

L. A. MILLER.
RAILWAY TIE.
APPLICATION FILED NOV. 29, 1907.

898,590.

Patented Sept. 15, 1908.

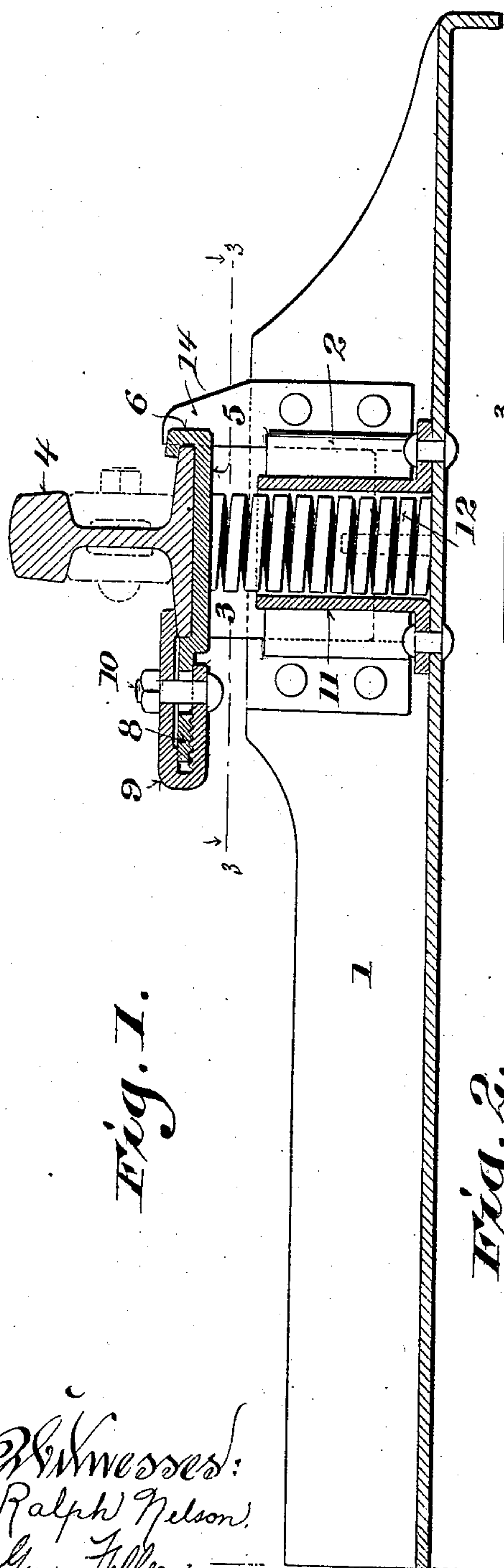


Fig. 1.

