

N. P. FRANDSEN.

CONCRETE TIE.

APPLICATION FILED OCT. 25, 1906.

912,663.

Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.

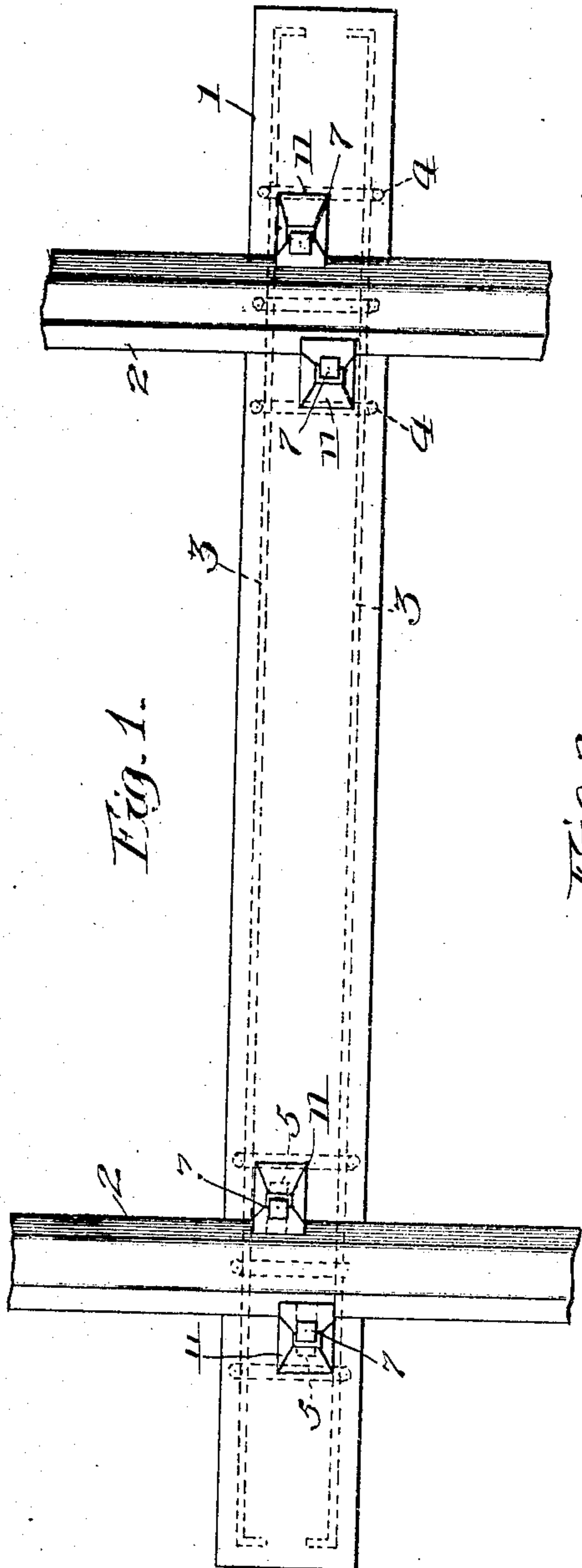


Fig. 1.

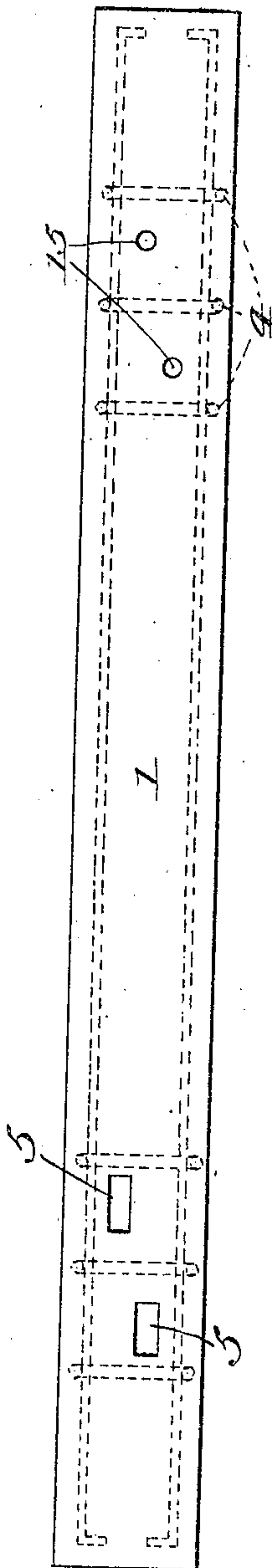


Fig. 2.

