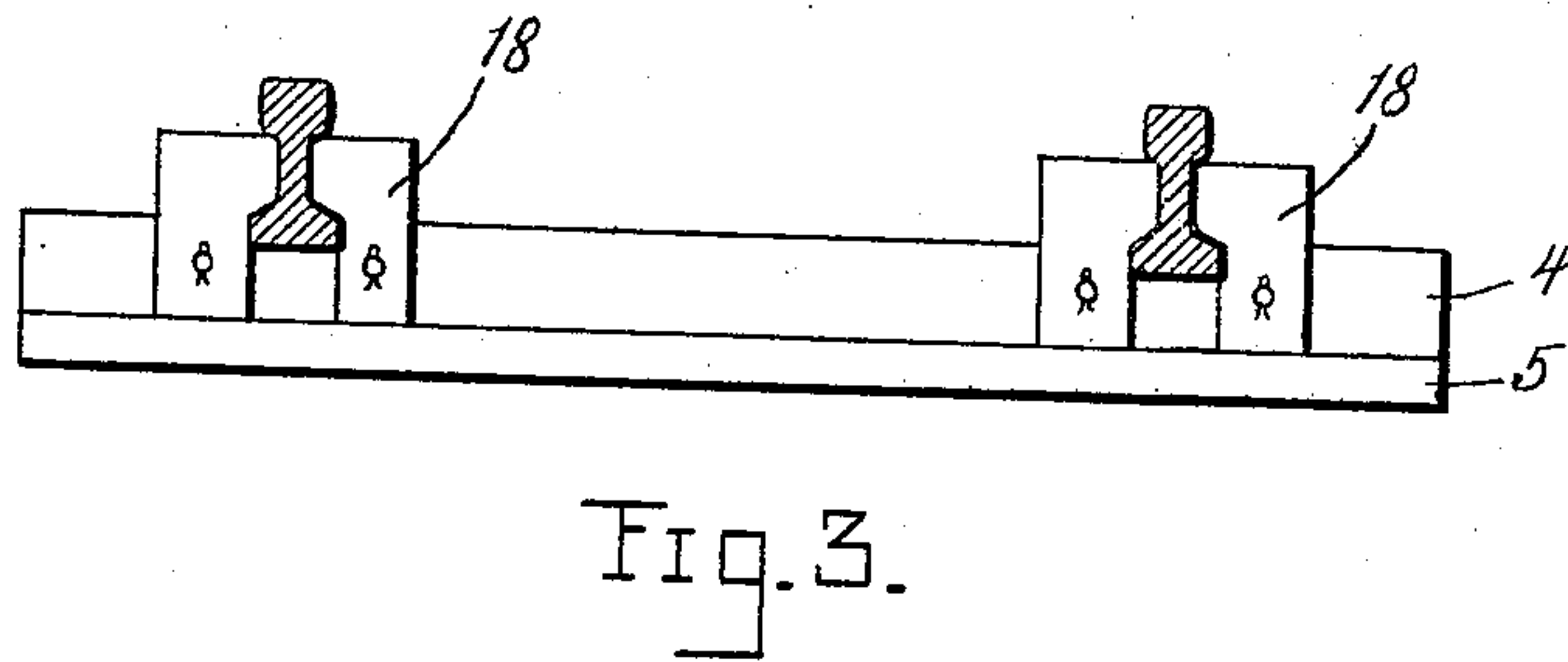
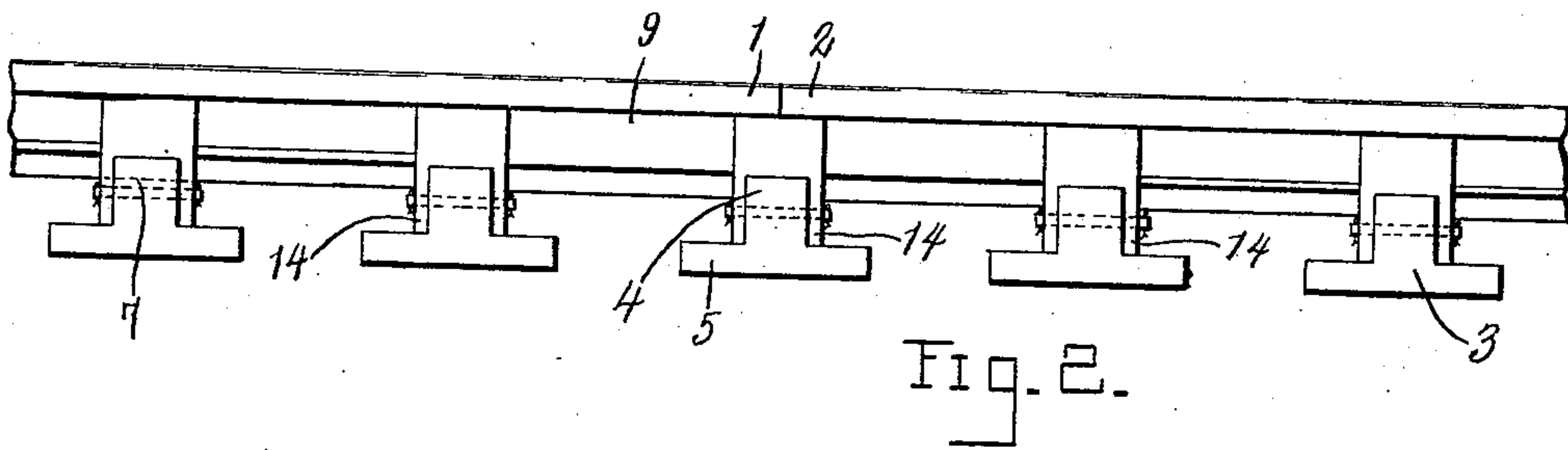
