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PATENTED MAR. 26, 1907.

J. W. CALDER.

METALLIC RAIL TIE AND FASTENER THEREFOR.

APPLICATION FILED DEC. 28, 1906.

2 SHEETS—SHEET 1.

FIG. 1.

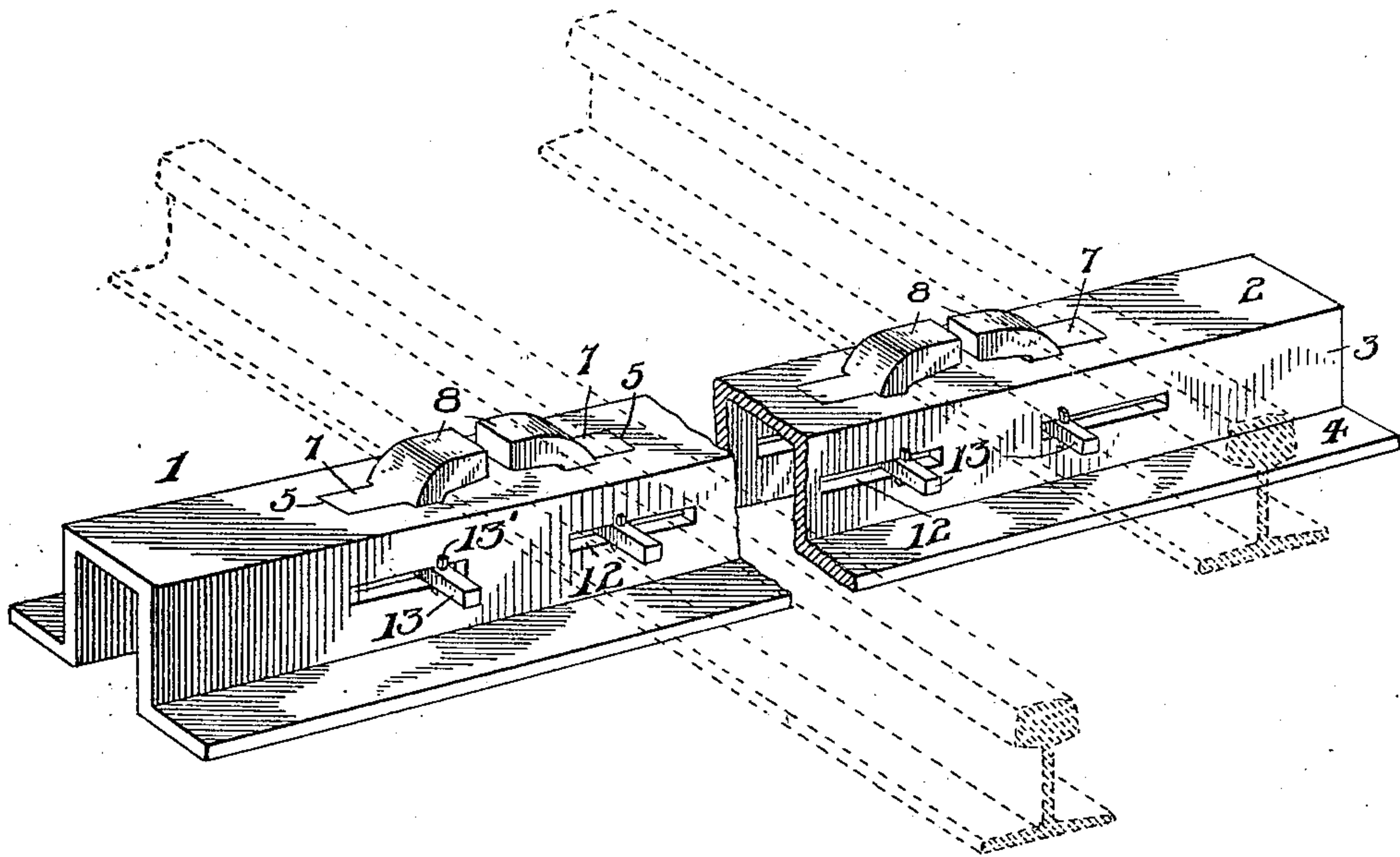


FIG. 2.