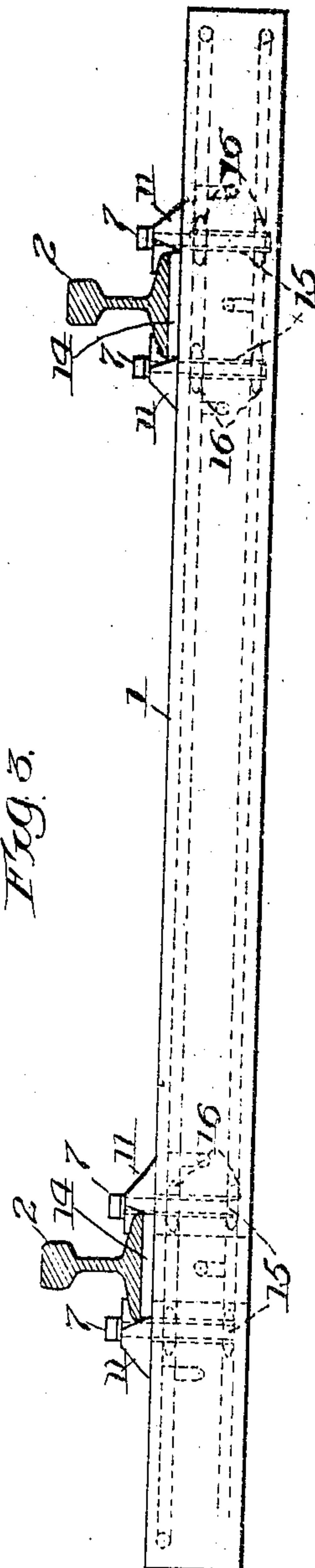


Fig. 3.

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Fig. 4.

