

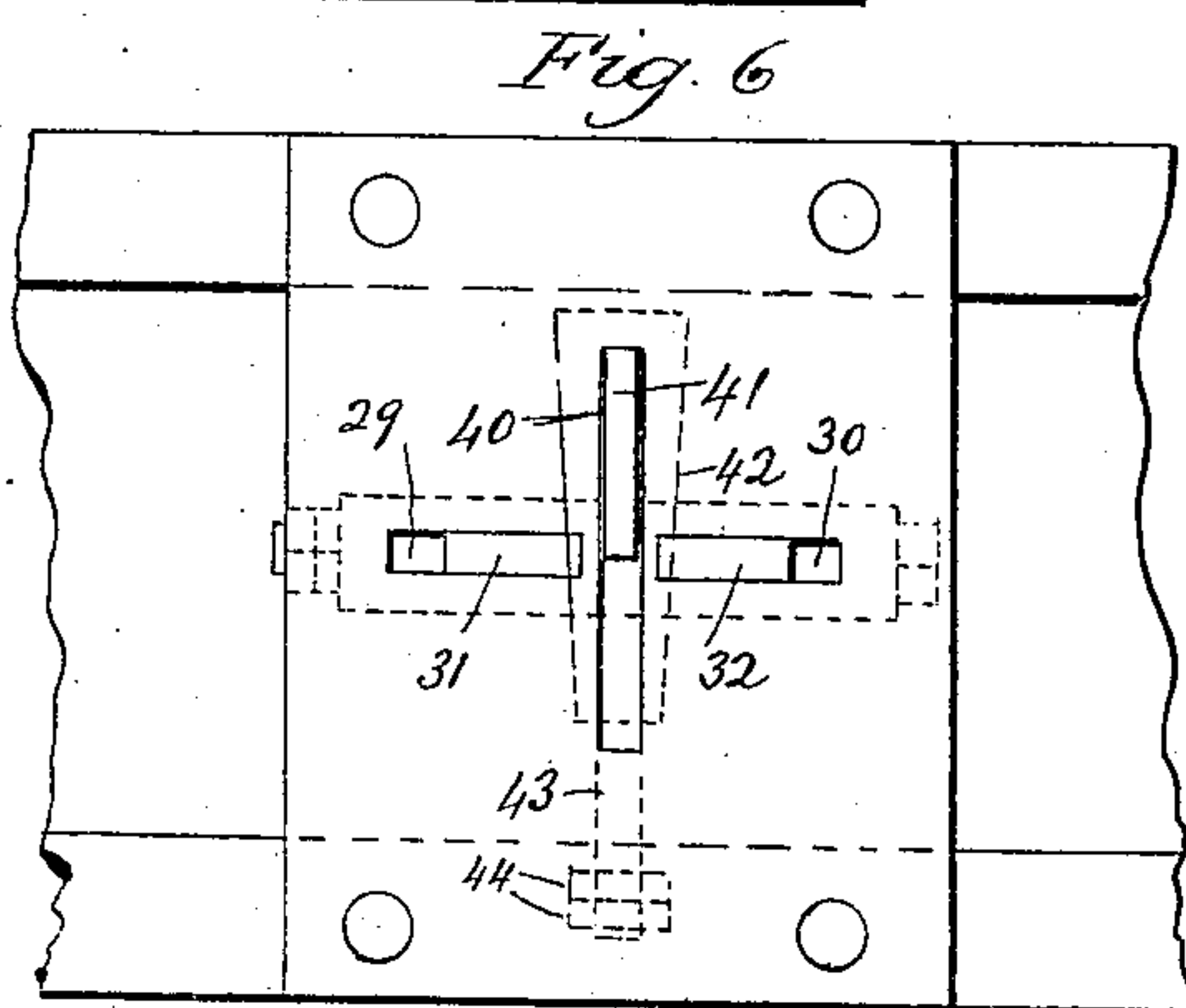
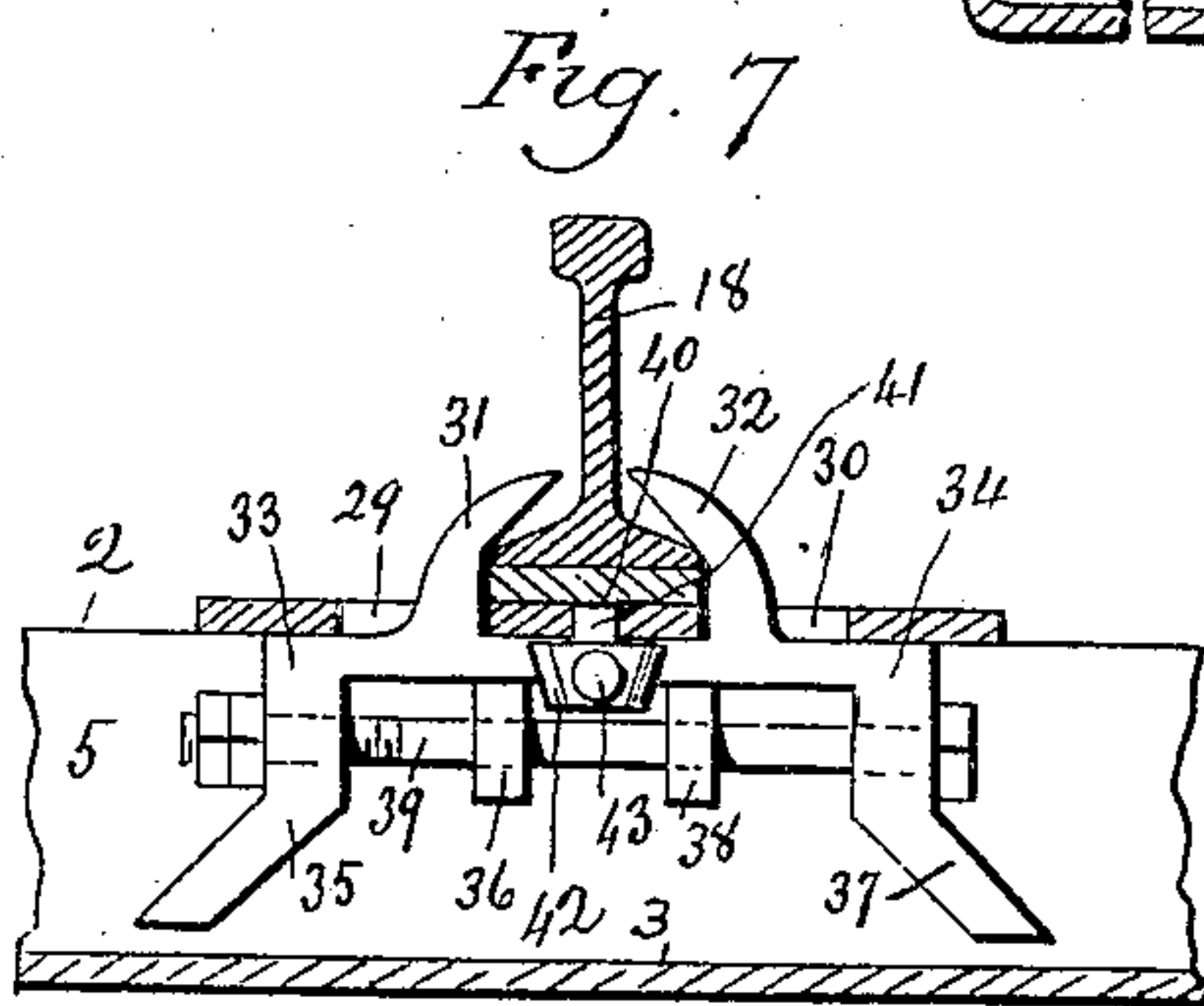
