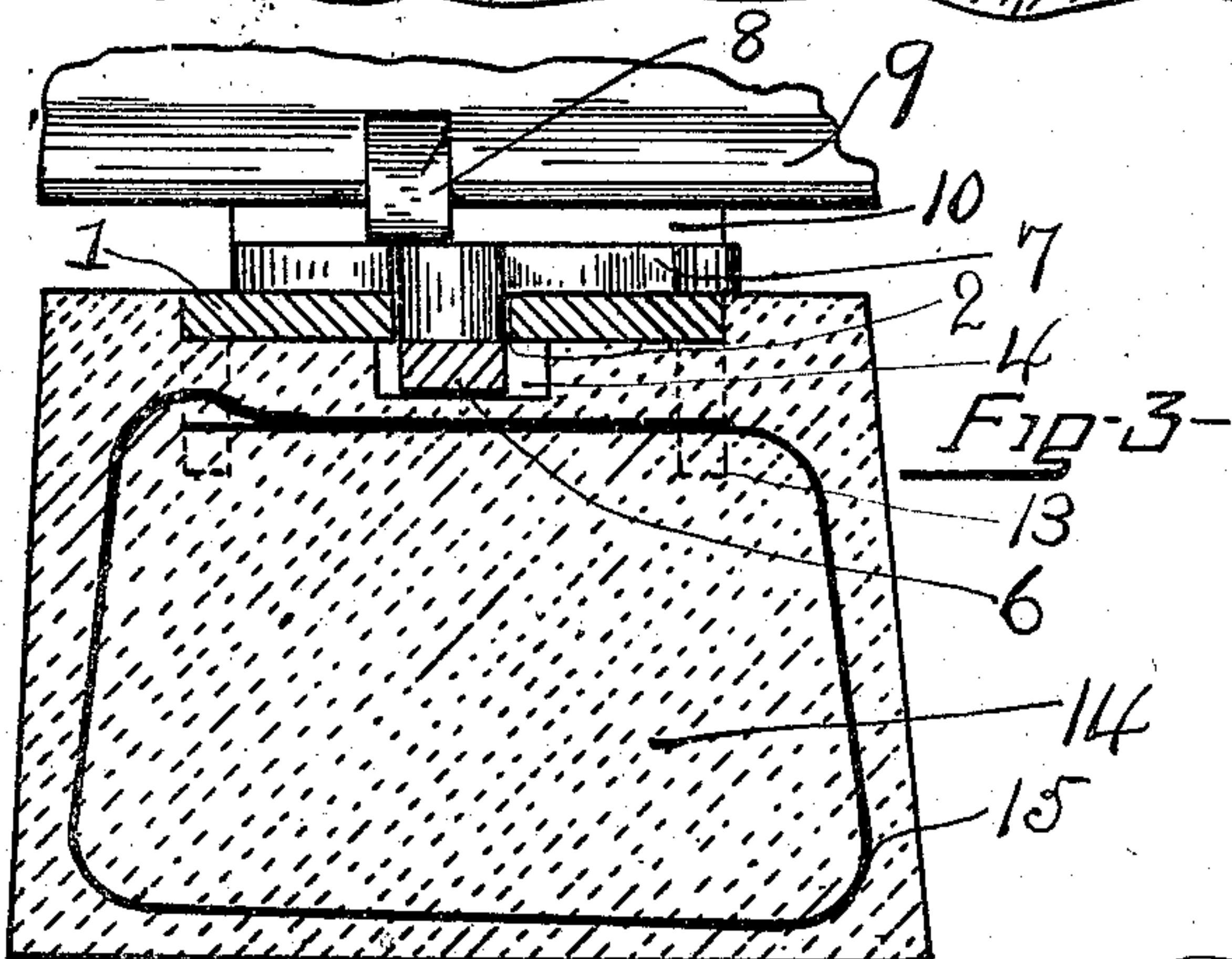