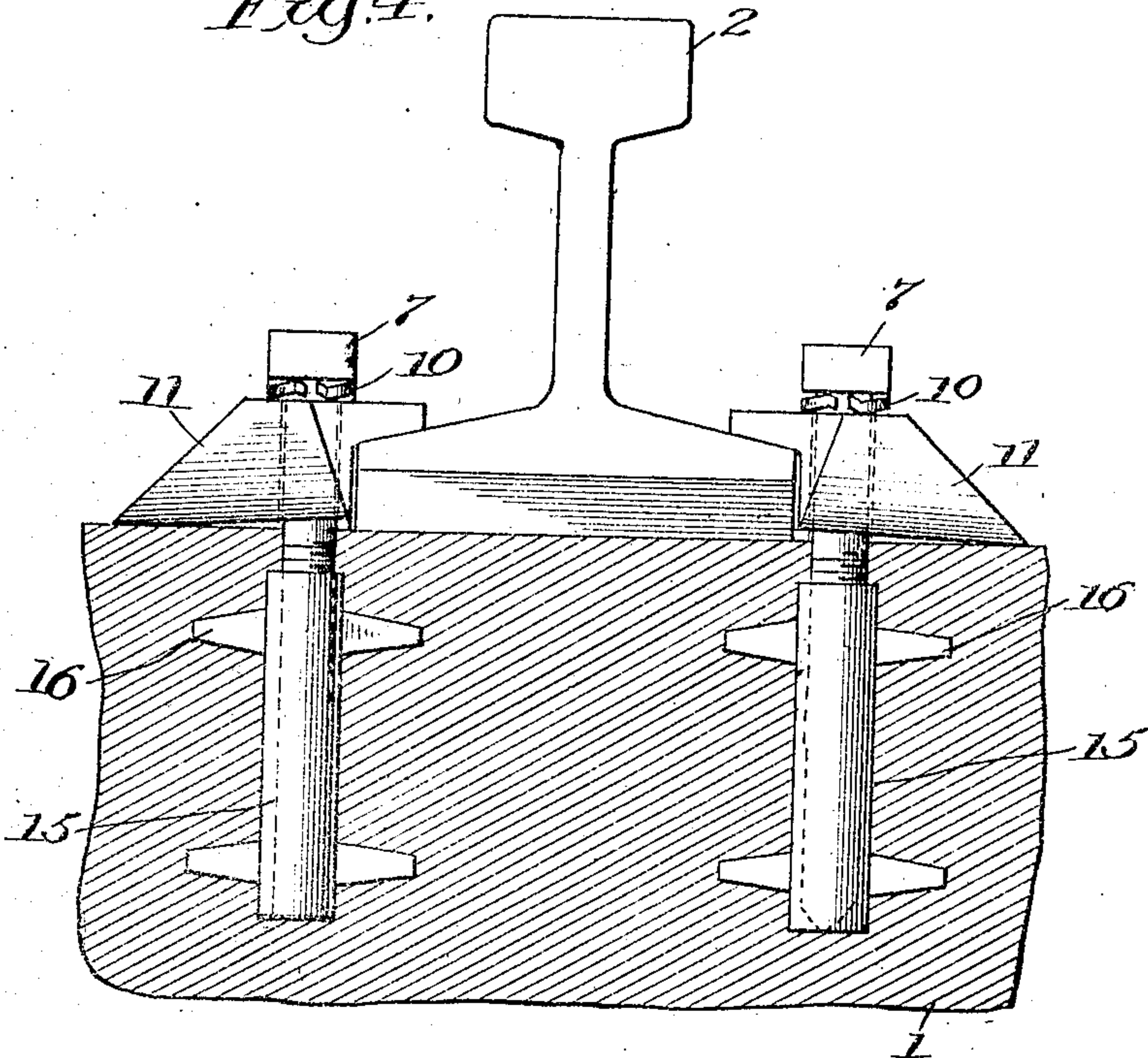


Fig. 6.