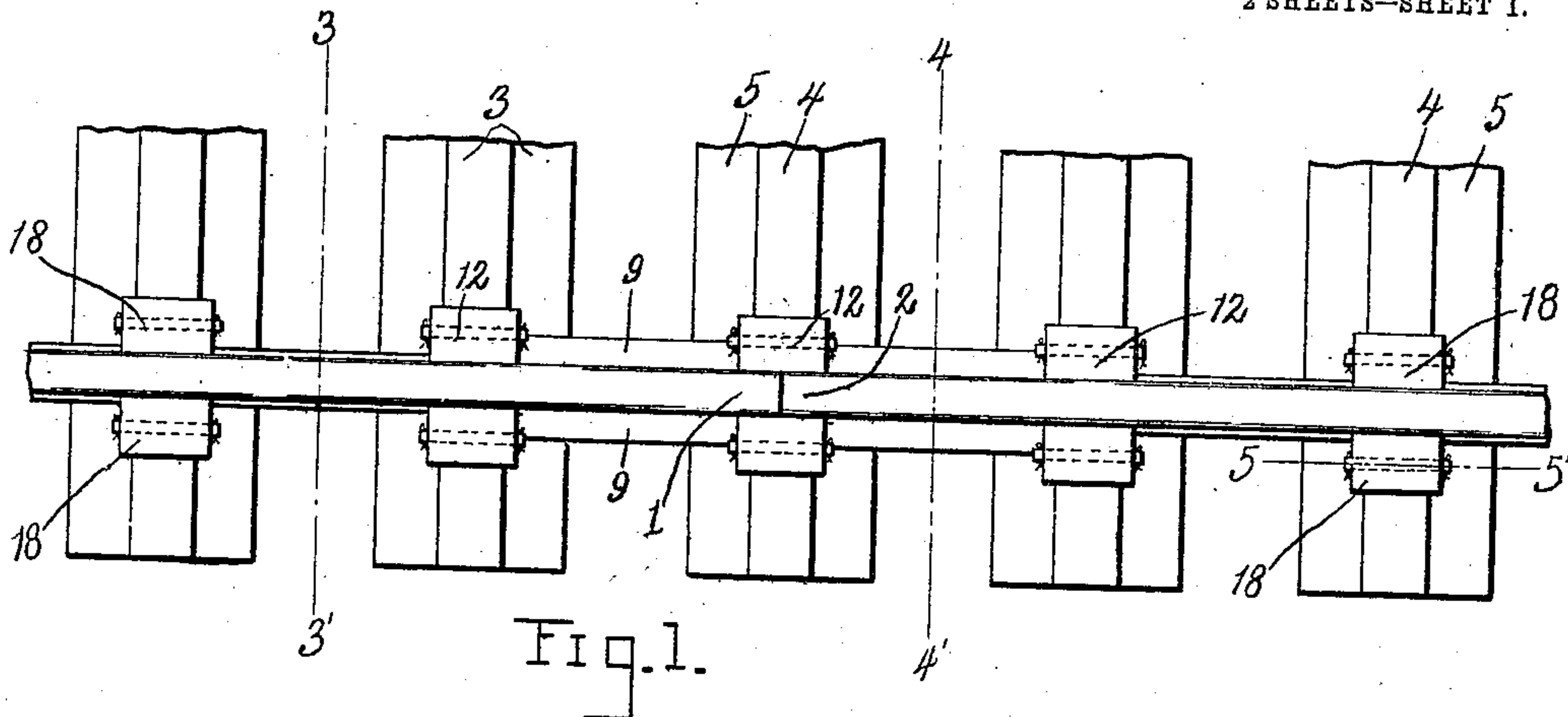


