

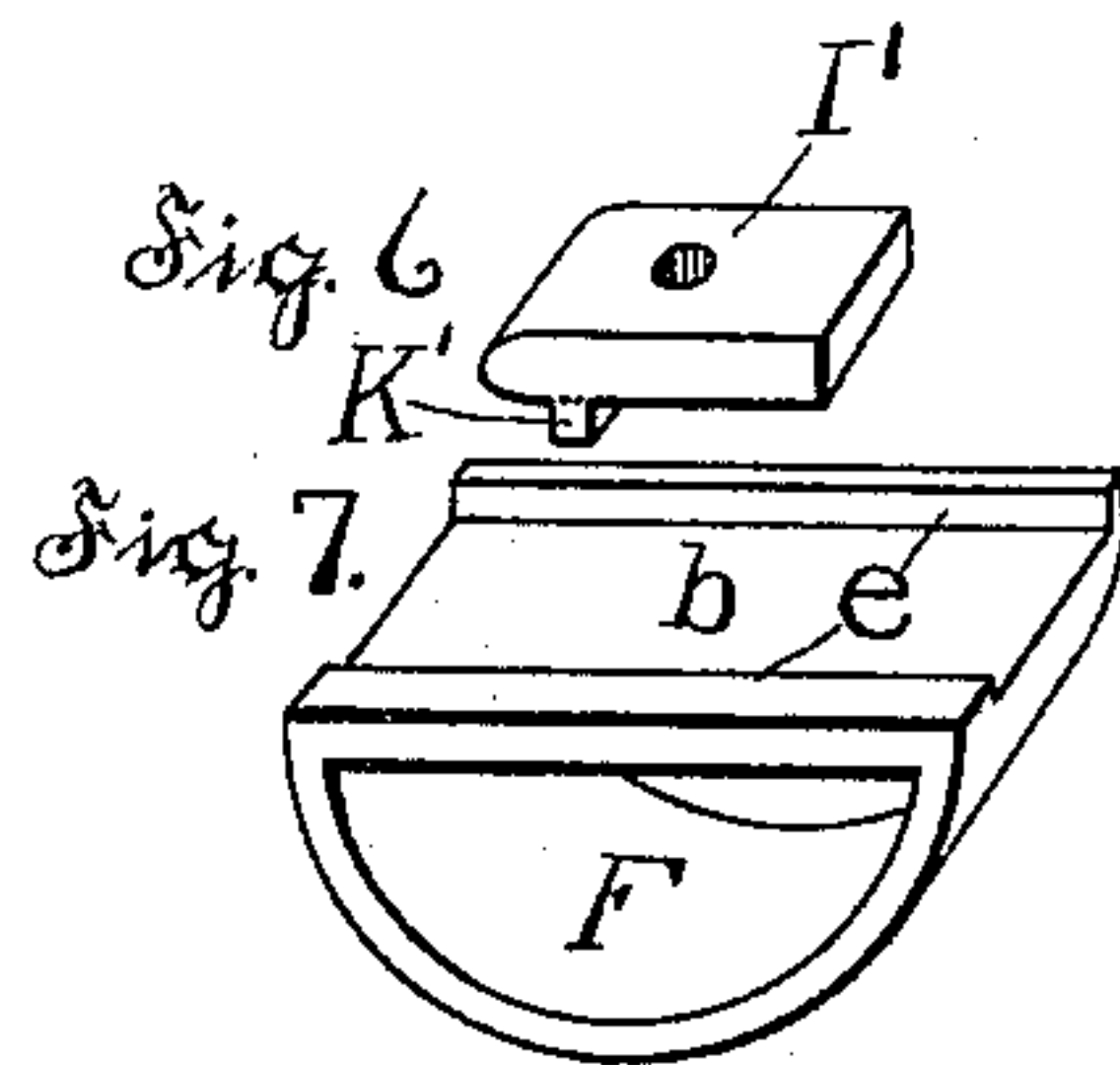
