

No. 697,858.

Patented Apr. 15, 1902.

S. W. LESLIE.

RAIL JOINT.

(Application filed Mar. 11, 1901.)

(No Model.)

Fig. 1.

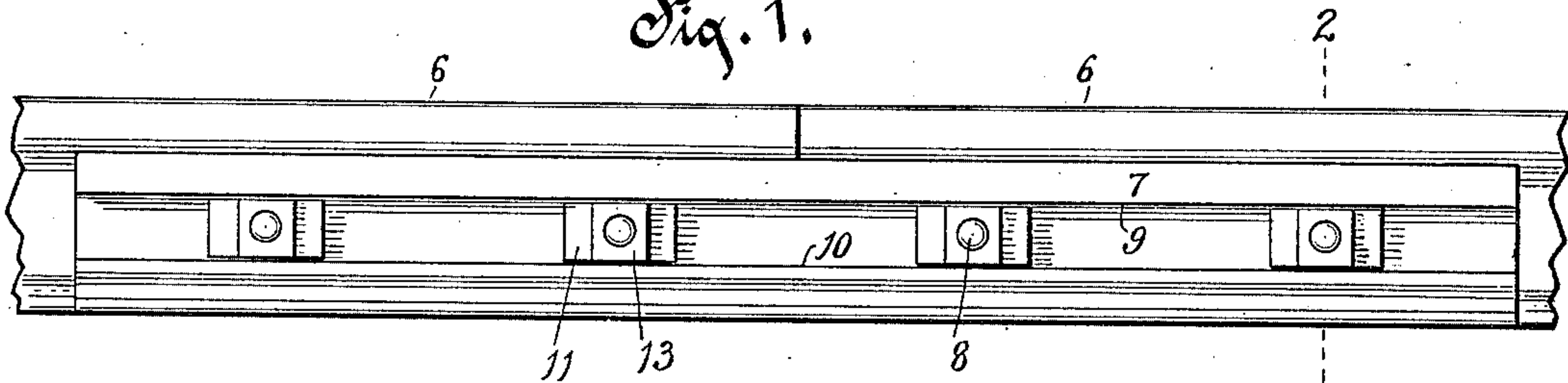


Fig. 2.