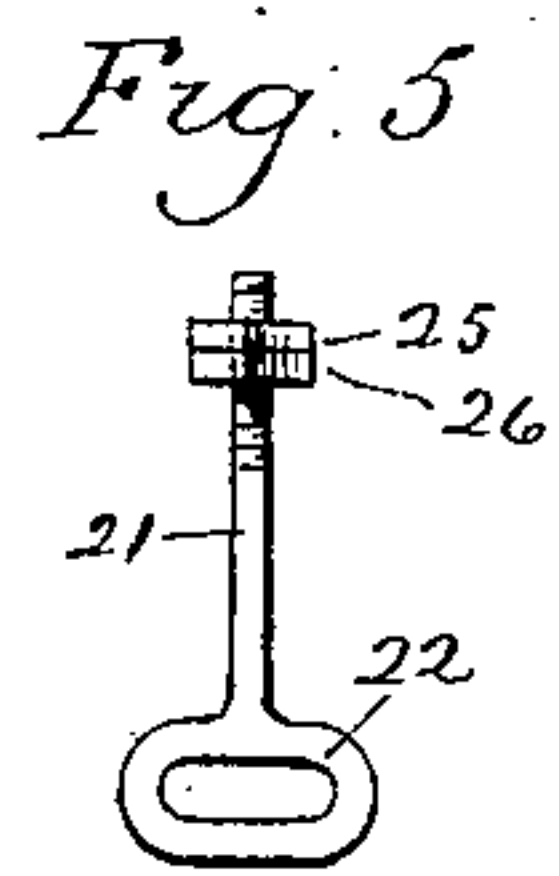