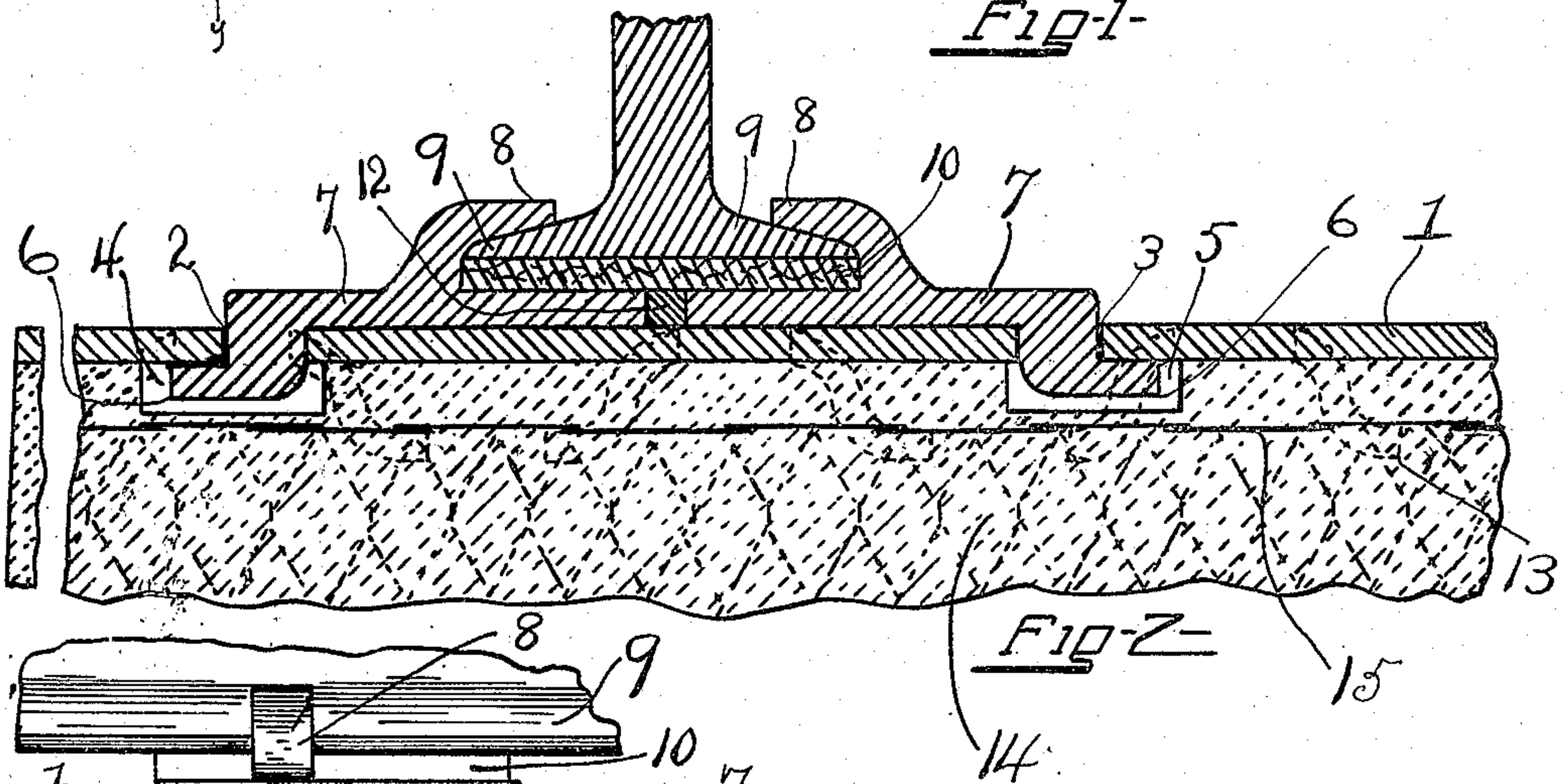