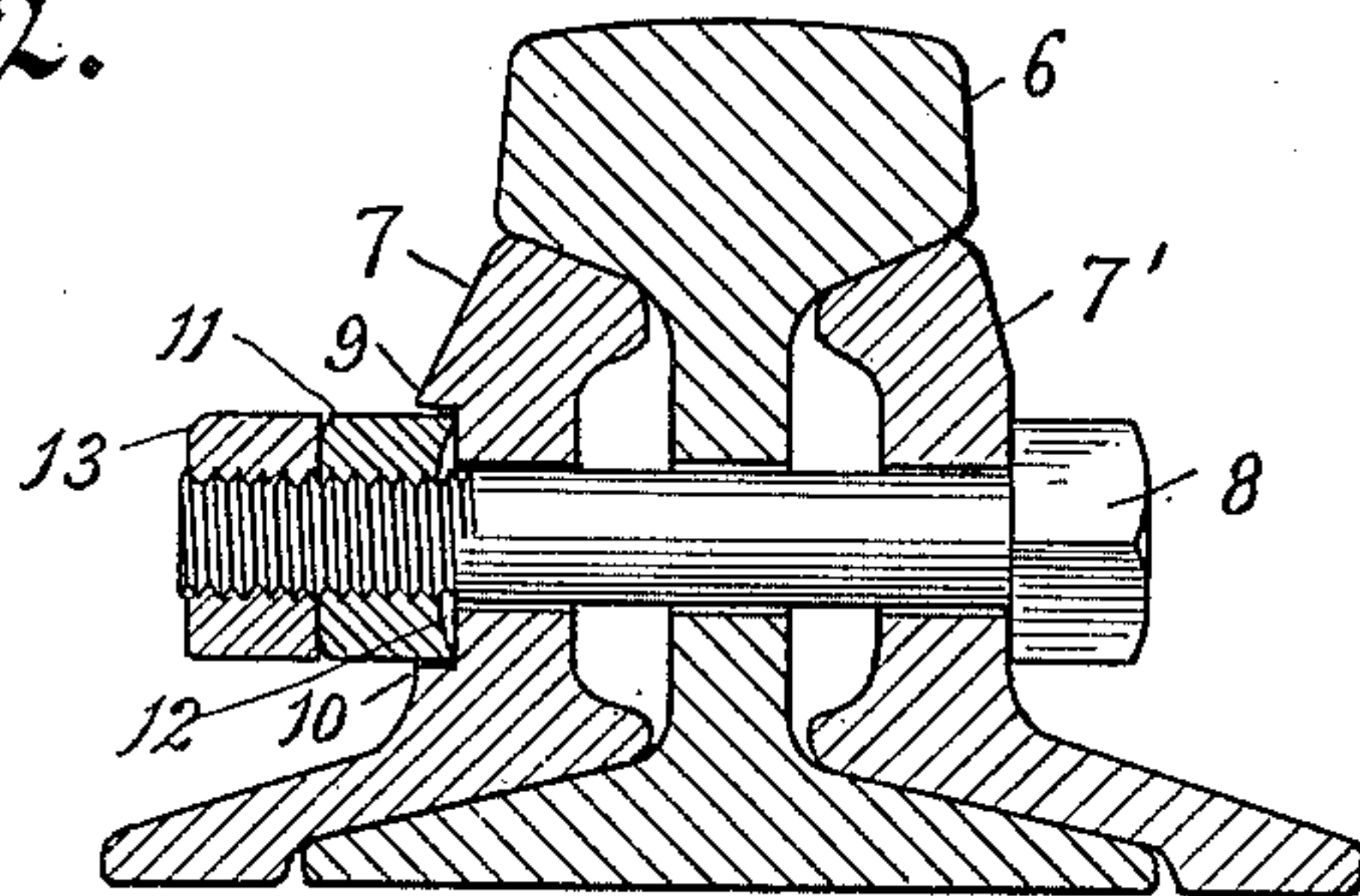


Fig. 3.

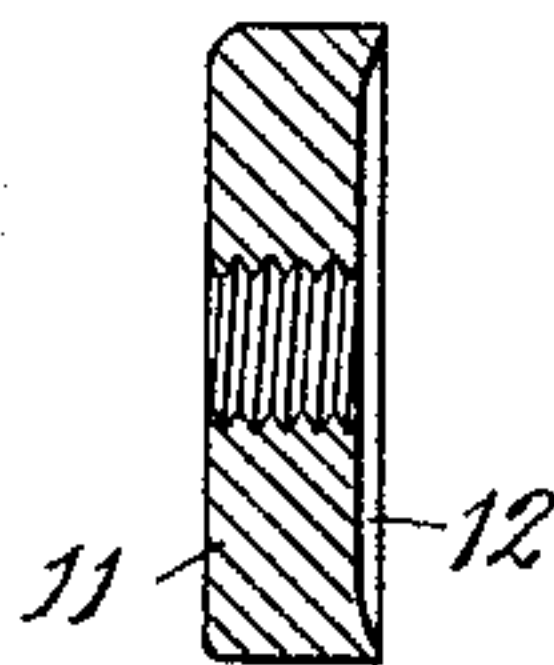


Fig. 4.