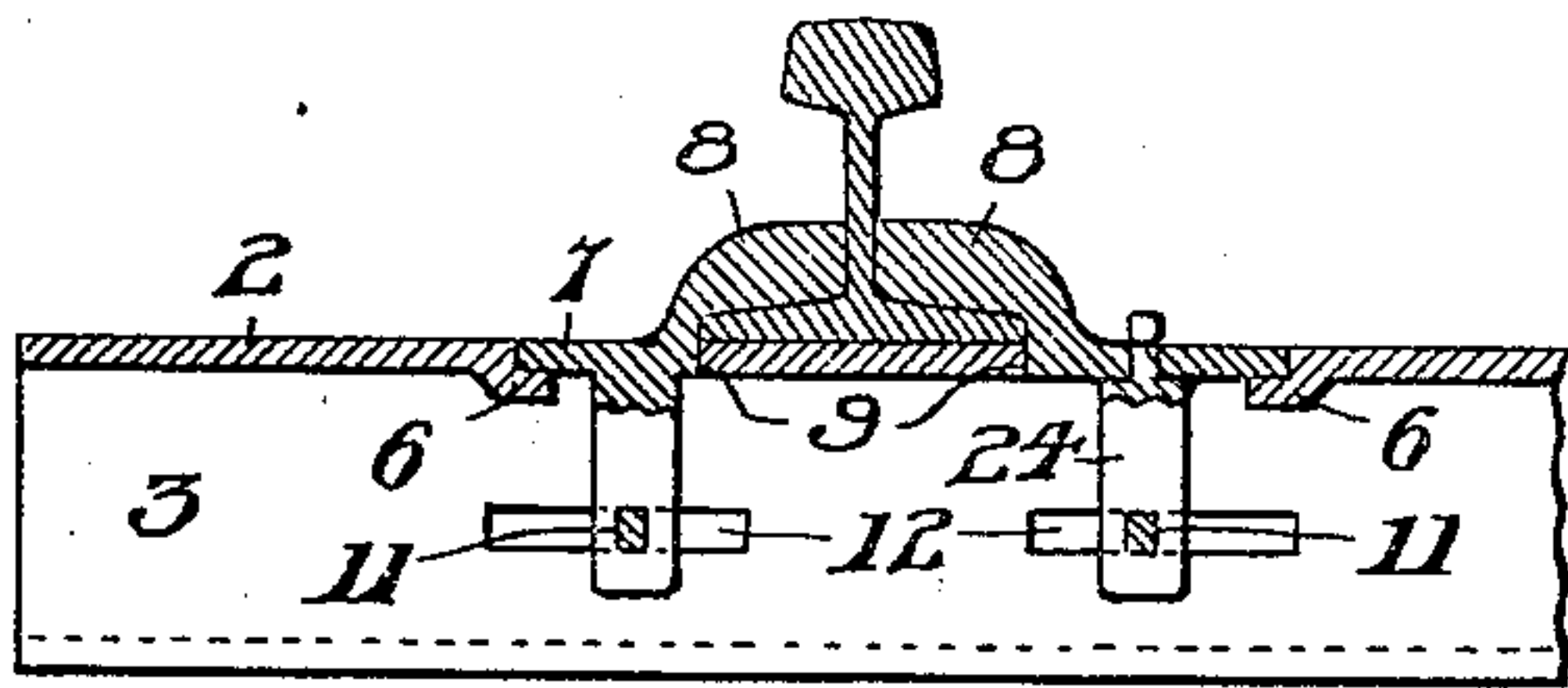


FIG. 3.