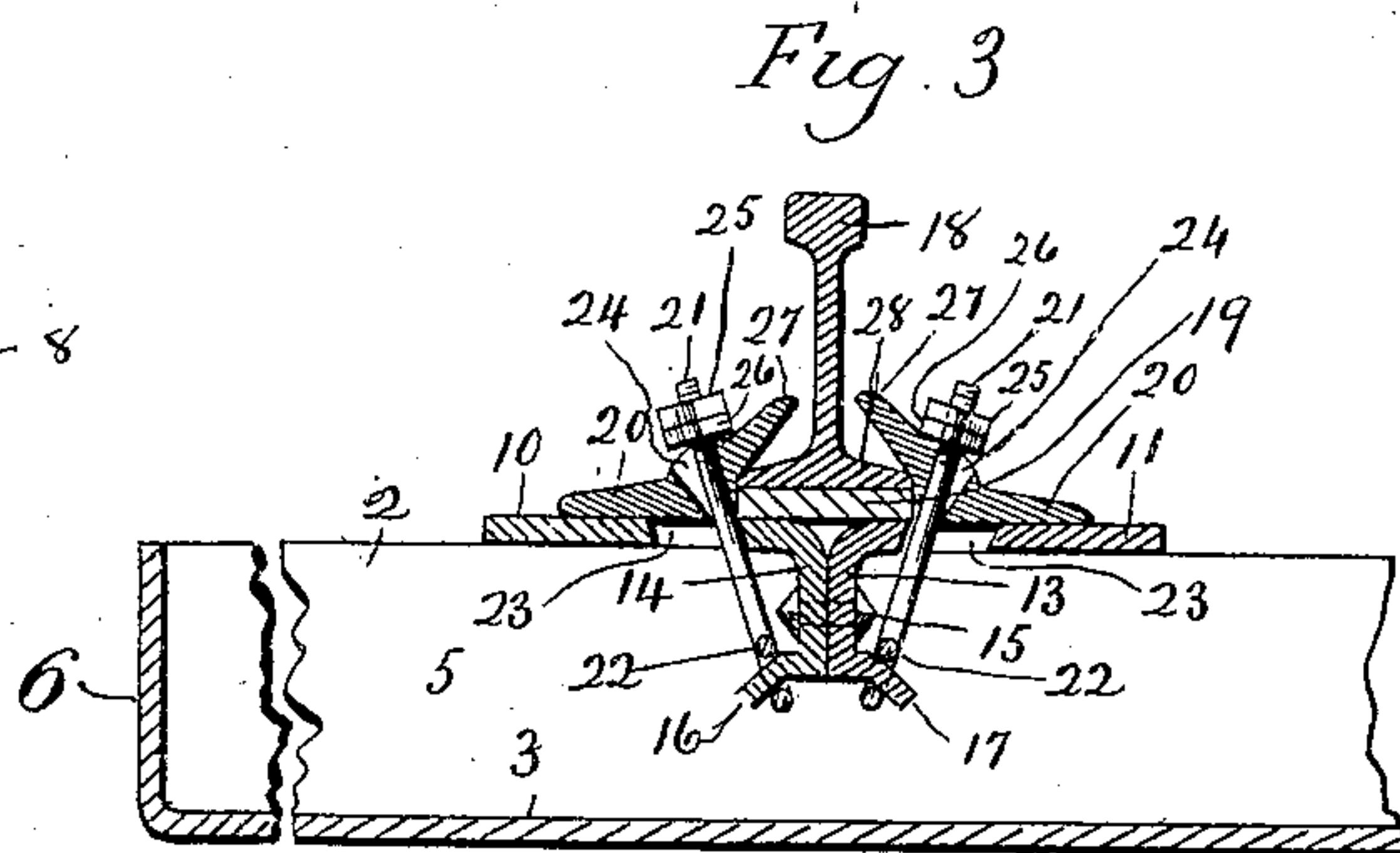
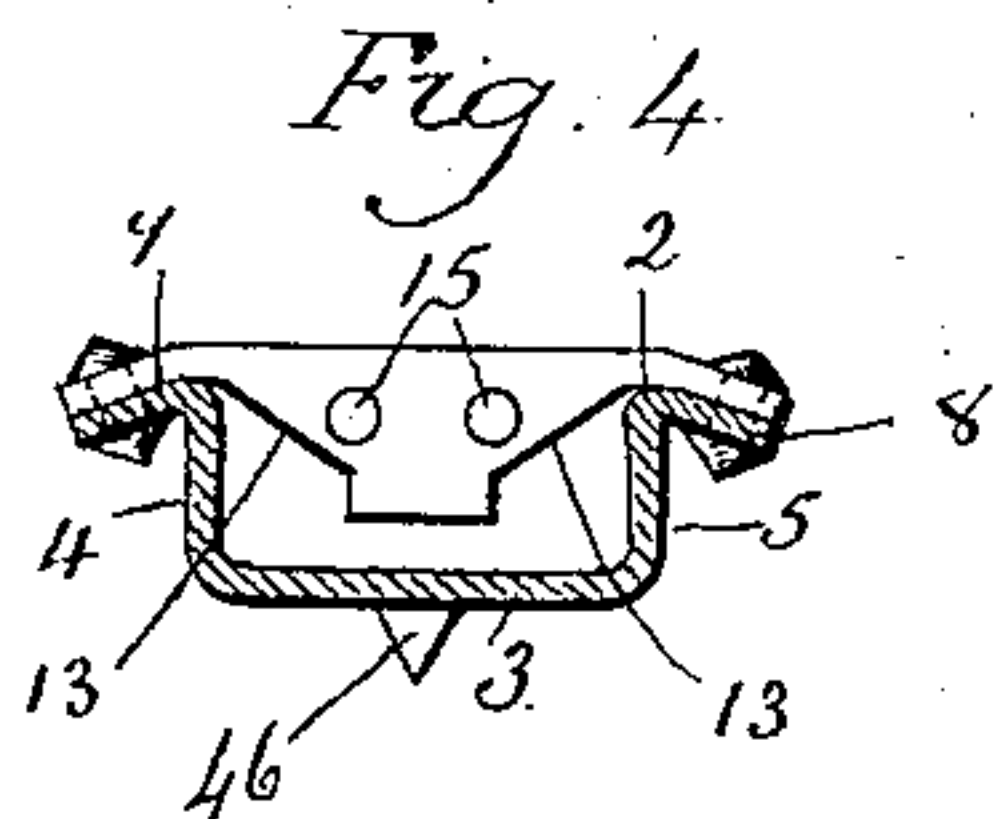