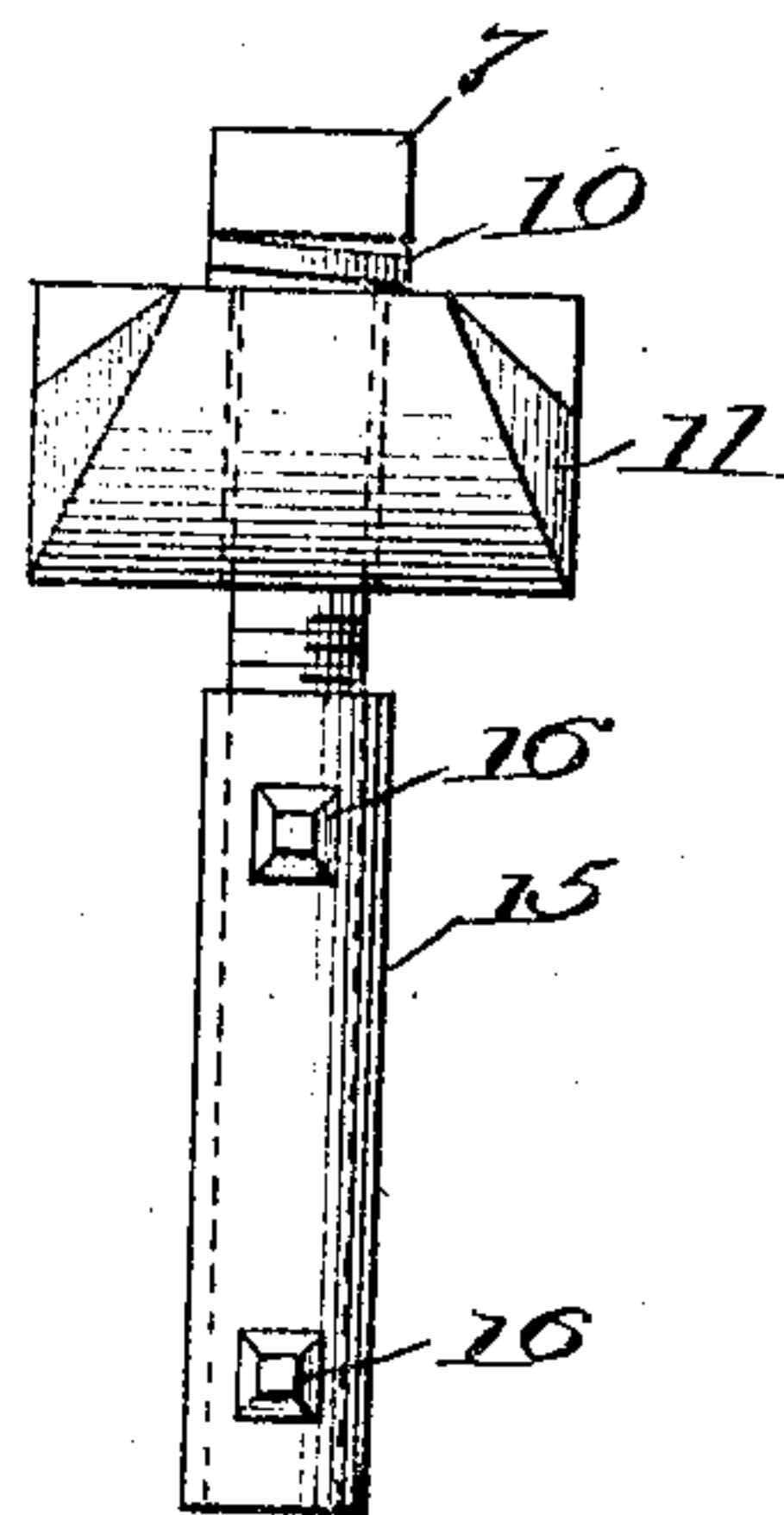


Fig. 5.

