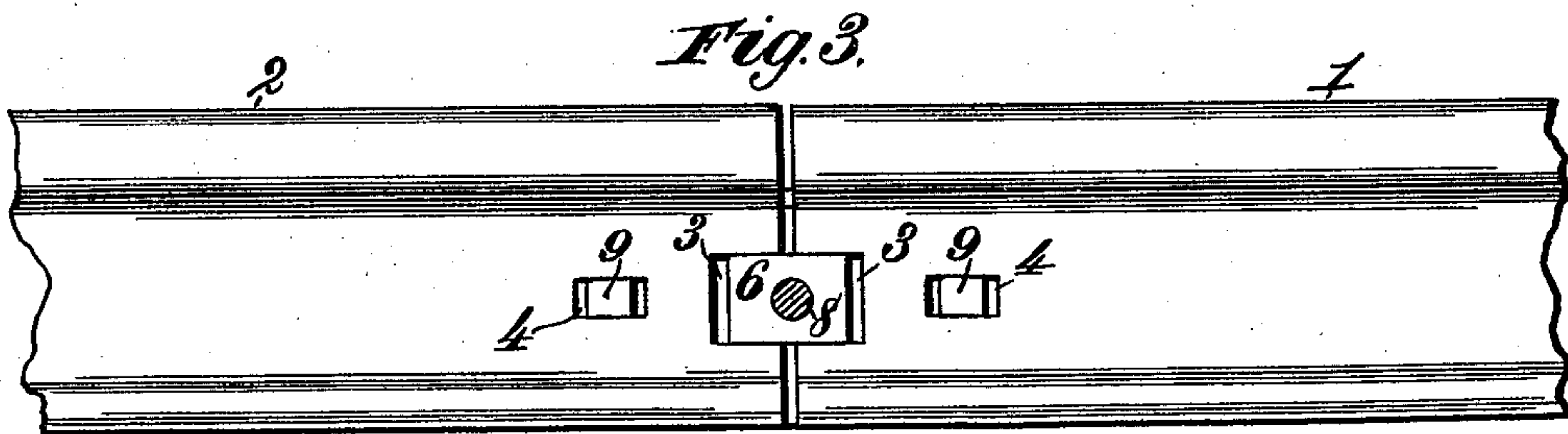
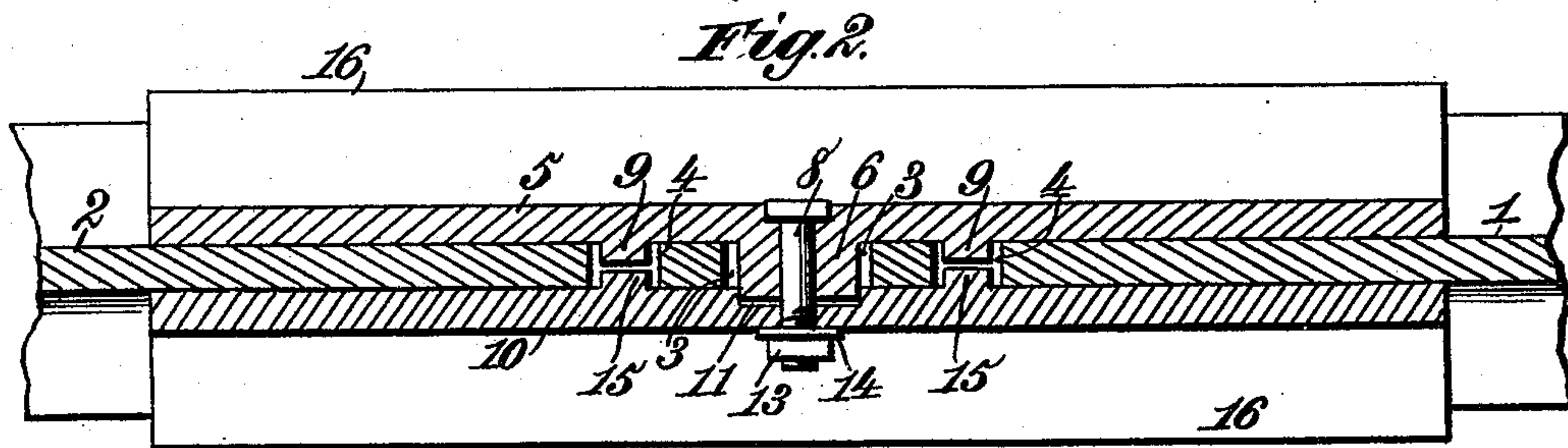