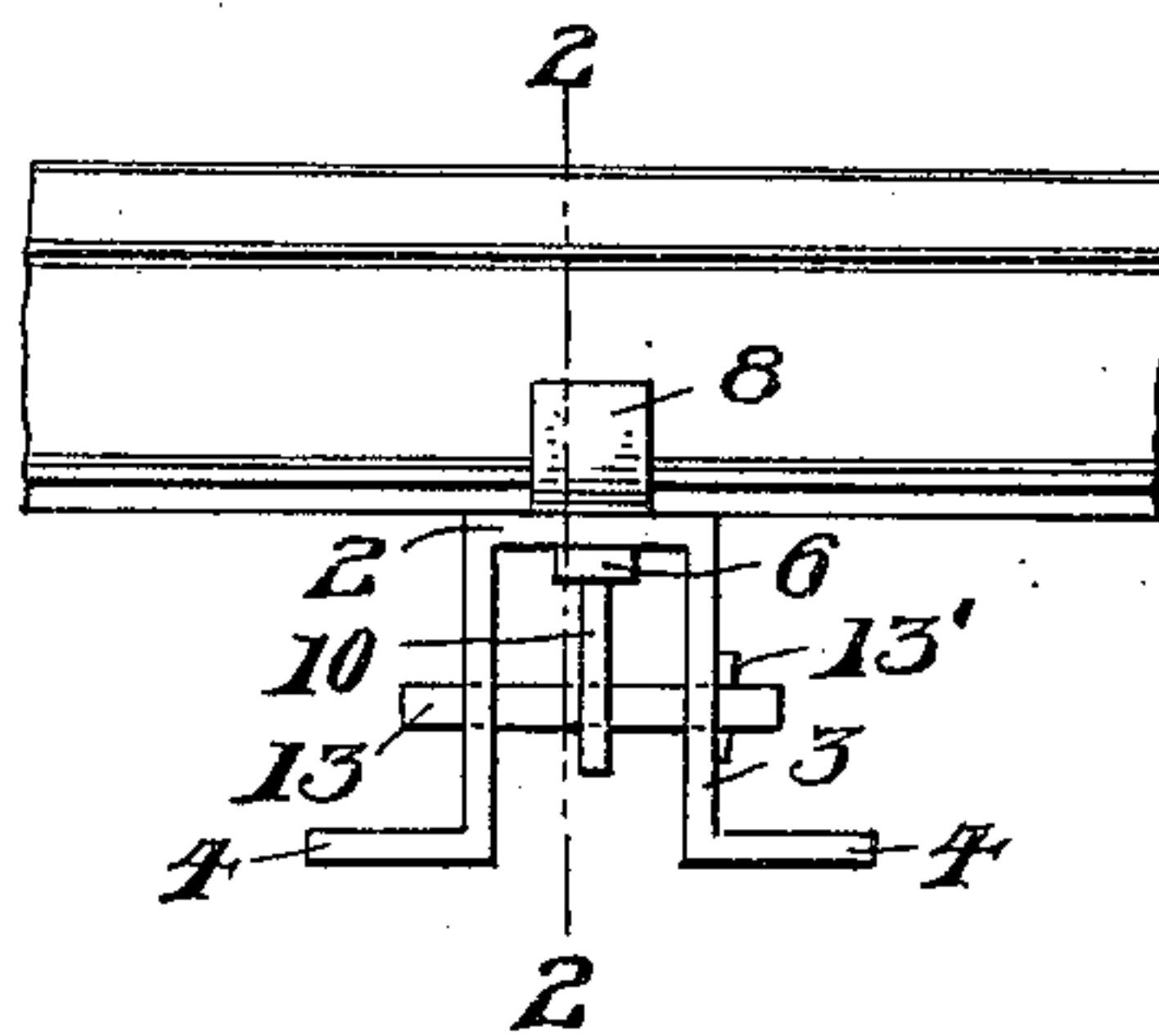


FIG. 4.