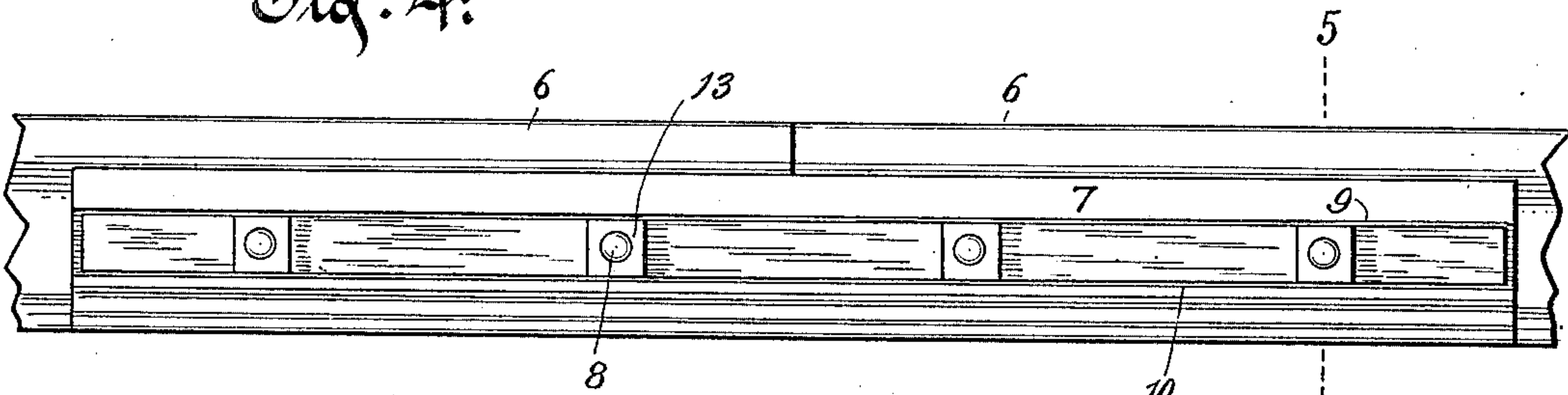
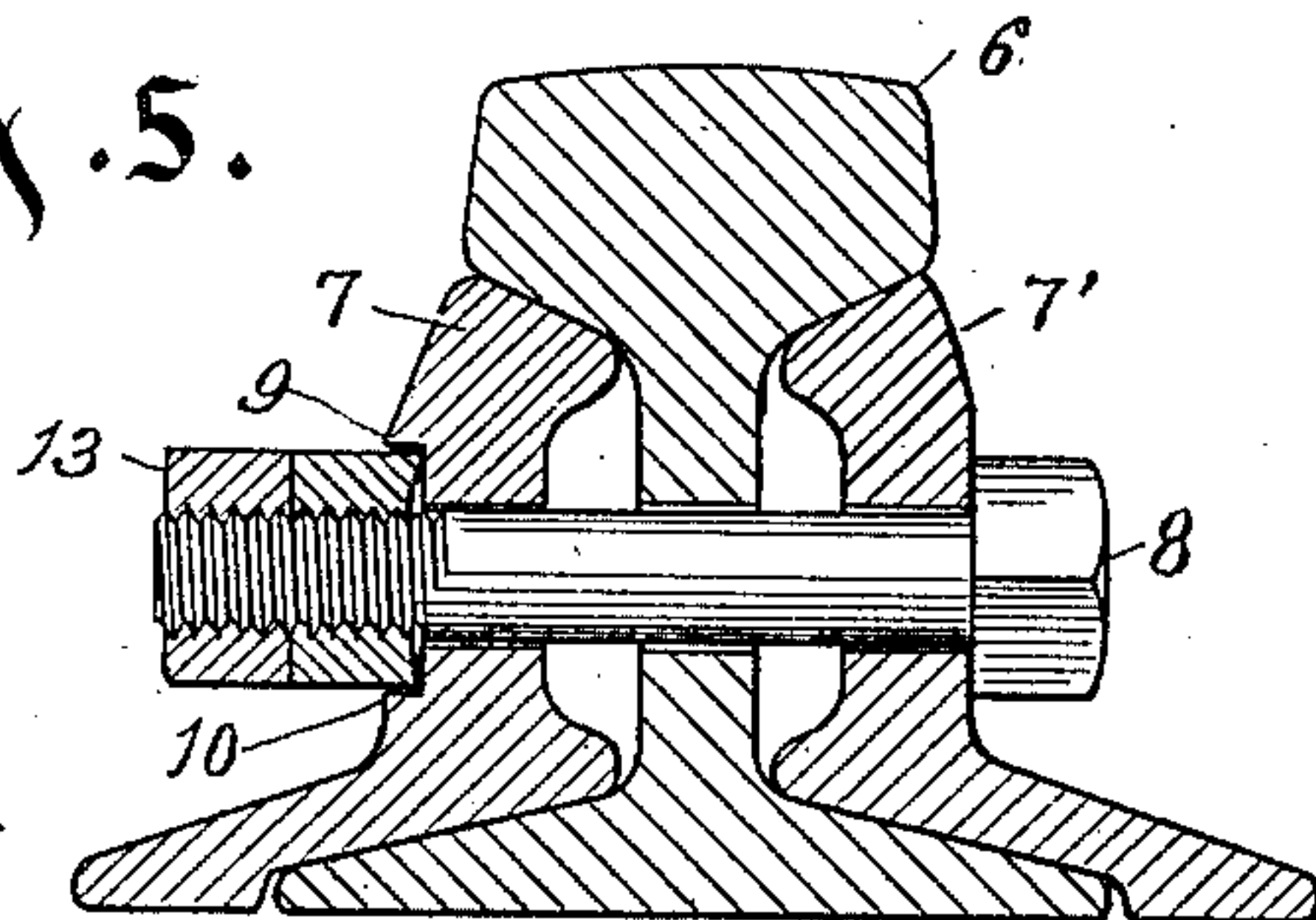


Fig. 5.



Witnesses:

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# UNITED STATES - PATENT - OFFICE.

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## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 697,858, dated April 15, 1902.

Application filed March 11, 1901. Serial No. 50,549. (No model.)

*To all whom it may concern:*

Be it known that I, SILAS W. LESLIE, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful  
5 Improvement in Rail-Joints, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention relates to improvements in  
10 the means for connecting the abutting ends of railway-rails to each other, especially rails of that general class that are employed in the tracks of steam and electric railways in this country.