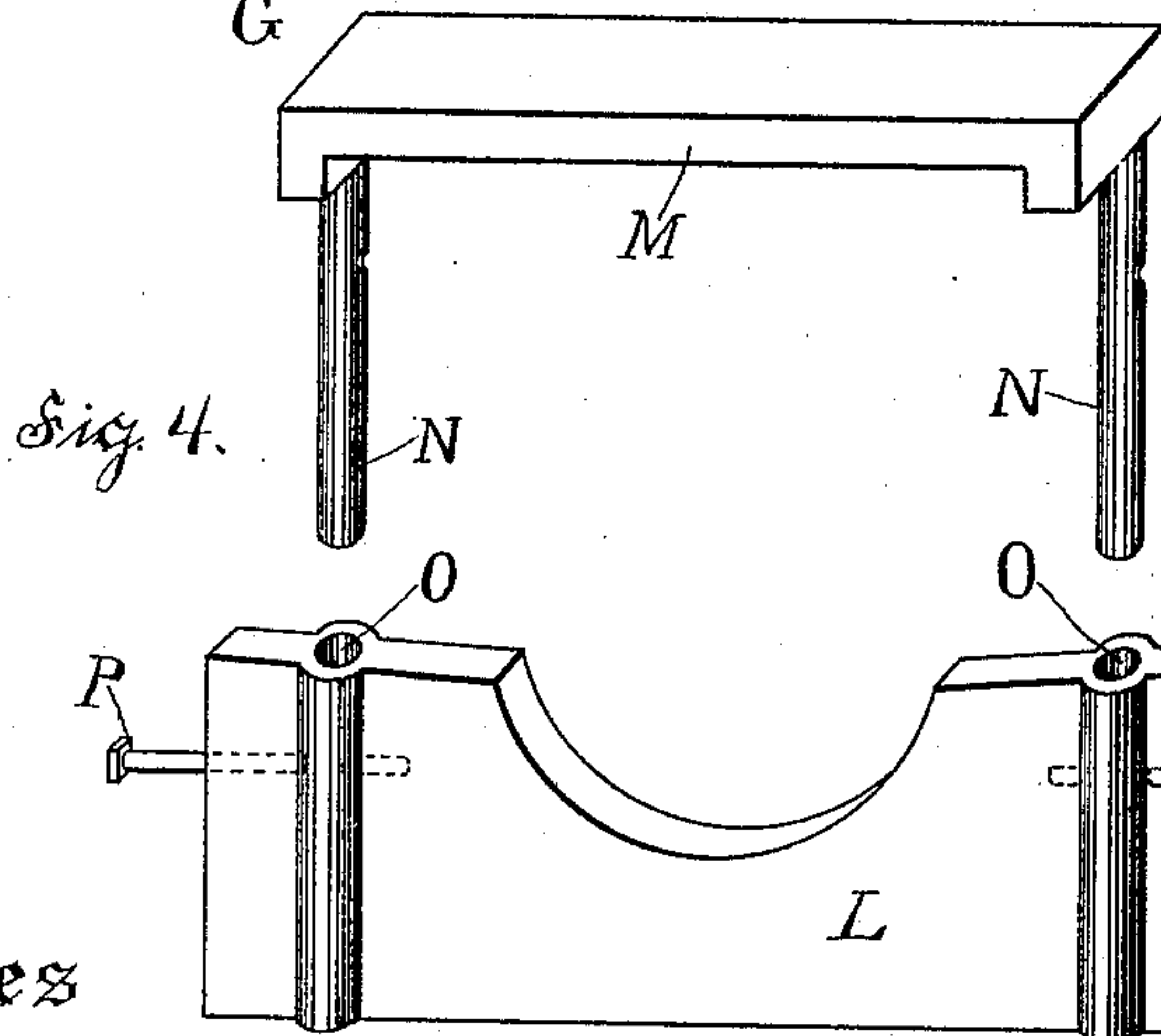