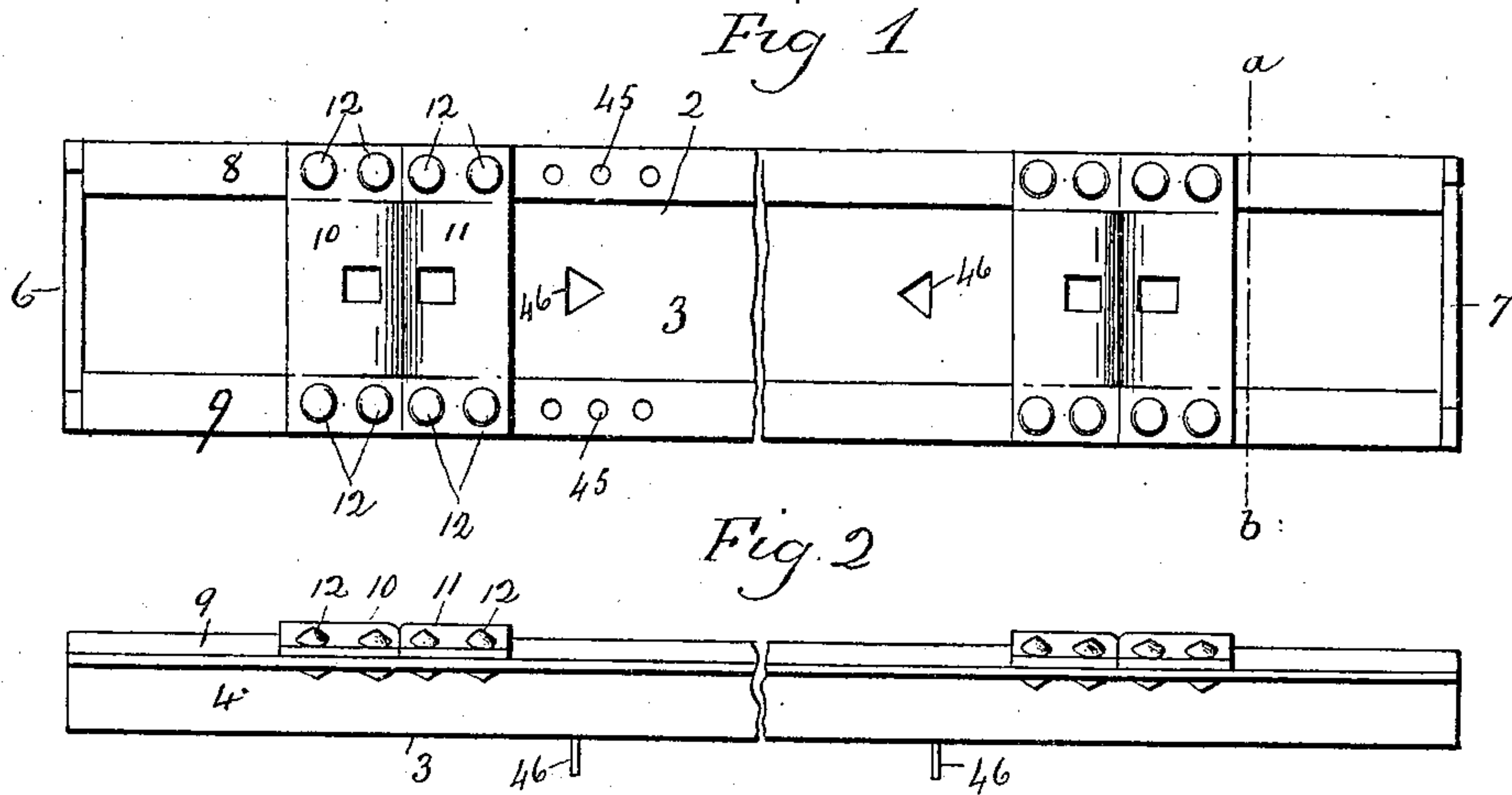
No. 809,000.