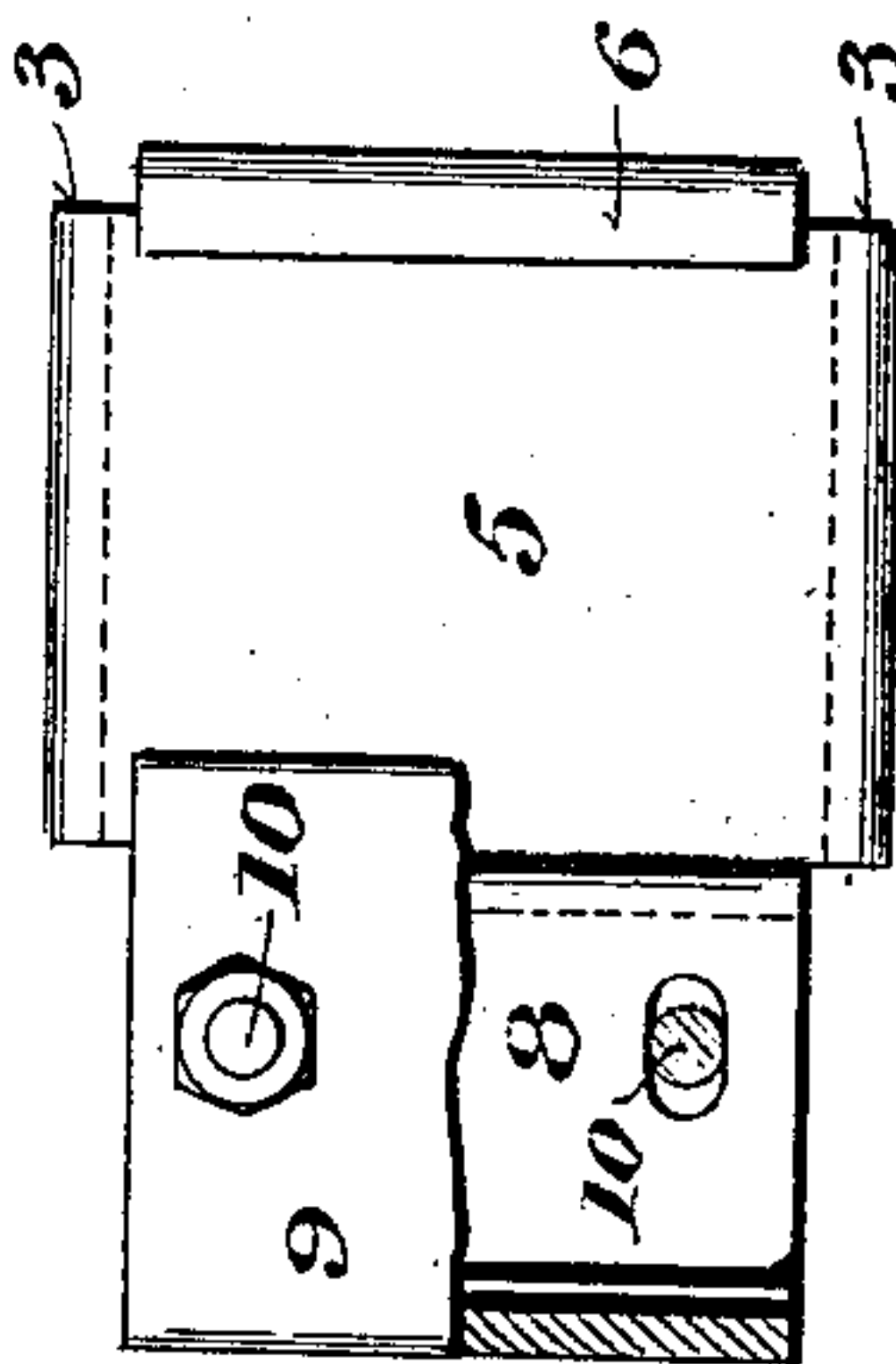


Fig. 2.