No. 886,233.

PATENTED APR. 28, 1908.

S. MICHAELS.  
RAIL JOINT AND CROSS TIE.  
APPLICATION FILED OCT. 4, 1907.

2 SHEETS—SHEET 1.



Witnesses

Chas. T. Jennings.  
M. L. Skinner.

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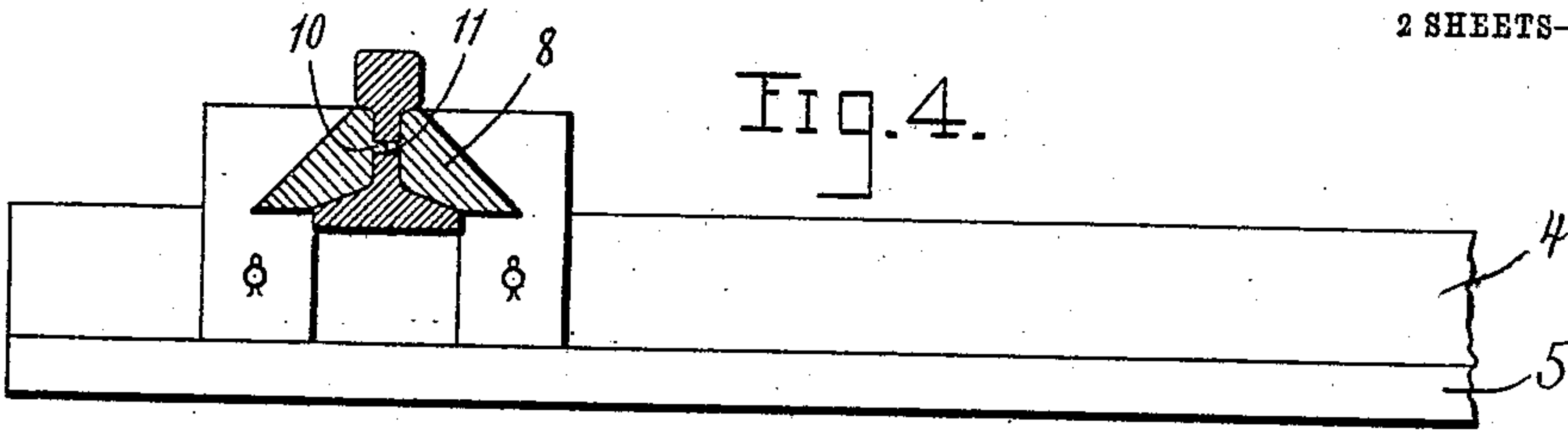


Fig. 4.