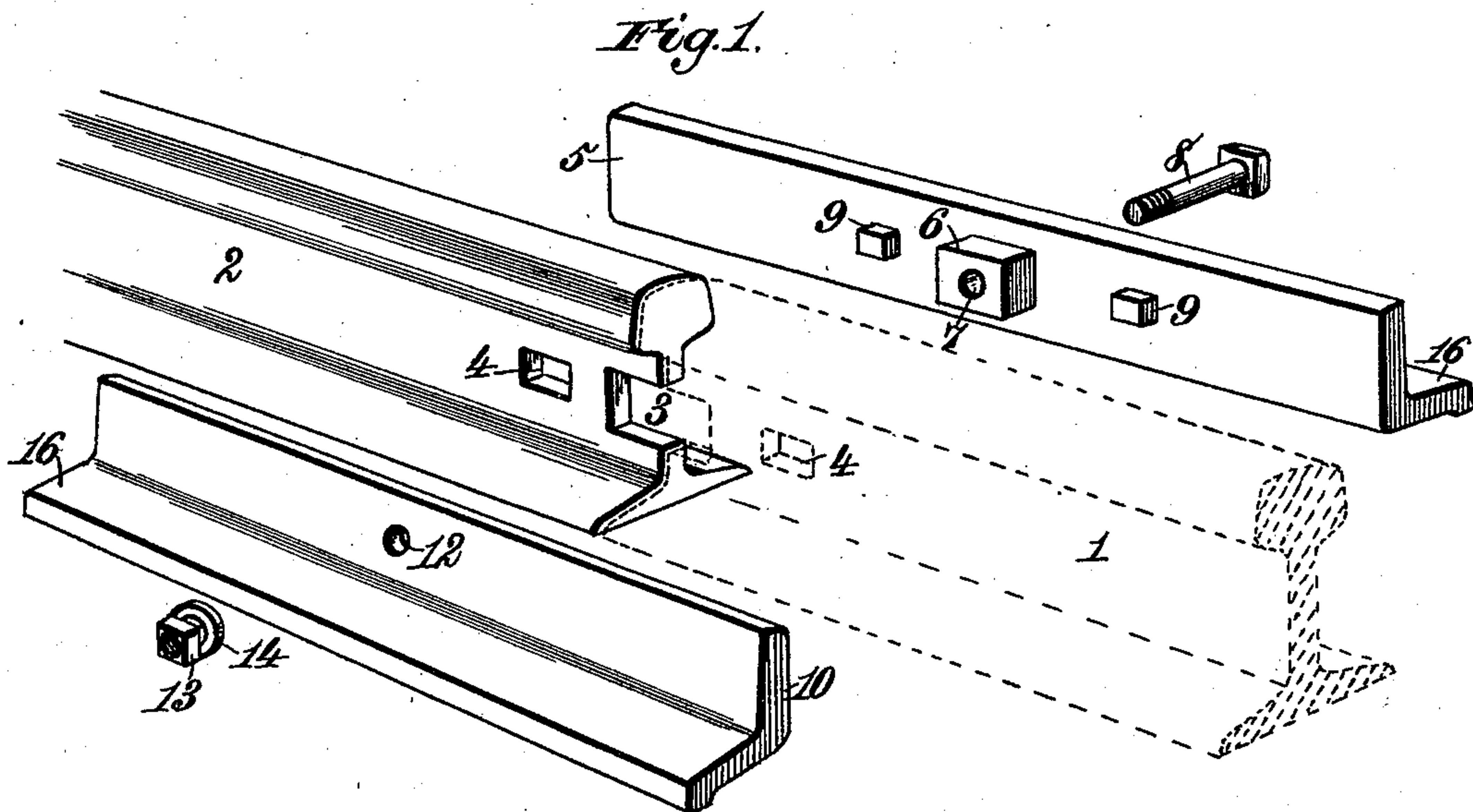