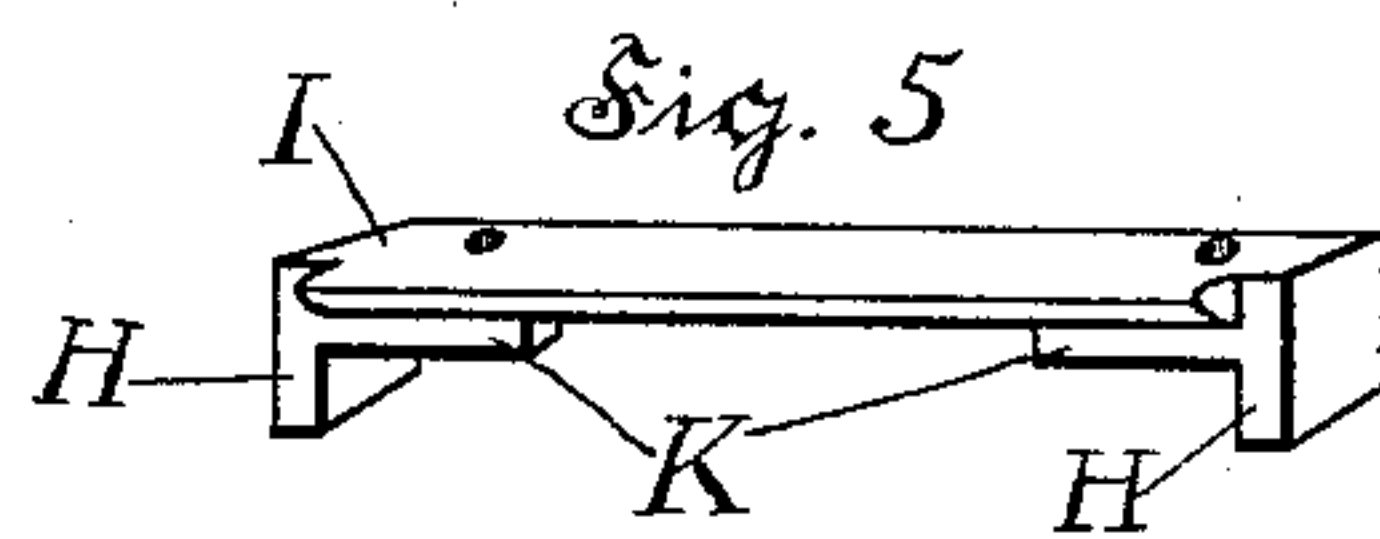
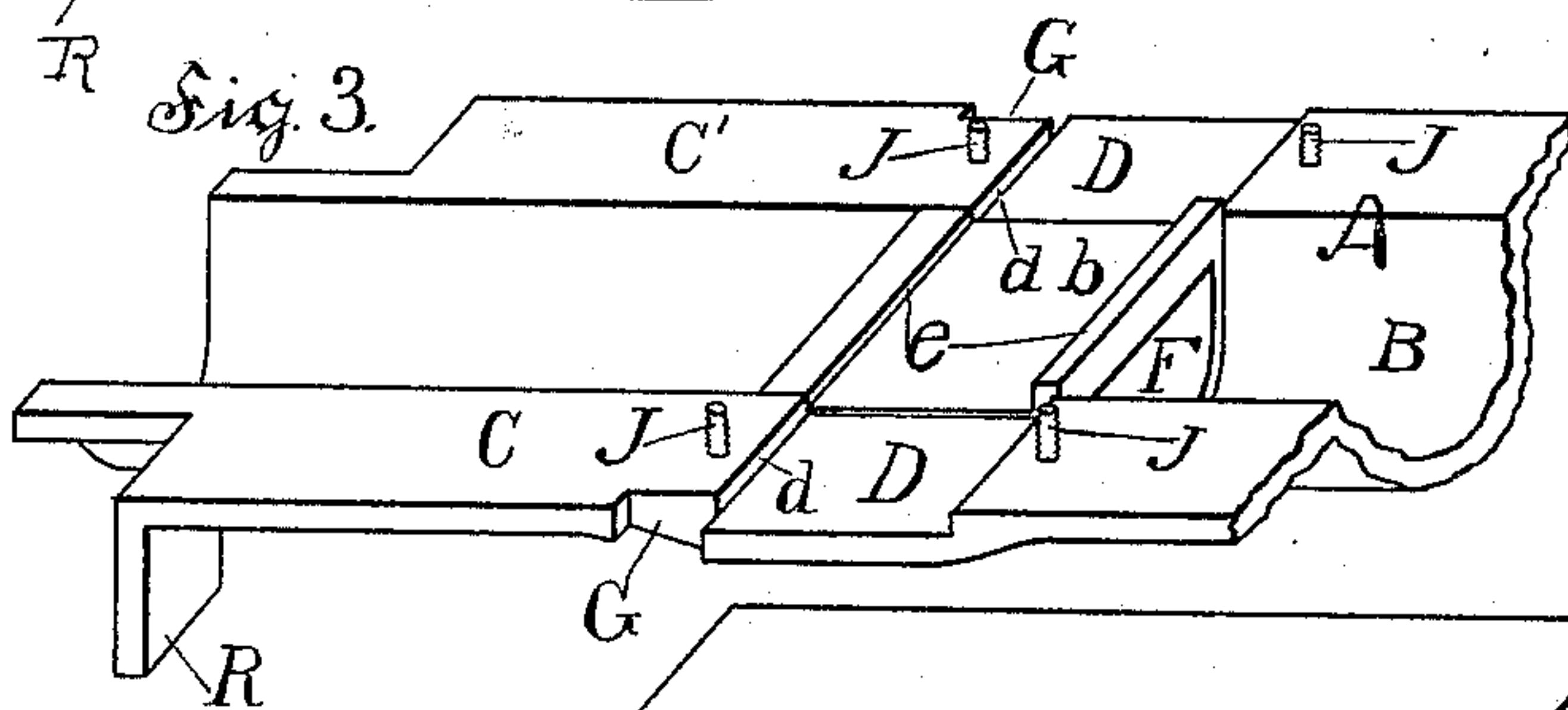