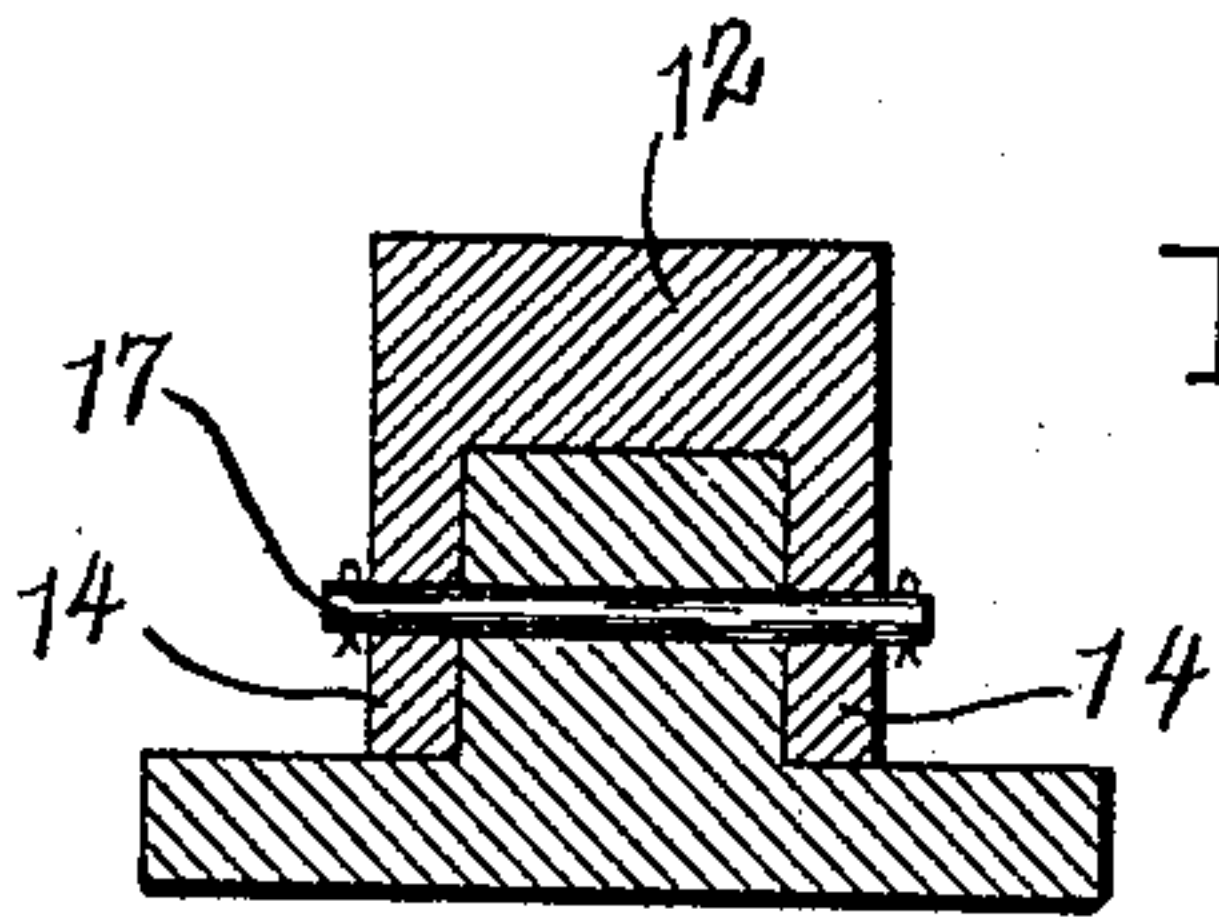


Fig. 5.