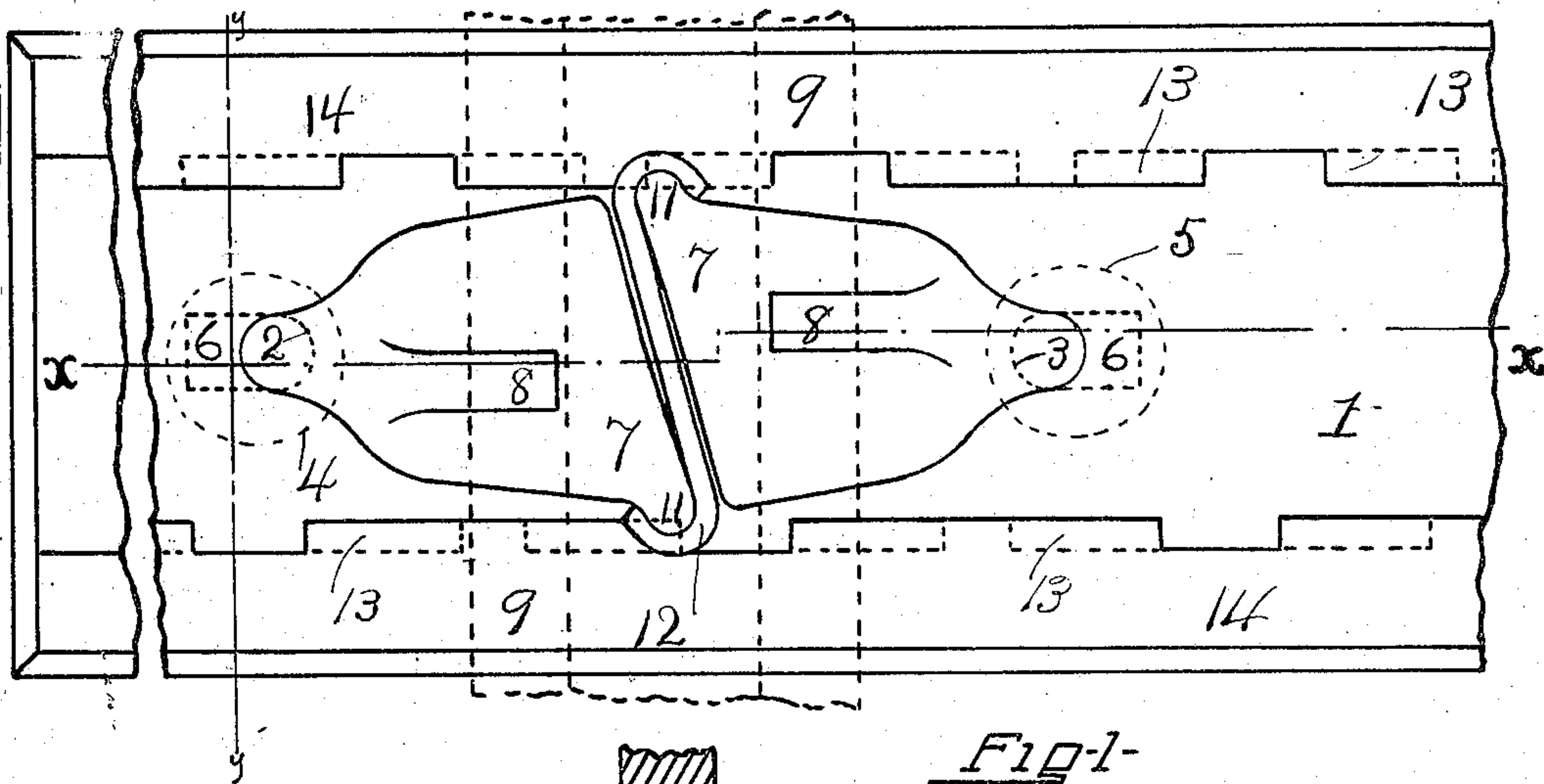