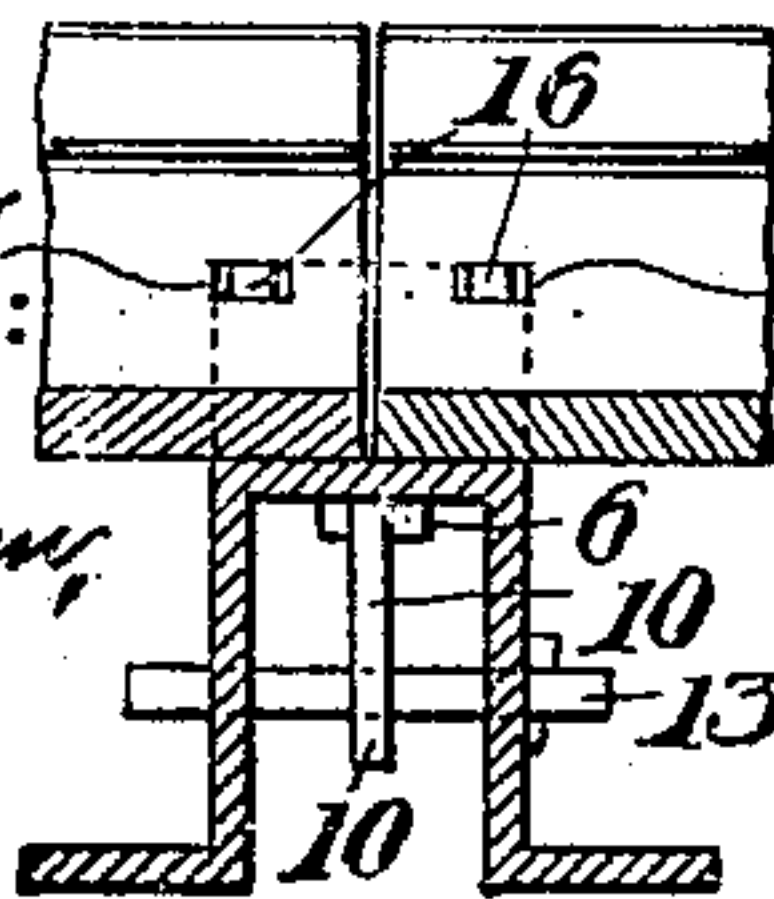
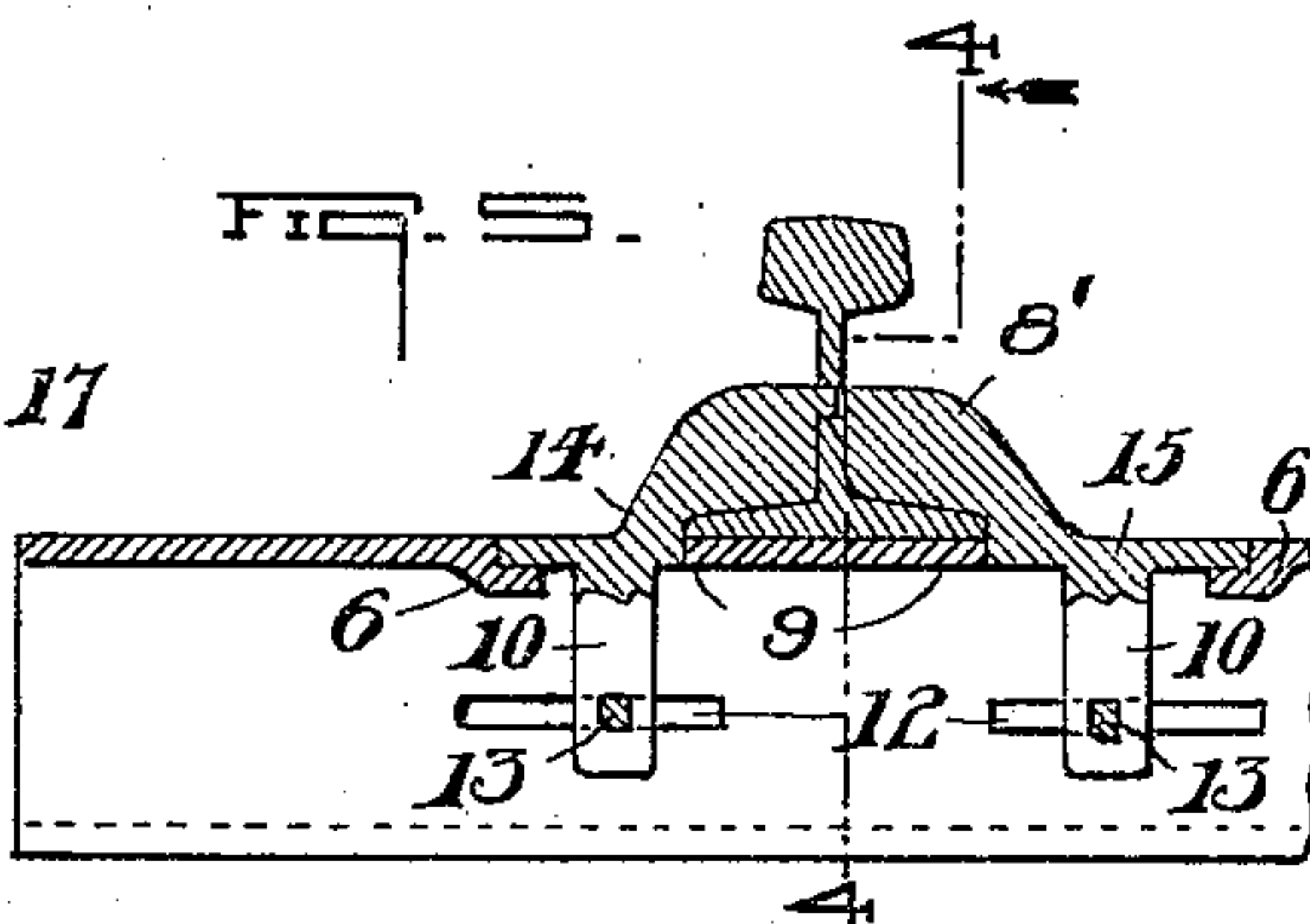