PATENTED JAN. 2, 1906.

F. G. METCALF.

METALLIC RAILWAY TIE AND MEANS FOR SECURING RAILS THERETO.

APPLICATION FILED OCT. 2, 1905.



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# UNITED STATES PATENT OFFICE.

FRANK G. METCALF, OF SOUTHURY, CONNECTICUT.

## METALLIC RAILWAY-TIE AND MEANS FOR SECURING RAILS THERETO.

No. 809,000.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed October 2, 1905. Serial No. 280,941.

*To all whom it may concern:*

Be it known that I, FRANK G. METCALF, a citizen of the United States, residing at Southbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Metallic Railway-Ties and Means for Securing Rails Thereto; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top or plan view of a metallic railway-tie constructed in accordance with my invention; Fig. 2, a side view of the same; Fig. 3, a sectional view of my improved tie, showing a rail secured thereto; Fig. 4, a sectional view on the line *a b* of Fig. 1; Fig. 5, a side view of one of the connecting-bolts detached; Fig. 6, a top or plan view of a modified form of rail-securing device with the rail removed; Fig. 7, a sectional view showing a modified form of rail-securing means in connection with the rail.

This invention relates to an improvement in metallic railway-ties and means for securing the rails thereto, the object of the invention being the construction of a metallic tie which may be firmly seated in the road-bed of whatever material that road-bed may be composed and to provide extremely-simple means for securing the rails thereto which permit of the ready adjustment of the rails for the placing or removal of wood bushings or frost-blocks beneath them and for use with rails having different width of base; and the invention consists in the construction, as hereinafter described, and particularly recited in the claims.