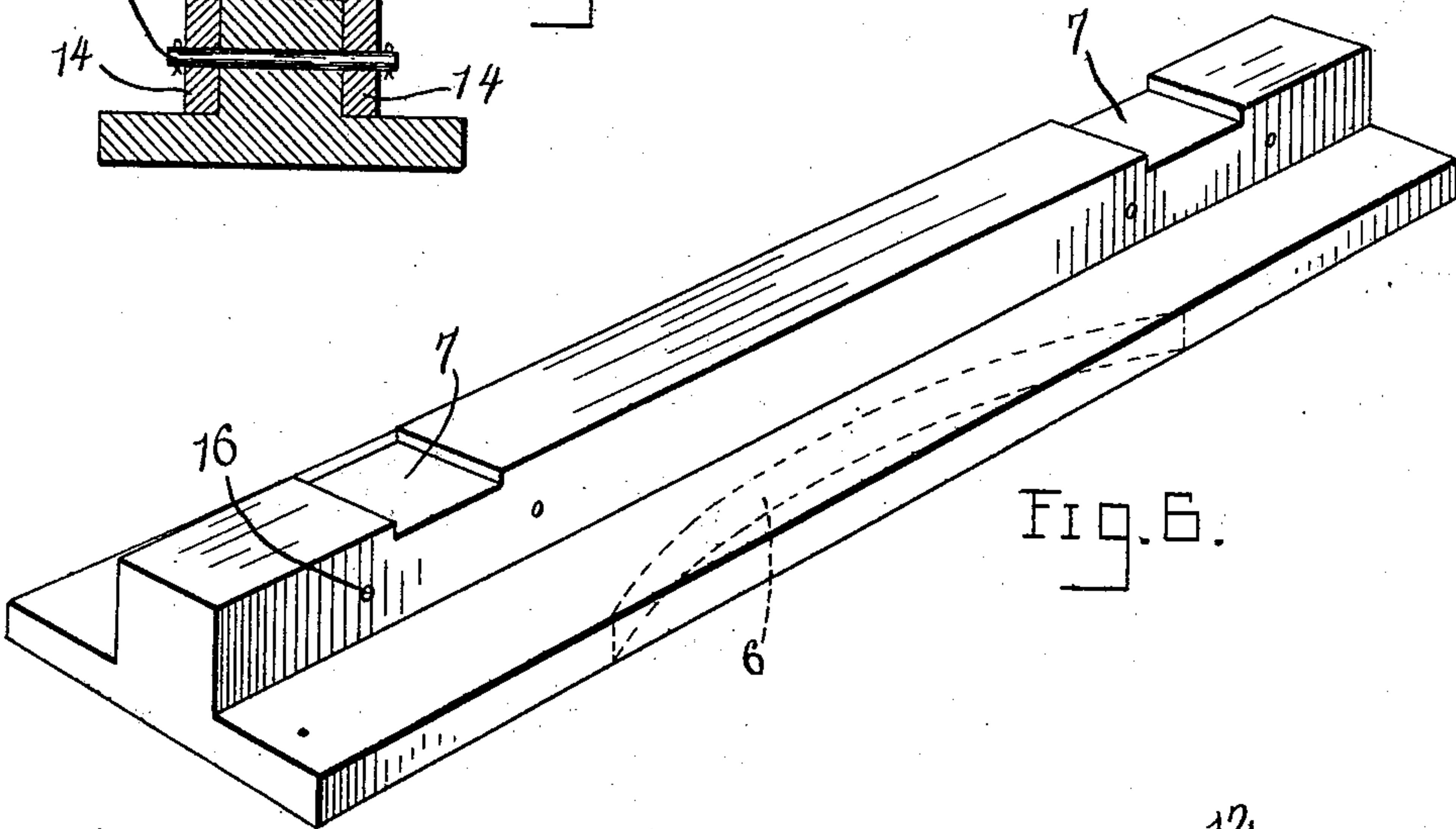


Fig. 6.