(No Model.)

W. J. MORRISON.  
FASTENING FOR RAILWAY RAILS.

No. 581,217.

Patented Apr. 20, 1897.



Witnesses.  
*Robert G. Pratt.*  
*J. B. Keefe*

Inventor.  
*William J. Morrison.*  
By *James L. Norris.*  
*Atty.*



# UNITED STATES PATENT OFFICE.

WILLIAM J. MORRISON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO JAMES FOSTER, OF SAME PLACE, AND JOHN OSBORNE, OF HOMESTEAD, PENNSYLVANIA.

## FASTENING FOR RAILWAY-RAILS.

SPECIFICATION forming part of Letters Patent No. 581,217, dated April 20, 1897.

Application filed February 17, 1897. Serial No. 623,891. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. MORRISON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Fastenings for Railway-Rails, of which the following is a specification.

This invention relates more particularly to fastenings for railway-rails, but is applicable also for the coupling together of rails and beams used in the construction of buildings, bridges, and wherever it is required to provide a safe and secure expansible and contractile joint for the meeting or opposing ends of various kinds of beams and rails. As applied to railway-rails the invention furnishes a very simple, inexpensive, and reliable coupling adapted to prevent the objectionable independent vibration of the opposing ends of two rails and the consequent loosening of the rail-fastenings at the joints and fish-plates.

The invention consists in features of construction and novel combinations of devices comprised in a fastening for rails and beams, as hereinafter more particularly described and claimed.

In the annexed drawings, illustrating the invention, Figure 1 is a perspective of my improved fastening or coupling as about to be applied to the joint at the opposing ends of two railway-rails. Fig. 2 is a horizontal longitudinal section through the improved fastening and two connected rails or beams. Fig. 3 is a side elevation of a rail-joint with the fish-plate or splice-bar of one side removed. Fig. 4 is a vertical transverse section through the fastening devices at the joint of a railway-rail, the end of one rail being shown in elevation.

Referring to the drawings, the numerals 1 and 2 represent railway-rails of any usual or ordinary construction. In the web portion of each rail and at each end thereof is formed a substantially rectangular notch or recess 3, Fig. 1, which will form a transverse slot or opening in conjunction with a corresponding notch or recess in the end of an opposing rail. There is also provided in the web portion of each rail a perforation 4, which in the case

of an old rail may be represented by one of the usual bolt-openings.

On one side of the rails 1 and 2 there is placed a fish-plate or splice-bar 5, Figs. 1 and 4, having formed on its inner side a substantially rectangular coupling-lug 6, adapted to enter and pass through the conjoined recesses or notches 3 in the ends of two opposing rails. There is extended centrally through the coupling 6 and attached bar or plate 5 a bolt-hole 7 for passage of a bolt 8, as presently explained. The fish-plate or splice-bar 5 is provided, also, with lugs 9 to enter the perforations 4 from one side, as shown in Figs. 2 and 3.

Opposite the fish-plate 5 there is placed at the side of the rails 1 and 2 a fish-plate or splice-bar 10, Figs. 1, 2, and 4, having in its inner face a rectangular recess or depression 11 to receive that portion of the coupling-lug 6 which projects through the slot formed by the conjoined recesses or notches 3 of the two opposing rails. There is also in the plate or bar 10 a bolt-hole 12, Fig. 1, at about the center of the recess or depression 11 and arranged for passage of the bolt 8, which is preferably first inserted through the bolt-hole of the coupling 6 on the other plate or bar. A nut 13 and washer 14 are provided to engage the protruding end of the bolt 8 and secure the plates or bars 5 and 10 onto the rails.