15 The invention consists of the devices, their parts and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 is a side elevation  
20 showing the abutting ends of fragments of two railway-rails with my improved means for connecting the rails therewith. Fig. 2 is a transverse section on line 2 2 of Fig. 1. Fig. 3 is a transverse section of a preferable form  
25 of nut employed with my improved device. Fig. 4 is an elevation of the abutting ends of two railway-rails provided with my improved means in modified form for securing them to each other. Fig. 5 is a transverse section on  
30 line 5 5 of Fig. 4.

In the drawings, 6 6 are the fragmentary ends of railway-rails. To secure or bind the ends of two railway-rails to each other, I employ plates 7 7', placed one at each side of  
35 the two rails and bearing against the rail laterally and overlapping the two rails for some distance from the abutting ends thereof. The general form of these plates or angle-bars is not material to my invention—that is to say,  
40 whether they are merely plates of the general character of fish-plates or angle-bars bearing against the sides of the rails or whether they are also carried underneath the base of the rails, forming what is commonly known as a  
45 "railway-chair" or "chair-plate;" but the upright portions of the plates are to be rigid and unyielding and are preferably the convex or truss form in cross-section, as best illustrated in Figs. 2 and 5. Bolts 8 8 are inserted through  
50 holes provided therefor in the plates 7 7' and through registering holes therefor in the webs

of the rails. The holes in the webs of the rails are usually elongated or of larger diameter to provide for expansion and contraction of the rails.

The construction thus described is in a general way in common use, and my invention consists in features that are in addition to these general features and are specifically as follows: One of the plates 7 is provided with  
60 a longitudinal rib 9, the lower face of which is in a plane at a right angle to the general plane of the fish-plate 7 and forms the upper wall of a groove extending longitudinally of the plate, from end to end thereof, over and  
65 about the apertures through which the bolts 8 8 project and sufficiently wide to admit nut. Another rib or longitudinal boss 10 is formed on the plate 7, extending the entire length thereof below the bolt-apertures, and  
70 the upper surface of this rib 10 forms a wall or shoulder in a plane substantially at a right angle to the vertical plane of the plate 7, which wall or shoulder is the lower wall of the groove aforesaid, extending the entire length  
75 of the plate, across and about the bolt-apertures. A nut 11, advisably elongated in one direction, fits between the shoulders 9 and 10 and at the bottom of the groove against the plate 7, and a screw-thread on the bolt 8 turns into  
80 the nut 11, binding the plates 7 7' to the interposed rail. The shoulders 9 and 10 prevent the nut 11 from rotating both when the bolt is being turned by its screw-thread into the nut and after the parts are bound to-  
85 gether by the bolt and nut. The bolt-holes through the plates 7 and 7' are of such size that the bolt passes freely endwise through these holes, the head of the bolt engaging the outer surface of the plate 7'. The nut 11 is  
90 preferably made concave or dishing, as shown at 12, whereby the peripheral edge of the inner end of the nut bears tightly against the surface of the plate 7, elastically holding the bar and bolts more firmly, and excludes wa-  
95 ter from the joint between the nut and the plate. I also preferably employ a jam-nut 13, turned on the bolt 8 against the nut 11, to more perfectly secure the bolt in place in the nut 11.

In the modified form of construction shown in Figs. 4 and 5 I employ a bar 14 in place of

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the several nuts 11 required with a rail-joint, and this integral bar is provided with screw-threaded bolt-holes registering with the bolt-holes in the abutting ends of two railway-rails, so that the bolts being inserted through the plates 7 7 and the intermediate web of the rail will register with and properly enter the screw-threaded holes in the bar 14. This bar is of such size as to fit against the plate 7 in the groove therefor formed by the shoulders or ribs 9 and 10. Otherwise the form of construction shown in Figs. 4 and 5 is the same as that shown in Figs. 1 and 2. When a bar of the character of the bar 14 is employed, it must at least be of such length as to extend beyond and receive therein all of the bolts 8. The bar is the equivalent of a plurality of nuts.

What I claim as my invention is—

20 A rail-joint device, comprising a pair of complementary elongated rigid and unyielding joint-plates provided with registering bolt-holes, one of said plates being substantially smooth on its outer surface adjacent to

said bolt-holes and the other plate being provided on its outer surface with shoulders adjacent to said bolt-holes, the shoulders being equidistant from the bolt-holes and parallel with each other and extending the entire length of the plate, a screw-threaded bolt or bolts having an expanded head or heads adapted to be inserted through said pair of plates and through an interposed rail, and a nut or nuts adapted to take said bolt or bolts therein and to fit between and bear against said parallel shoulders, whereby said bolt or bolts may be rotated in the nut or nuts which are held by the shoulders against turning while the inner surface of the head of the bolt or bolts bears against the smooth surface of the non-shouldered plate.

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

SILAS W. LESLIE.

Witnesses:

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W. R. MACDONALD.