In carrying out my invention I form the tie 2 from sheet metal bent to form a bottom 3, sides 4 5, preferably extending vertically therefrom, ends 6 7, turned upward from the ends of the bottom 3, and side flanges 8 and 9, these flanges being inclined downward from the upper edge of the sides 4 and 5, the whole forming, as it might be called, a "trough." Secured to the flanges 8 and 9 are rail-plates, which, as shown in Figs. 1, 2, and 3 of the drawings, are each formed in two parts 10 and 11, each secured to flanges 8 and 9 by rivets 12, the ends of the plates being bent downward corresponding to the flanges 8 and 9 and so that the heads of the rivets

will stand in a plane below the plane of the upper face of the plates. The inner edges 13 and 14 of the plates are tapered and bent downward and secured together by rivets 15, and the extreme portions of the edges are turned outward to form hooks 16 and 17. Rails 18 rest upon the face of these plates over the meeting edges and bear directly upon the plates or upon cushion or frost blocks 19 and are held in place by clips 20, one arranged upon each side of the rail, the clips being formed with inwardly-projecting jaws 27, which extend over the base 28 of the rail and are secured to the plates by bolts 21, formed with eyes 22, which pass over the hooks 16 and 17, the bolts extending up through clearance-slots 23, formed for them in the plates 10 and 11, and through holes 24 in the clips and threaded at their outer ends to receive nuts 25 and 26. These clips are adapted for use with rails having different-width bases and will hold the rail in place without the blocks 19 or with blocks of varying thickness. By forming the ties with substantially straight sides the tie may be tamped and will retain its position in the same way as ties usually employed. Instead of forming the plates in two sections they may be formed from single pieces of metal, as shown in Figs. 6 and 7, and for other forms of means for fastening the rails to the plates plates formed from single pieces will be desirable. When formed from a single piece, the plates will be provided with slots 29 and 30 for the passage upward through them of jaws 31 32 of clamping-blocks 33 and 34, which are arranged within the tie beneath the plates, the blocks having downward projections 35, 36, 37, and 38, through which bolts 39 pass and by which the clamps may be drawn together, so as to force the jaws 31 and 32 onto the base of the rail. In the center of the plate I form a slot 40 to receive a rib 41, formed upon the top of a gage-block 42, which has beveled sides against which the clamping-blocks 33 and 34 will abut and so that the rails will be held in a central position. These blocks 42 have forwardly-projecting stems 43, which pass through the side walls 44 of the tie, the stems being threaded at their outer ends to receive nuts 44, whereby the block may be adjusted back and forth, as required. This form of clamps also permits of their use with rails of various widths of base and also permits the use of cushions or frost-plates of varying thickness.



By forming the flanges 8 and 9 with a series of perforations 45 additional plates may be secured to the tie for switches or for guard-rails or as a convenient means for securing planking to the ties at crossings. It will thus be seen that with my improved form of ties various means for securing the rails thereto may be employed. If desired, as an additional means for holding the ties in position tongues 46 may be cut from the bottom of the tie and turned downward, so as to project beyond the lower face. Such tongues will materially assist in holding the ties against longitudinal movement.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described sheet-metal railway-tie comprising a bottom, ends, sides, and side flanges, said side flanges being inclined downward from the upper edge of said sides.

2. The herein-described sheet-metal railway-tie comprising a bottom, ends, sides, and side flanges, said side flanges being inclined downward from the upper edge of said sides, and rail-plates secured to said flanges the edges of the plates being inclined corresponding to the inclination of said flanges.

3. The herein-described sheet-metal railway-tie comprising a bottom, ends, sides, and side flanges, said side flanges being inclined downward from the upper edge of said sides, and rail-plates secured to said flanges, said plates formed in two parts the inner edges extending downward and terminating in outwardly-extending hooks.

4. The combination with a sheet-metal railway-tie having a bottom, ends, sides, and downwardly-extending side flanges, plates secured thereto, said plates formed in two parts and having the inner edges extending downwardly and terminating in outwardly-extending hooks, said plates also formed with clearance-slots, clips adapted to bear upon the face of said plate and formed with inwardly-extending jaws, and bolts passing through said clips and slots in said plates and formed at their inner ends with eyes to set over said hooks, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANK G. METCALF.

Witnesses:

FREDERIC C. EARLE,  
CLARA L. WEED.