FIG. 5.



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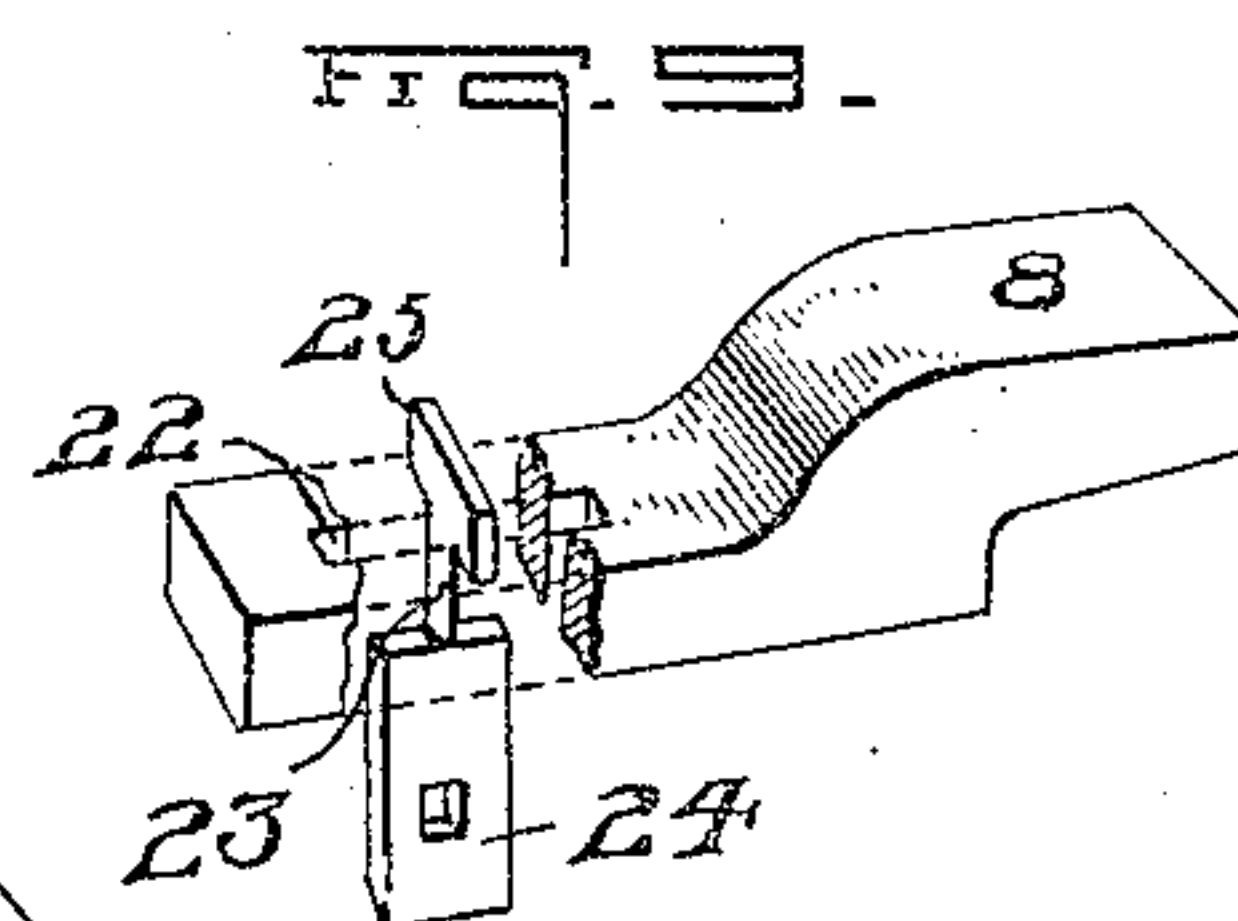
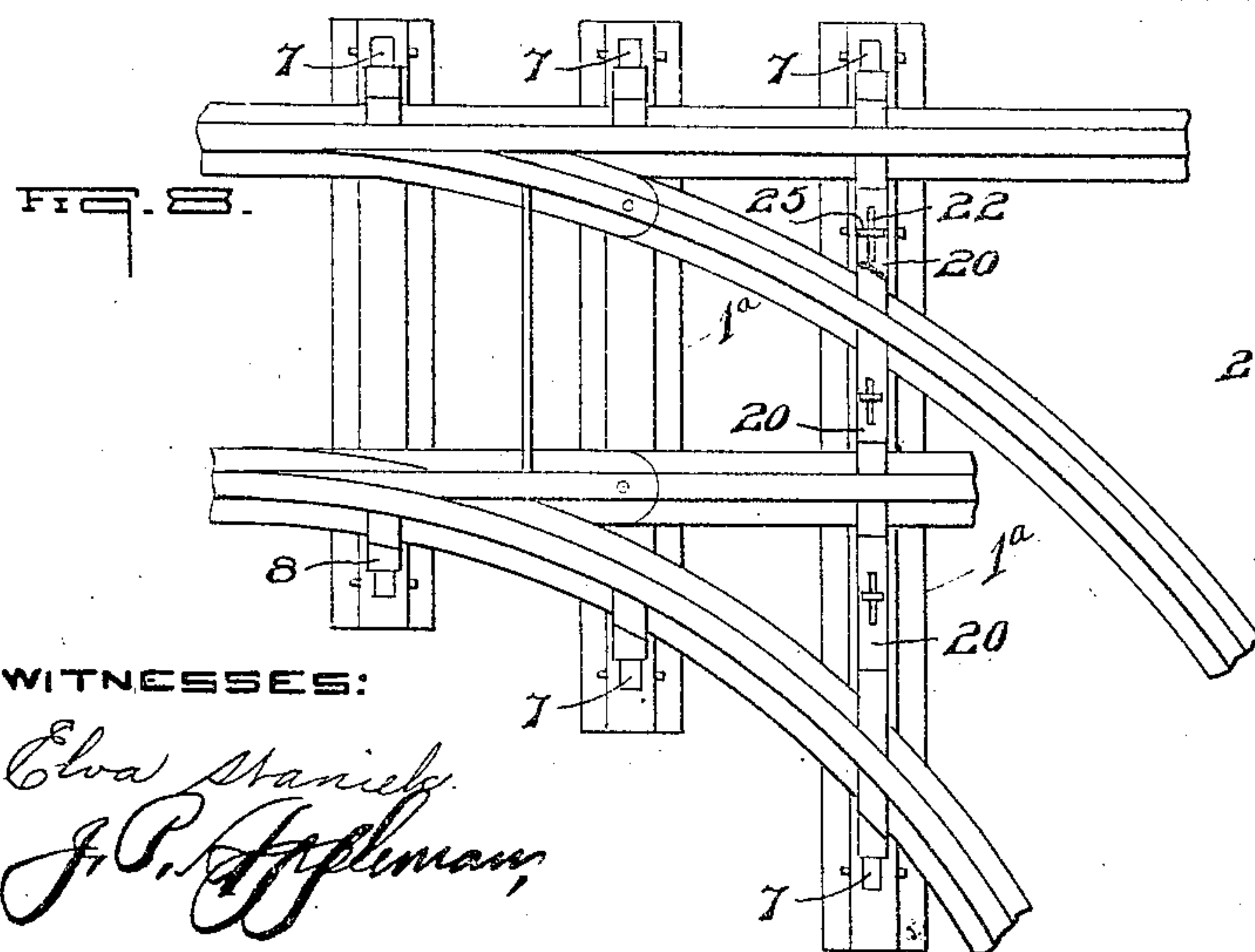
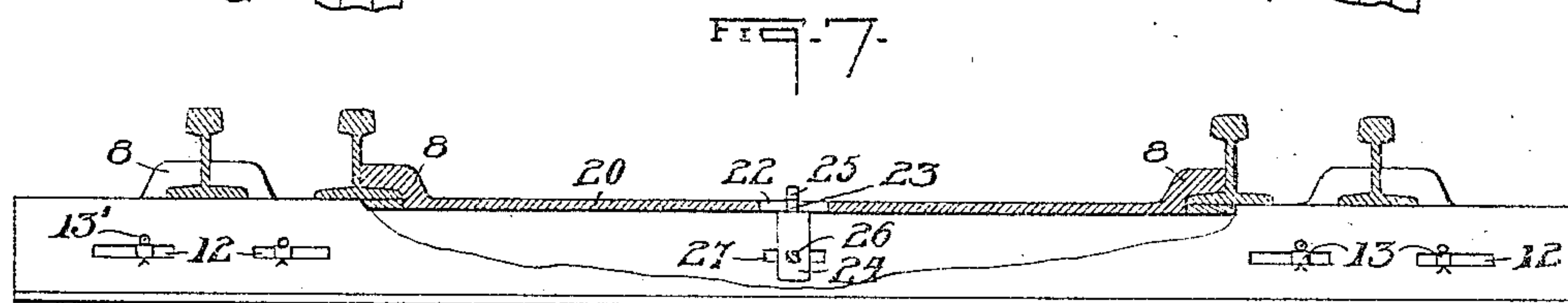
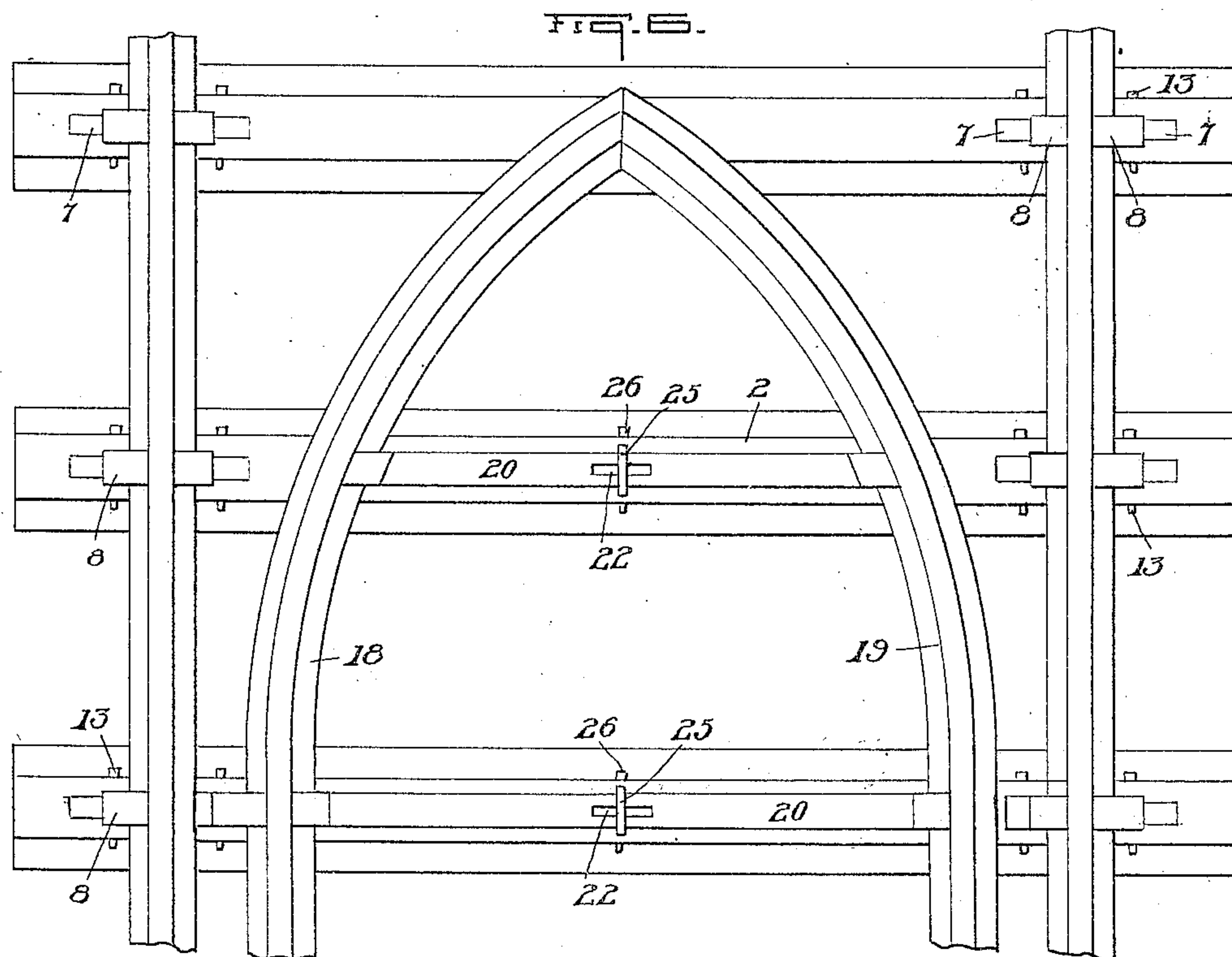
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METALLIC RAIL TIE AND FASTENER THEREFOR.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN W. CALDER, OF PARNASSUS, PENNSYLVANIA.