No. 854,993.

PATENTED MAY 28, 1907.

F. C. EVANS.
RAILWAY TIE AND RAIL FASTENER.
APPLICATION FILED JUNE 14, 1906.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRED C. EVANS, OF ITHACA, NEW YORK, ASSIGNOR OF ONE-HALF TO FRANK
T. BROCK, OF ITHACA, NEW YORK.

RAILWAY-TIE AND RAIL-FASTENER.

No. 854,993.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed June 14, 1906. Serial No. 321,653.

To all whom it may concern:

Be it known that I, FRED C. EVANS, a citizen of the United States, residing at Ithaca, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Railway-Ties and Rail-Fasteners, of which the following is a specification.

This invention relates to railway ties and rail fasteners and more particularly to a tie constructed of both metal and cement having an attaching means for rails.

The object of this invention is the provision of a metallic tie and a rail fastener associated therewith for securely retaining the rails properly spaced upon the road-bed.

A further object is to prevent all spreading or other displacement of the rails and this object is accomplished by use of my novel rail-fastener, which itself supports the entire weight of the rail; this rail-fastener is constructed of interchangeable parts which are easily replaced when worn or broken and by taking all of the wear, renders the tie free from wear and practically everlasting.

A still further object is to provide such a device which will combine the advantages of metal and wood and contain adjustable parts capable of taking up the wear incident to use and traffic.

In carrying out the above functions and advantages I have constructed a device exceedingly cheap and simple to manufacture, which at the same time combines added strength and reduces the wear of permanent parts to a minimum.

With these general objects in view and others which will appear as the nature of the improvements is better understood, the invention consists substantially in the novel construction, combination and arrangement of parts, which will be hereinafter fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings forming a part of this specification and in which like characters of reference indicate similar parts throughout the several views, Figure 1 is a top plan view of my invention with a rail, shown in dotted lines, secured in its normal position. Fig. 2 is a longitudinal sectional view taken on line $x-x$ of Fig. 1. Fig. 3 is a transverse sectional view of Fig. 1, taken upon the line $y-y$.

It is pointed out that the drawings show in full the securing of one of the companion rails of a road to my metallic tie by use of my rail-fastener and the immediate portion of the tie to said secured rail is also shown; for the companion rail of the road the entire arrangement of parts is identical and for this reason but one rail is shown.

Referring in detail to the drawings, the metal plate 1 constitutes the tie proper and may be of any desired width and thickness and is preferably constructed of steel but any suitable metal may, however, be used. Properly spaced round perforations 2 and 3 are provided through the plate 1, communicating with circular pockets 4 and 5, therebeneath. The feet 6—6 of retaining-blocks 7—7 enter these pockets through the perforations 2 and 3 and are removably secured therein by contacting with the lower surface of the plate 1. The upper surface of each block 7 is provided with an integral finger 8 positioned off-center to afford the greatest binding force upon the rail base-flange 9 when the two opposite blocks are wedged into contact with the rail to be secured; these binding blocks will somewhat adapt themselves to the size of the base-flange on different rails.

A wooden strip 10 is placed upon the blocks 7—7 underneath the rail and is held firmly in place by the clamping of the fingers 8—8 upon the rail-flanges 9—9. Said strip 10 is made of oak or other material and acts as a cushion between the rail and the retaining-blocks, reduces the wear upon the metal parts and is easily replaced. However the wooden strip 10 may be dispensed with, when the rail will rest directly upon the blocks 7—7. The blocks 7—7 are identical but are used in pairs and are set in opposite positions; they are substantially triangular in contour and are furnished at one angular corner with a slight projection 11 for the purpose hereafter set forth. With the rail firmly clasped by the blocks, a space is found between their adjacent edges and the hook 12 is threaded therethrough and brought into engagement with the projections 11—11, firmly locking the blocks in such position. Said hook 12 is preferably formed of a strip of malleable metal, each end of which is bent around the projections 11 as shown.

The plate 1 is used in conjunction with a

basket or frame-work 15 of suitable metal of substantially square cross-section and running lengthwise of the tie. Expanded metal is preferable for this purpose but wire netting, lacing or screen is also serviceable. Depending tongues 13 are cut on the opposite outer edges of the plate 1, which tongues are adapted to be securely hooked into the successive openings of the expanded metal. For embedding in the earth and giving form and rigidity to the tie, a cement body 14 is molded around the stiffened framework consisting of the plate 1 and the metal 15, thus forming a resilient support for the rails, the basket 15 being completely surrounded and protected by the plastic material, while the plate 1 is of the usual length of the tie but in width is somewhat less than the width of the upper face of the block and lies embedded flush with the upper surface thereof.

The before-mentioned pockets 5—4 are dentures of any desired shape and size made in the cement body at the points of perforation in the plate. It is pointed out that the blocks 7 above the plate 1 and the feet 6, within the pockets 4—5 below the plate, are each capable of revolution in their original horizontal plane.

My completed tie, constructed of metal and plastic material, is approximately the size of the wooden ties which are now in general use. In appearance, my tie presents a complete facing of cement, excepting the top in which the metal plate is embedded, forming with the contiguous cement body a top surface for the tie.