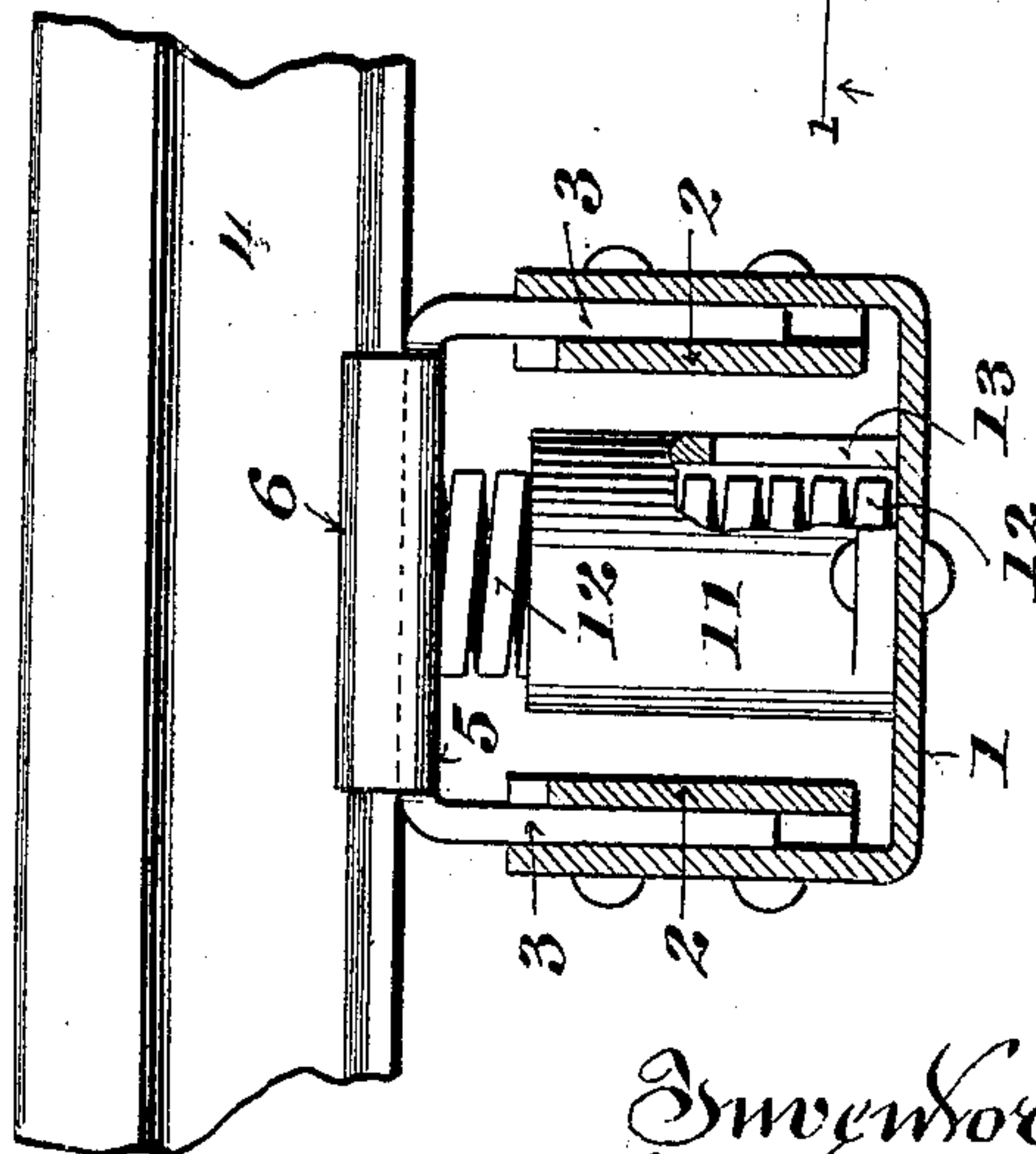


Fig. 3.