METALLIC RAIL-TIE AND FASTENER THEREFOR.

No. 848,346.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed December 28, 1906. Serial No. 349,799.

To all whom it may concern:

Be it known that I, JOHN W. CALDER, a citizen of the United States, residing at Parnassus, in the county of Westmoreland and State of Pennsylvania, have invented or discovered new and useful Improvements in Metallic Rail-Ties and Fasteners Therefor, of which the following is a specification.

My invention relates to metal railway-ties and rail-fastenings.

It is the object thereof to produce devices of this character which shall be simple, reliable, and comparatively cheap and require little or no change in the rails in general use.

Referring to the drawings which accompany this specification, Figure 1 is a broken perspective of one application of my invention; Fig. 2, a cross-section on the line 2 2 of Fig. 3; Fig. 3, a side view of a rail and one fastening; Fig. 4, a section on the line 4 4 of Fig. 5; Fig. 5, a cross-section through a pair of rails and my fastener adapted to a rail-joint; Fig. 6, a plan of a track with my invention adapted to a pair of guard-rails; Fig. 7, an end view of Fig. 6, the parts beyond the lower tie being omitted; Fig. 8, a plan of a switch employing my improvements, and Fig. 9 a modified form of my fastener.

On Figs. 1 to 3 of the drawings, 1 represents a metal, preferably steel, railway-tie, having the plane horizontal top 2, the vertical sides 3, extending downwardly therefrom, and the horizontal flanges 4, extending outwardly from the lower edges of the sides 3. This tie is made from a plate of rolled or pressed steel and is struck up or otherwise suitably formed to produce a shape rectangular in cross-section with an open bottom and the two described flanges 4. In the ordinary track without switches, crossovers, and the like the tie will be preferably of the usual length, which is somewhat longer than the distance between a pair of rails. This tie will have a slot 5 at each side of each rail-flange; but the two slots for each rail may be made continuous beneath the rail, if desired. The outer end of each slot 5 is provided with a depressed portion 6, which forms a seat for the outer end of each rail-clamp 7, which lies in the slot with its end 8

nearest the rail curved or shaped to lie on the rail-flange, the latter abutting against the shoulder 9 on the clamp, and also, if preferred, the web of the rail may engage the adjacent end of the clamp. The outer end of each clamp 7 is seated against the outer wall of its slot 5. The right-hand clamp on Fig. 2 is held in place by the key 24, to be hereinafter described. Each clamp is provided with a depending lug or arm 10, having a transverse hole 11 in alinement with the slots or holes 12 in the sides 3. Tapering pins 13 are passed through the holes 11 and 12 to prevent the accidental removal of the clamps. The pins are prevented from removal by the cotter-pins 13', passed through them outside the tie at the smaller end of the pins. Other means of securing the clamps may be used unless the claims specifically require that shown. It will be noted on Fig. 2 that the pair of clamps are of different lengths, which permits their exchange one for the other in case it be desired to move the rail slightly to the right. The slots 12 are of sufficient length to permit clamps of different lengths to be secured, the pins 13 varying in their distance from the center of the rails according as the clamps are of different sizes. There are provided a number of sizes or lengths of clamps, so that the rail can be adjusted considerably each side of the center between the slots. In alining of the rails after the ties have been laid it will not be necessary to slide the ties endwise to make the slots come in exact alinement, as the different lengths of fasteners can be used to compensate therefor.

Referring to Figs. 4 and 5, where I have shown my invention adapted to form a rail-joint, the parts are the same as in Figs. 1, 2, and 3, except that the clamps are somewhat different. The ends 8' of the clamps 14 and 15 are shown wider at the ends thereof which engage the adjacent ends of the rails than the ends 8 of the clamps 7, though the ends 8 may be made as wide as the ends 8' of the clamps 14 and 15, if preferred. The clamp 14 has the two lugs 16 to enter the holes 17 in the two rails. These holes may be specially made or may be the usual holes for fish-plate bolts. The holes 17, whether specially made

or not, are preferably longer longitudinally of the rail than the width of the lugs 16, so that the rails may creep during expansion and contraction without producing any strain on the lugs. In case special holes are made for the lugs 16 they may be made nearer the rail-flanges than shown, so as to save metal in the clamps.