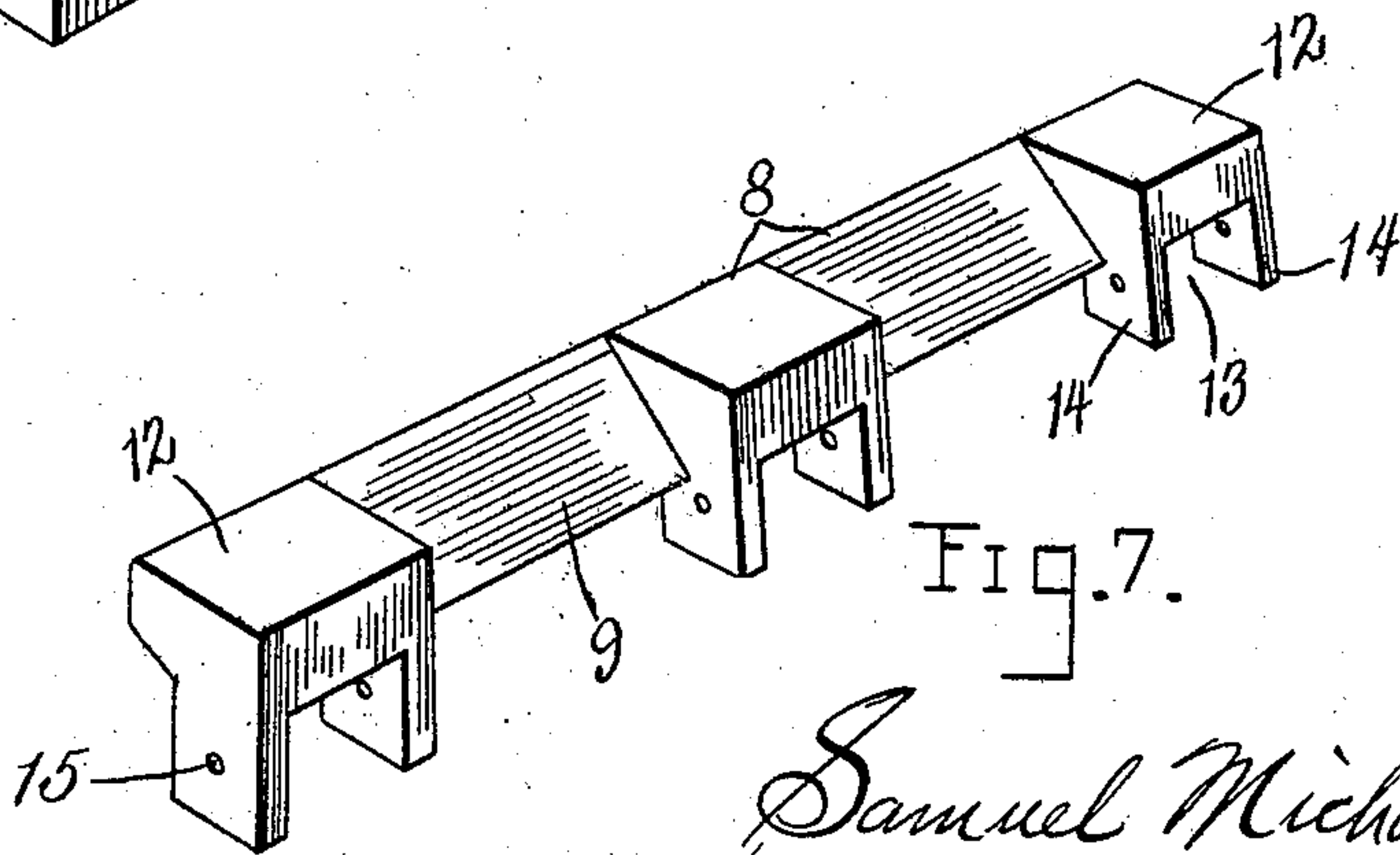


Fig. 7.

Witnesses

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# UNITED STATES PATENT OFFICE.

SAMUEL MICHAELS, OF MOUNT PULASKI, ILLINOIS, ASSIGNOR OF ONE-HALF TO NELSON DOWNING, OF MOUNT PULASKI, ILLINOIS.

## RAIL-JOINT AND CROSS-TIE.

No. 886,233.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed October 4, 1907. Serial No. 395,932.

*To all whom it may concern:*

Be it known that I, SAMUEL MICHAELS, a citizen of the United States, residing at Mount Pulaski, in the county of Logan and State of Illinois, have invented certain new and useful Improvements in Rail-Joints and Cross-Ties, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in metallic cross-ties and rail joints and fasteners, and it consists of the novel construction and the combination and arrangement of parts hereinafter described and claimed.

The object of the invention is to improve the construction of devices of this character and thereby render the same more durable, reliable and efficient.

The above and other objects, which will appear as the nature of the invention is better understood, are attained in the construction illustrated in the accompanying drawings, in which

Figure 1 is a plan view of the meeting ends of two track rails showing the manner in which they are secured together and to the ties; Fig. 2 is a side elevation of the same; Fig. 3 is a vertical section through the track rails showing one of the improved ties in side elevation; Fig. 4 is a detail section, on an enlarged scale, taken on the plane indicated by the line 4—4 in Fig. 1; Fig. 5 is a detail section taken on the plane indicated by the line 5—5 in Fig. 1; Fig. 6 is a perspective view of one of the ties; and Fig. 7 is a perspective view of one of the joint fastening members.