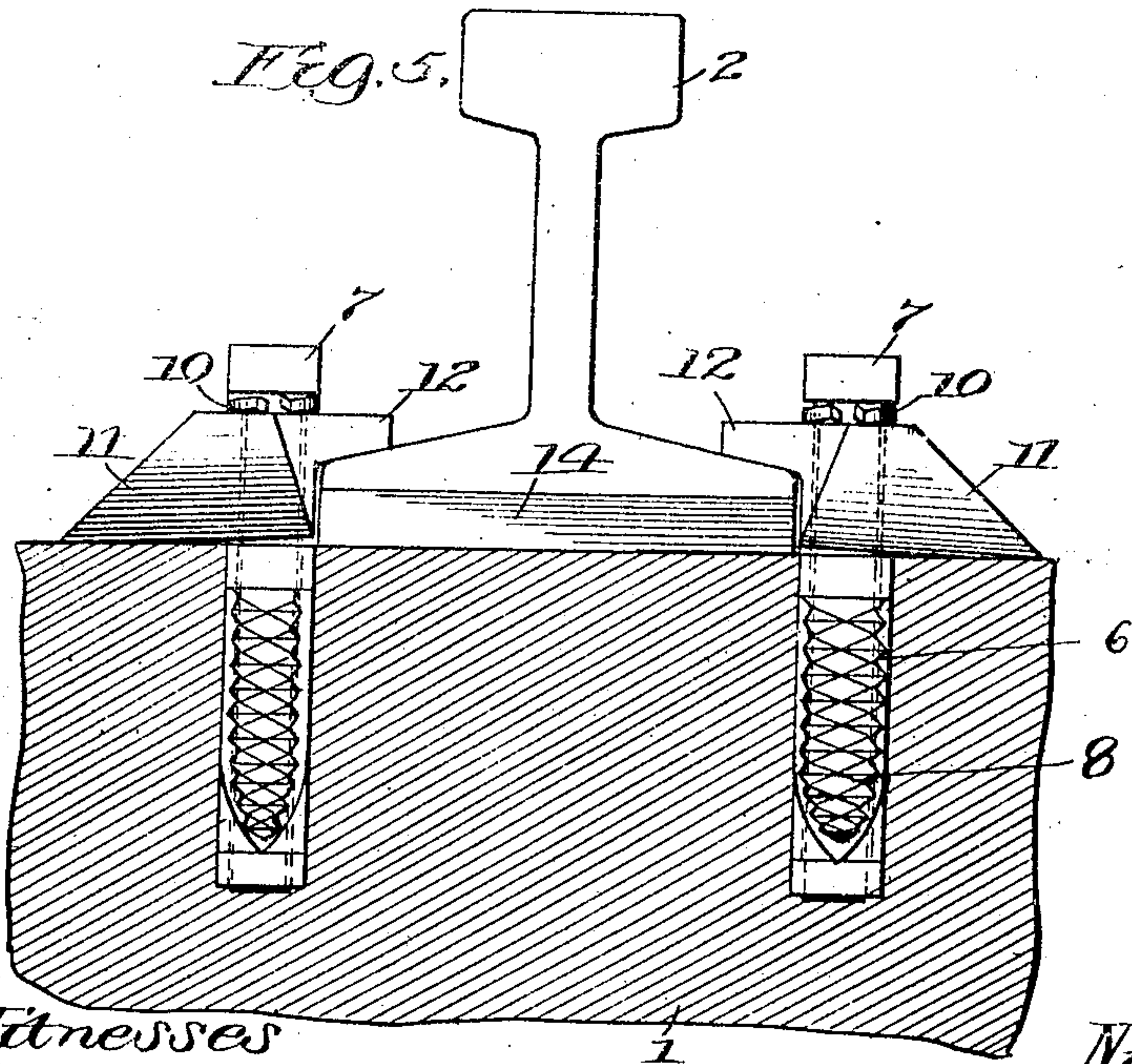
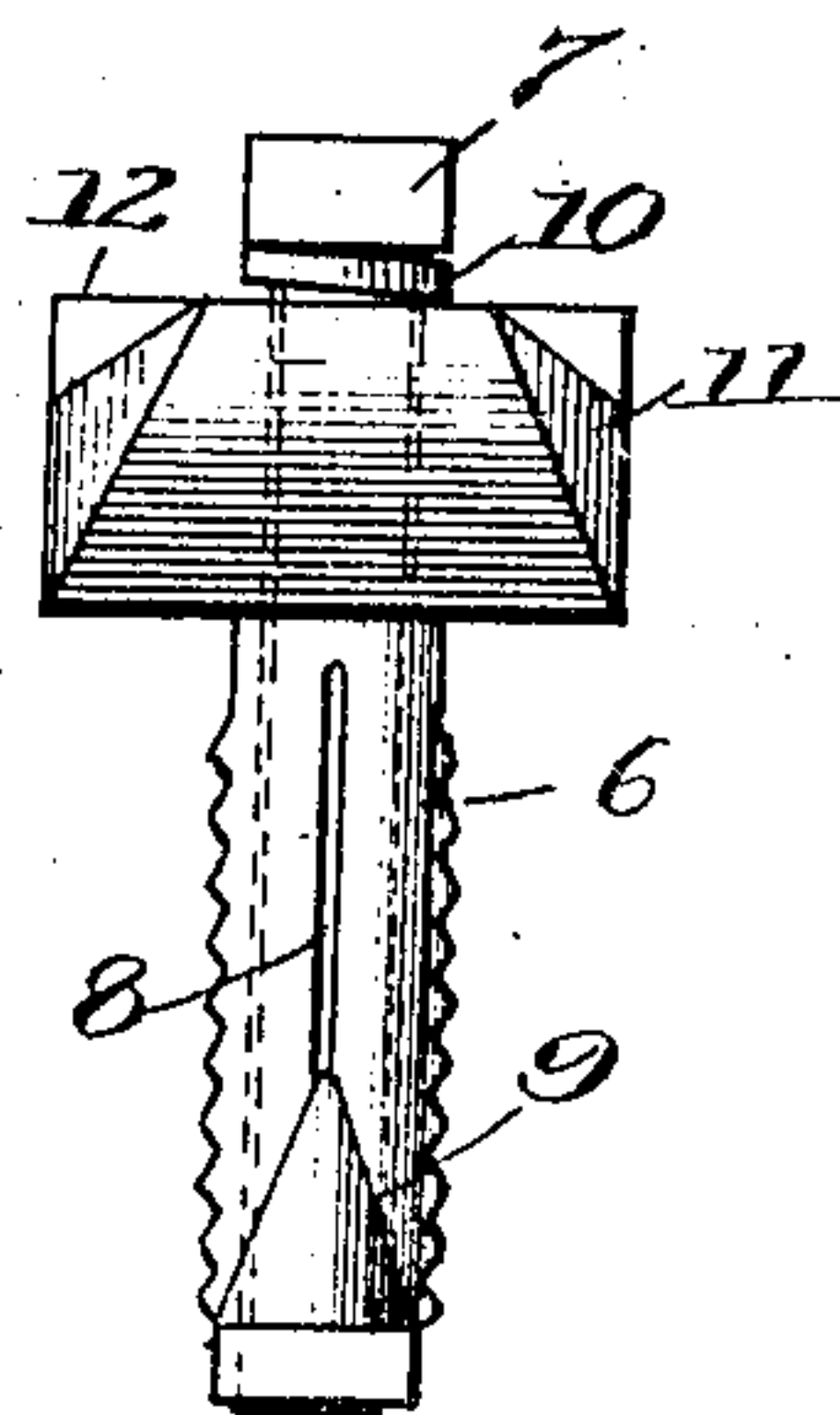