Referring now to Figs. 6 and 7, which show a pair of guard-rails 18 and 19 such as are used on bridges and trestles, I use the fasteners 20, which extend from one guard-rail to the other, a slot being provided in the top 2 of each tie to receive the fasteners. The ends of the fasteners are provided with the ends 8 and shoulders 9 of the clamps 7, the shoulders 9 bearing against the edges of the rail-flanges and the ends lying upon said flanges. The fasteners may be secured in various ways; but I prefer to provide each fastener with a slot 22, in which is seated the neck 23 of the key or lock 24, the cross-bar 25 thereon lying above the neck and transversely of the slot and upon the fastener, while the wing or flat portion below the neck 23 stands at a right angle to the bar 25. After the fastener or clamp 20 is dropped into the slot 21 the bar 25 is passed up through the slot 22 until the neck 23 is in the slot, when the key is turned a quarter of a revolution and the pin 26 passed through the hole in the wing 25 and the slots 27 (only one shown) in the sides 3 of the tie. The traction-rails are secured to the tie in the manner above described with reference to Figs. 1, 2, and 3.

In Fig. 8 I have shown a switch or crossover. I have shown the clamps or fasteners 20 used between adjacent portions of the main track and the crossover-rails, as shown, to prevent their lateral movement. Where long ties are used, as shown at 1^a, the slots in the ties are arranged to suit the conditions. The slot 22 in the fastener 20 permits the adjustment of the fastener independently of the slots 27. If desired, removable keys 24 may take the place of the fixed arms 10, as is evident.

It will be noted that my tie has a plane upper surface and that the bodies of the fasteners are elongated and have their upper faces flush with the tops of the ties, the depressed portion 6 forming a rest at the lower face of the top 2. These are preferred features; but they may be departed from when necessary or desirable.

The rails when secured by my invention cannot move laterally unless the tie itself moves endwise. The rails are clamped to the tie in such a way as to permit the rails to creep without dragging the ties, as is obvious from an inspection of the drawings.

My invention can be applied to satisfy all conditions of rail and tie connections, and I

intend the same to include all fair equivalents of the forms and uses shown.

I claim—

1. The combination of a rail, a metal tie having a plane slotted upper surface, a depressed rest at one end of the slot, and a rail-fastener seated in the slot, having one end on said rest and the other end in engagement with the rail, whereby the rail may be adjusted laterally on the tie by the employment of a fastener of the required length.

2. The combination of a rail, a metal tie having a plane upper surface slotted each side of the rail-flange, and a rail-fastener in each slot, having one end abutting the end of its respective slot and the other end in engagement with the rail, whereby the rail may be adjusted laterally on the tie by employing cooperating fasteners of the proper relative lengths.

3. The combination of a rail, a metal tie having a slot in its upper surface, a rail-fastener seated in said slot and having one end against the end of the slot and the other end in engagement with the rail, a perforated lug depending from the fastener, and a pin extending through the perforation in the lug and opposite holes in the sides of the tie, said holes being elongated longitudinally of the tie, whereby lugs at different places longitudinally of the tie may be secured by a pin in the said slots.

4. The combination of abutting rails, having slots extending longitudinally thereof, a slotted metal tie, a fastener in the slot at each side of the rails to prevent lateral movement of the rails, one of the fasteners having lugs in the said slots, the lugs being narrower than the length of the slots, whereby the rails may creep without strain on the lugs.

5. The combination of a metal tie having a slot therein, traction-rails secured to the tie, a pair of guard-rails between the traction-rails, and a clamp seated in said slot and engaging both guard-rails to prevent the movement of one toward the other.

6. The combination of a metal tie having a slot therein, traction-rails secured to the tie, a pair of guard-rails between the traction-rails, a clamp seated in said slot, said clamp having a shoulder at each end in engagement with the end of the slot, and a rail-flange to prevent the movement of the guard-rails laterally.

7. The combination of rails extending in the same direction, a metal tie having a slot between said rails, a rail-fastener in the slot and having its opposite ends in engagement with the respective rails.

8. The combination of a rail, a metal tie having a slot in its upper surface, a slotted rail-fastener in the slot in the tie, a locking-key for said fastener, having a neck portion

in the fastener-slot, a head above the said neck and resting on the fastener, a slotted wing below the neck, and a pin extending through the wing-slot and slots in the sides of the tie.

5 9. The combination of a rail, a tie having a slot in its upper surface, a rail-fastener having a slot therein, a detachable securing device for said fastener having a head above the

slot and a slotted wing below the slot, and a 10 pin extending through the wing-slot and holes in the sides of the tie.

Signed at Pittsburg, Pennsylvania, this 12th day of December, 1906.

JOHN W. CALDER.

Witnesses:

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C. E. EGGERS.