In the drawings 1 and 2 denote the meeting ends of two ordinary track rails and 3 denotes my improved metallic cross-tie. These ties have rectangular body portions 4 formed with flat tops and with horizontal flanges 5 which project from the side edges of the bottom of the body so as to provide a comparatively broad base for the tie and give it a solid bearing upon the road bed. If desired the flanges 5 may have their central portions recessed as shown at 6 in Fig. 6. In the top of the body portions 4 of the ties at suitable distances from their ends are formed transverse grooves or seats 7 to receive the bases of the track rails and thus prevent them from shifting laterally or endwise of the ties.

The meeting ends of the rails 1, 2 are fastened together upon three of the cross-ties by two joint fastening members 8 one of which

is arranged upon each side of said rails and shaped to engage the latter and the three ties as clearly shown in Figs. 1 and 2. These fasteners 8 are preferably in the form of castings each of which has its body portion or bar 9 arranged to extend longitudinally of the track over three of the ties and having its inner side shaped to fit the webs and base-flanges of the rails as more clearly shown in Fig. 7. Upon said inner side of the body or bar 9 are preferably formed integral studs 10 which project into apertures or openings 11 formed in the webs of the track rails for the purpose of preventing the rails from running or creeping, but if desired the lugs or studs 10 may be dispensed with and said bars 9 formed with apertures or openings to aline with those in the ties for the purpose of receiving bolts or similar transverse fastenings.

Formed at the center and at each end of the body or bar 9 is an enlargement 12 which projects laterally or outwardly and has its bottom recessed or channeled as at 13 to receive the body portion 4 of one of the ties. The recesses 13 form upon said enlargements depending flanges 14 which engage the opposite side faces of the body portions of the ties and which are formed with transverse openings 15 to register with similar openings 16 in the ties and to receive transverse fastening pins or keys 17 as clearly shown in Fig. 5. These fastening keys 17 effectively secure the joint members 8 upon the ties and the latter retain the rails in the seats 7 of the ties as will be readily understood upon reference to the drawings. The rails are secured to those ties which occur between the groups of three at the joints, by fastening members 18 which latter are similar in all respects to the enlargements 12 of the joint members or fasteners 8.

From the foregoing it will be seen that my improved construction provides an exceedingly simple, strong and durable means for connecting the rails together and mounting them upon the road bed. The metallic ties are exceedingly strong and durable and when once properly set upon the road bed and the rails connected to them in accordance with the invention, there will be little or no danger of them shifting and hence there will be little or no need of repairs.

My improved fastening members effectively secure the rails upon the ties and dispense with the necessity of bolts, spikes and similar fastenings. The provision of the



joint members 8 which span the ties immediately beneath the abutting ends of the rails and also the adjacent ties on either side, renders the joint exceedingly rigid so that there  
5 will be no tendency for the meeting ends of the rails to sag when heavily loaded trains pass over the track and said ends of the rails will be effectively held in proper alinement with each other.

10 Having thus described my invention what I claim is:

1. The combination with a metallic cross-tie having a rectangular body formed with a rail seat in its flat top and upon the bottom  
15 edges of its sides with outwardly projecting horizontal base flanges, of a track rail having its base arranged in the seat in the body of the tie, fastening members having their inner sides shaped to engage the webs and  
20 base flanges of the rail and their bottom portions channeled to straddle the body of the tie to form depending flanges to engage the side faces of the same, and transverse keys passing through said depending flanges and  
25 the body of the tie, substantially as described.

2. In a rail joint, the combination with

three metallic cross-ties formed with transverse openings and with rail seats, the latter being in the top of the ties, of track rails engaged with the seats in said ties, the abutting  
30 ends of the rails being above the center of the intermediate tie, and joint fastening members arranged upon the opposite sides of the rails to straddle the three ties, each of said  
35 members consisting of a body portion or bar shaped to engage the webs and base flanges of the rails and enlargements projecting outwardly from said body or bar and recessed  
upon their bottom to straddle the ties and to provide depending flanges, the latter being  
40 engaged with the opposite sides of said ties and formed with apertures to aline with those in the ties, and transverse fastenings passed through the alined apertures in the  
ties and the fastening members, substantially  
45 as described.

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

SAMUEL MICHAELS.

Witnesses:

LOUIE CHRISTMANN,  
DAVID B. WACASER.