In operation, the feet 6—6 are placed in the pockets 4 and 5, the blocks 7 lying flat upon the upper face of the tie-plate 1; the rail is placed perpendicular to the tie, the bottom of the rail supported by the upper faces of the blocks 7—7 or the intermediate wooden strip, if the latter is employed. The fingers 8—8 are at first placed at an acute angle to the rail and are then forcibly drawn to a point at right angles thereto, in which position the rail is firmly wedged therebetween and is permanently secured by means of the locking-hook 12.

While the forms of the invention herein shown and described are what are believed to be preferable embodiments thereof, it is to be understood that the same are susceptible of various changes in the form, proportion and minor details of construction and the right is therefore reserved to modify or vary the invention as falls within the spirit and scope thereof.

Having thus described my invention and in what manner the same is designed for use, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The combination with a railway-tie having a metallic plate with two pairs of vertical perforations therein, integral tongues

depending from said plate permanently securing the latter to a supporting body of plastic material, flat triangular shaped rail retaining-blocks, an integral foot carried by the under surface of each retaining-block and removably retained within one of said vertical perforations, an integral finger carried by each of said blocks and bent to fit the rail-flange for securing the rail to the tie as set forth.

2. The combination with a railway-tie having a metallic plate with two pairs of vertical perforations therein, integral depending tongues carried by said plate permanently embedded so as to secure the latter to a supporting body of plastic material, indented pockets formed in said body registering with the perforations through said plate, flat triangular shaped rail retaining-blocks, an integral foot carried by the under surface of each retaining-block, said feet removably secured within said indented pockets, integral fingers carried on the upper surface of each block and bent to fit the opposite sides of the rail-flange for securing the latter to the tie as fully set forth.

3. The combination with a railway-tie having a metallic plate with two pairs of vertical perforations therethrough, of integral depending tongues carried by said plate permanently embedded in a supporting body of plastic material for securing the plate to said body; indented pockets formed in said body registering with the perforations through said plate, flat triangular-shaped rail retaining-blocks disposed to lie with their under surfaces contacting the top surface of the metallic plate, an integral foot carried by the under surface and an integral finger carried by the upper surface of each block, said fingers bent to fit the rail-flange for securing the rail to the tie, said feet being capable of insertion into and withdrawal from said pockets and through the perforations in the plate, and a locking hook for retaining said fingers in a clamped relation as fully set forth.

4. The combination of a railway-tie having a metallic plate with two pairs of vertical perforations therethrough, integral depending tongues carried in two parallel rows by said plate, said tongues interlocking with and permanently secured to a metal frame-work, the latter being surrounded and embedded in a supporting body of plastic material, indented pockets formed in said body registering with the perforations through said plate, flat triangular-shaped rail retaining-blocks disposed on the top surface of said plate and capable of partial revolution in a horizontal plane; an integral foot carried by the under surface and an integral finger carried by the upper surface of each block, said fingers bent to fit the rail-flange for securing the rail to the tie and an intermediate cushion-block between the rail-bottom and the supporting

retaining-blocks, said feet being capable of insertion into and withdrawal from said pockets through the perforations in the plate, and a hook for locking said fingers in a clamped position as fully set forth.

5 5. The combination of a railway-tie having a metallic plate with two pairs of vertical perforations therethrough, integral depending tongues carried in two parallel rows by opposite edges of said plate, said tongues interlocking with and permanently secured to a metal frame work of substantially square cross-section, the latter being surrounded by and incorporated in a supporting body of plastic material, indented pockets formed in said body registering with the perforations through said plate, flat wedge-shaped rail retaining-blocks disposed on the top surface of said plate and capable of partial revolution in

a horizontal plane, an integral foot carried by the under surface and an integral finger carried by the upper surface of each block, said fingers bent to fit the rail-flange for retaining the rail, an intermediate cushion-block between the rail-bottom and the supporting retaining-blocks, said feet removably secured in said pockets and capable of partial revolution therein, a malleable hook for retaining the said retaining-blocks and said fingers in a clamped relation as fully set forth.

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

FRED C. EVANS.

Witnesses:

EDW. J. MONE,
T. K. BRYANT.