Fig. 7.



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# UNITED STATES PATENT OFFICE.

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## CONCRETE TIE.

No. 912,663.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed October 25, 1906. Serial No. 340,599.

*To all whom it may concern:*

Be it known that I, NIELS P. FRANDSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Concrete Ties, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to concrete ties for use upon railroads.

The principal object of the invention is to provide a simple, practical, effective and durable form of concrete tie.

In the accompanying drawing, Figure 1 is a plan view of a tie embodying my invention, with sections of railroad rails resting upon same; Fig. 2 is a similar view but without the rails and the device for attaching the rails to the tie; Fig. 3 is an elevation of the arrangement shown in Fig. 1; Fig. 4 is an elevation on an enlarged scale of the rail and devices for attaching the same to one end of the tie; Fig. 5 is a similar view of the devices for attaching the rail to the other end of the tie; and Figs. 6 and 7 are views of details used in Figs. 4 and 5, respectively.

Referring to the drawings, I have shown a concrete tie 1 upon which are mounted railroad rails 2, 2. The tie is made of concrete with longitudinally extending strengthening bars 3, 3 and transversely disposed strengthening bars 4, 4, the latter being disposed in the portion of the tie upon which the rails rest.

One end of the tie is provided with a pair of longitudinally extending slots 5, 5 which are formed in the tie when the same is built. The slots are preferably staggered with reference to one another. These slots 5, 5 receive expansible bolt sleeves 6, 6 (Fig. 5) containing bolts 7, 7 and made automatically expansible by said bolts. As a convenient construction, these sleeves are made with longitudinal slots 8, (Fig. 7) and of smooth bore larger than the diameter of the bolt so that the bolts move readily within them. The lower ends of the sleeves are provided with wedge members 9 adapted to fit between the sides of the sleeves and into a wedge shaped recess formed at the lower end thereof. This wedge member 9 is threaded so as to receive the lower end of the bolt 7

and engage the same. The outsides of the sleeves 6 are provided with points or projections so as to hold in the concrete. A nut locking device in the form of a split ring 10 with bent ends is provided for locking the head of the bolts. The bolts 7, 7 pass through clips 11 having overhanging portions 12 adapted to engage the sides of the rail. These clips are arranged to rest upon the concrete ties and edges of the rails and by passing the bolts 7, 7 through them and then screwing the bolts so that they expand the sleeve 6, 6 the clips 11 are caused to grip the rail firmly and hold it securely in position upon the tie. As a preferred arrangement, I have shown a wooden bottom or board 14 interposed between the rail and the tie to give elasticity to the rail. It will be observed that in this arrangement the rail can be adjusted laterally by adjusting the bolts in their slots 5, 5. The sleeves 6, with their bolts 7, are assembled before being sent out, so that all that is necessary is to place the clips in place, then put the sleeves 6, 6 into the slots 5, 5 and turn the bolts 7, 7 so as to expand the sleeves 6, 6. At the other end of the tie holders 15, 15 (Figs. 4 and 6) are embedded in the ties when the same are made. These holders are conveniently in the form of tubular devices internally threaded and having side projections 16, 16 to engage and hold them firmly in the concrete. Clips 11, 11 and lag screws 7, 7, with locking devices 10, 10 are used on this side of the tie also, the lag screws being passed down through the clips 11, 11 into the holders or sockets 15, 15. Thus the rail is secured at one side by bolts engaged by sockets firmly embedded in the concrete rails; on the other side it is held by bolts capable of a small amount of movement crosswise of the rail, that is, lengthwise of the tie. This permits proper adjustment of the rails upon the ties and also permits the same ties to be used for slightly different widths of rails and for rails separated different distances apart, and also provides for a small movement of the rails for proper adjustment. Thus the rails are capable of the requisite adjustment, and at the same time are so firmly held as to prevent spreading absolutely. As a preferred arrangement, alternate ties are reversed in this respect. That is to say, the slots 5, 5 will be at opposite ends of adjacent ties.



It will be understood that changes and modifications can be made without departing from the spirit of the invention.

What I claim is:

- 5 1. A tie of the class specified, having one of its ends provided with embedded socket members and its other end provided with slots in combination with bolts adapted to be fitted into said socket members and to en-  
10 gage said slots.
2. A tie of the class specified, having one of its ends provided with socket members, and its other end provided with slots.
- 15 3. A tie of the class specified, having one of its ends provided with threaded sockets and its other end with slots in combination with tie engaging clips and bolts adapted to engage said threaded sockets, and expansible sleeves adapted to engage said slots.

4. A tie of the class specified, provided 20 with slots in combination with rail engaging clips and expansible sleeves adapted to engage said slots and arranged to be expansible by bolts passing through said clips.

5. A tie of the class specified, having slots, 25 rail engaging clips, bolts passed through said clips, and expansible sleeves fitted in said slots and provided with threaded wedge shaped members adapted to engage said bolts and thereby expand said sleeves. 30

In witness whereof, I herunto subscribe my name this 3d day of October, A. D., 1906.

NIELS P. FRANSEN.

Witnesses:

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LUELLA MERRITT.