The fish-plate or splice-bar 10 has on its inner face lugs 15, Fig. 2, that enter the perforations 4 of the rails 1 and 2 opposite the lugs 9 of the plate or bar 5, as shown in Fig. 2.

It is preferable to provide the fish-plates or splice-bars 5 and 10 at their lower edges with flanges 16 to fit over and upon the base portions of the rails, as shown in Fig. 4. These fish-plates or splice-bars are also preferably of a height sufficient to permit them to fit up close under the heads of the rails.

By reference to Fig. 2 it will be observed that the opposing lugs 9 and 15 of the opposite splice-bars or plates 5 and 10 enter the perforations 4 only about midway of the rail-webs, or a little less than midway. It will also be seen by reference to Figs. 2 and 3 that the perforations 4 have a sufficient length to permit a play of the lugs 9 and 15 therein, as



under expansion and contraction of the rails, but at the same time they assist materially in securing a proper fastening of the rail-joint. Being located in the webs of the rails  
 5 at about the position of the usual bolt-holes, the perforations 4 will not weaken the rails as they would tend to if formed in the rail-base or lower flange. In the event of applying this rail-joint fastening to old rails the  
 10 ordinary bolt-openings, which are usually somewhat elongated, may be conveniently utilized for reception of the lugs 9 and 15, and no other perforations need be provided except the recesses 3 at the rail ends.

15 The rectangular shape of the coupling-lug 6 and recesses or notches 3 to receive the same will furnish extended and direct bearing-surfaces throughout the coupling, so that in the passage of loaded trains over the rail-  
 20 joints the opposing ends of both rails will be subjected to a simultaneous and equalized pressure, thereby effectually obviating the objectionable independent vibration of the rail ends at present so common and which  
 25 so greatly weakens a rail-joint and its fastenings. It will be observed, also, as by reference to Figs. 2 and 3, that the length of the slot formed by the recesses 3 is sufficiently greater than the longitudinal width of the  
 30 coupling-lug 6 to permit ample room for expansion and contraction of the rails without disturbing the coupling. Thus while the lugs 9 and 15 of the plates or bars 5 and 10 will assist in holding the rails together the  
 35 coupling-lug 6, through its direct vertical bearings, will cause simultaneous depression of the rail ends without independent vibration and consequent jolting and jarring, and at the same time there is ample provision for  
 40 all ordinary expansion and contraction.

What I claim as my invention is—

1. The herein-described improved rail-coupling consisting of a fish-plate or splice-  
 45 bar having on its inner face a substantially rectangular coupling-lug to enter and project

through conjoined rectangular recesses in the opposing ends of two rails and lugs to enter about midway into perforations of the rail-  
 webs, a fish-plate or splice-bar to be placed on the opposite side of the rails and having  
 50 in its inner face a depression or recess to receive the projecting portion of the said rectangular coupling-lug on the other bar or plate and also having lugs to enter about  
 55 midway into the said perforations of the rail-webs, a bolt to engage openings in the said plates or bars through the said coupling-lug of one bar and corresponding recess of the other bar, and a nut and washer for said bolt,  
 60 substantially as specified.

2. In fastenings for railway-rails, the combination with two rails having perforations through their webs and provided in their ends with rectangular recesses or notches, of  
 65 the two fish-plates or splice-bars located on opposite sides of the rail-joint and each provided with lugs to enter about midway into the perforations of the rail-webs, one of said fish-plates or splice-bars being provided with  
 70 a substantially rectangular coupling-lug to enter and project through the slot or opening formed by the conjoined rectangular recesses or notches in the ends of the rails and the other bar or plate having a recess or depression to receive the projecting portion of said  
 75 coupling-lug, a bolt passed through the said coupling-lug and plates or bars, and a nut for said bolt, the openings for reception of the said lugs and coupling being enlarged to provide for expansion and contraction of the  
 80 rails without disturbing the fastening, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM J. MORRISON.

Witnesses:

F. B. KEEFER,  
 JOHN OSBORNE.