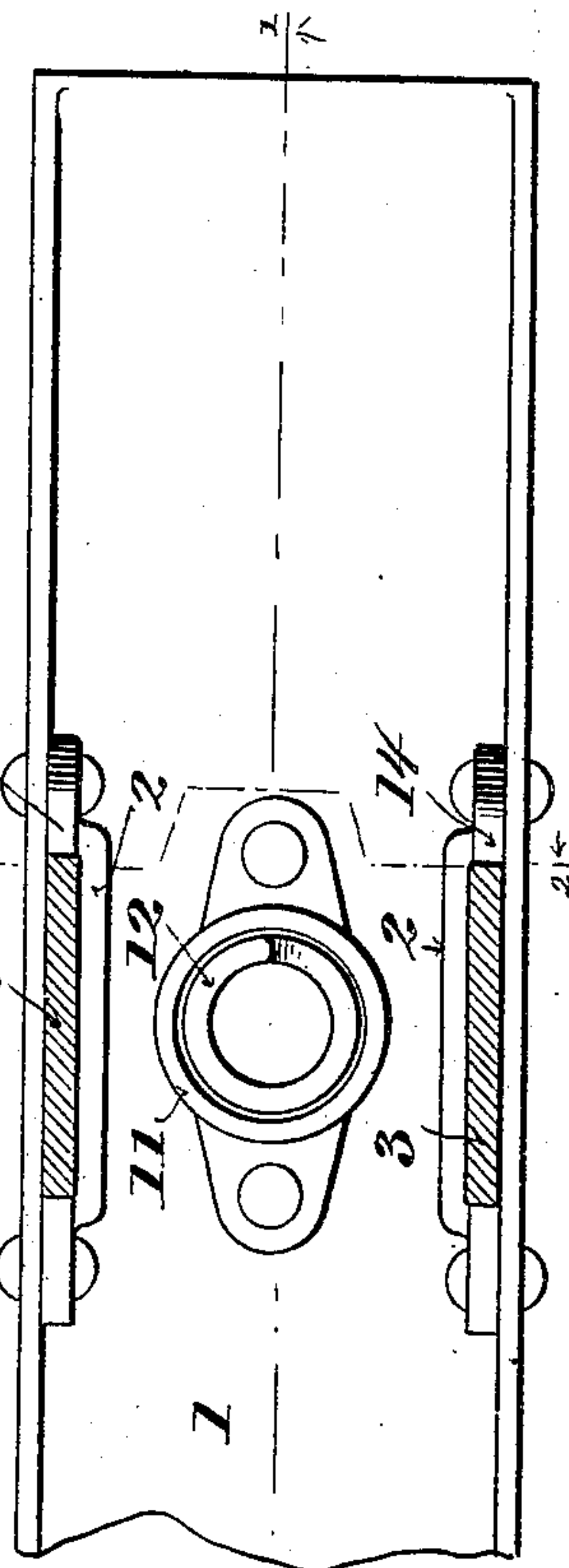


Fig. 4.

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UNITED STATES PATENT OFFICE.

LEE A. MILLER, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF TO FREDERIC C. INBUSCH, OF MILWAUKEE, WISCONSIN.

RAILWAY-TIE.

No. 898,590.

Specification of Letters Patent.

Patented Sept. 15, 1908.

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To all whom it may concern:

Be it known that I, LEE A. MILLER, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Railway-Ties; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to provide simple, economical and effective metallic ties for railway-rails, and also means in connection with the ties for attaching rails to said ties, its construction being such that the rail is capable of yielding under pressure from a train passing thereover, thus eliminating shock to the road equipment, as well as to the rolling stock.

The invention therefore consists in certain details of construction and combination of parts as hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figure 1 represents a longitudinal sectional view of a metallic tie and rail attaching mechanism embodying the features of my invention, the section being indicated by line 1—1 of Fig. 3; Fig. 2, a cross-section of the same, as indicated by line 2—2 of Fig. 3; Fig. 3, a plan view with parts in section, as indicated by line 3—3 of Fig. 1, and Fig. 4, a detail plan view of the rail attaching and supporting mechanism with parts broken away and parts in section.

Referring by numerals to the drawings, 1 indicates a U-shaped metallic tie, to the side-walls of which tie at either end are secured brackets 2, having pockets therein for the reception of legs 3 of a chair. This chair extends above the tie-walls for the support of rails 4 which are secured thereto, the rails being of the usual construction and form no part of my invention. The legs of each chair are connected by a bridge-piece 5 having a flat-face approximately of the same width as the rail-flange, the outer edge of the bridge-piece being upturned to form a lip 6 which overlaps the adjacent edge of said rail-flange. The inner edge of the bridge-piece adjacent to the inner edge of the rail-flange is formed with an abrupt vertical wall which wall terminates in a horizontally disposed wing 8, the bottom face of the wing being provided with a series of longitudinal corrugations as shown. Over this wing is fitted a

retaining-clip 9, having upper and lower jaws spaced apart and arranged to straddle the wing, there being a corrugated face upon the lower jaw which nests into the corrugated faces of the said wing.

Between the upper clip-jaw and adjacent face of the wing there is a slight clearance, said upper jaw being extended to overlap and impinge upon the upper face of the rail-flange, so as to retain the same in its seat upon the bridge-piece.

The clip-jaws are apertured for the reception of bolts 10, which bolts pass through the same, and also through elongated apertures of the wing, the said bolts being provided with retaining-nuts in threaded-connection therewith, whereby the several parts are securely clamped.

From the above description it will be seen that the clip may be adjusted and firmly clamped against the upper face of the rail-flange to retain the same in position upon the chair, the function of said clips, which are on the inside of the rails, being to resist strain of said rail-flange to rock in its seat under a spreading-pressure and also prevent rail-creeping. It will also be observed, that owing to the upper clip-jaw being clear of the wing-surface, the said jaw acts as a spring washer against the retaining-nuts to prevent the same from loosening under constant vibration caused through continual travel of rolling stock. A thimble 11 having ears extending from its base is riveted or otherwise secured to the bottom of the tie directly under the chair. The thimble has fitted therein a coil-spring 12, that is adapted to exert sufficient pressure upon the chair to sustain any load that might come upon the rail, it being understood that this strain, is at no time very great, owing to the fact that the load is distributed upon a number of these springs, the number depending upon the distance the ties are spread apart.

In order to prevent clogging of the thimbles from dirt or the like, they are each provided with vents or slots 13 at their lower ends, whereby foreign matter may be expelled therefrom. The pockets of the brackets 2 are open at both ends, being stopped short of the bottom of the ties to prevent clogging, the clearance thus formed permitting the legs of the chairs to force any accumulation in said pockets downward and out.

As shown by the drawings, the chairs and

rails are normally held some distance above the upper edges of the side-walls of the ties, by the springs, this distance in practice for example being approximately one inch, and consequently when a train passes over the rails they gradually sink under the load about three-fourths of an inch, or sufficient to absorb a great percentage of the shock which would otherwise come upon the track-equipment and rolling-stock, it being understood that the flanges of the rails, under normal conditions, never rest upon the side-walls of the ties except in an emergency, caused through a defective or broken spring.

As a precautionary measure the brackets are provided with upwardly extending fingers 14 which rest against the outer rail-flange edges, and serve to add rigidity to the device where strain is most liable to be the greatest. These fingers thus reduce the twisting strain of the chair-legs in their pocket, which legs are continually reciprocating therein and serve to hold the rails in their proper relative parallel position.

The ends of the metallic tie, as shown in Fig. 1, are preferably turned down to form a lip that will resist end-play of said tie when the same is embedded in a soft road-bed, the lip however being unnecessary when the aforesaid tie is embedded into cement.

While I have shown and described one complete mechanism in detail for carrying out my invention, it is understood that the equivalents within the skill of known mechanics may be substituted for such details, the essential feature being the manner by which the rails are spring-supported in connection with metallic ties whereby a cushion effect is produced, thus rendering travel upon a railway smooth, and thereby reducing the liability of trains being derailed at high speed to a minimum, the application of the invention being especially desirable upon elevated roads, bridges or where concrete beds are desirable, in which case the ties would be embedded therein. Another advantage of the yielding rails, aside from absorbing vibration, is that the noise caused through the present rigid construction as ap-

plied to elevated roads would in a great measure be eliminated.

The metallic construction, owing to its durability, would be comparatively much cheaper, especially as the parts are gaged in manufacture so as not to require the skill now necessary in constructing a railway, the parts being capable of assemblage by an ordinary workman into a perfectly gaged track wherein rail-spreading is eliminated.

I claim:

1 In a U-shaped metallic tie having brackets secured to its side-walls, pockets in the brackets, rail-supporting means fitted into the pockets, and springs interposed between the rail-supporting means and bottom wall of the metallic tie.

2. In a U-shaped metallic tie, having brackets secured to its side-walls, pockets in the brackets, chairs provided with depending legs fitted into the pockets, means for securing the chairs and rails together, and springs interposed between the chairs and bottom wall of the metallic tie.

3. In a U-shaped metallic tie, having brackets secured to its side-walls, pockets in the brackets, chairs provided with depending legs fitted into the pockets, means for securing the chairs and rails together, thimbles secured in the bottom wall of the tie, and springs seated in the thimbles, the springs being adapted to impinge against said chairs.

4. In a U-shaped metallic tie, having brackets secured to its side-walls, pockets in the brackets, chairs comprising bridge-piece members having depending legs fitted in the pockets, rails seated upon the bridge-pieces, adjustable rail-clamping mechanism carried by the bridge-pieces of the chairs, and springs interposed between said bridge-pieces of the chairs and bottom wall of the tie.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

LEE A. MILLER.

Witnesses:

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GEORGE FELBER.