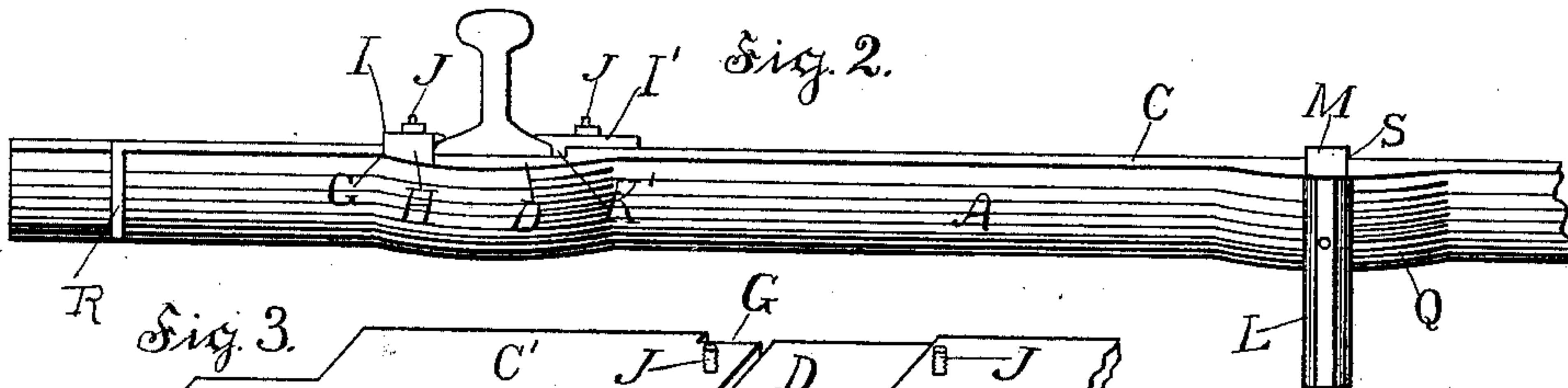
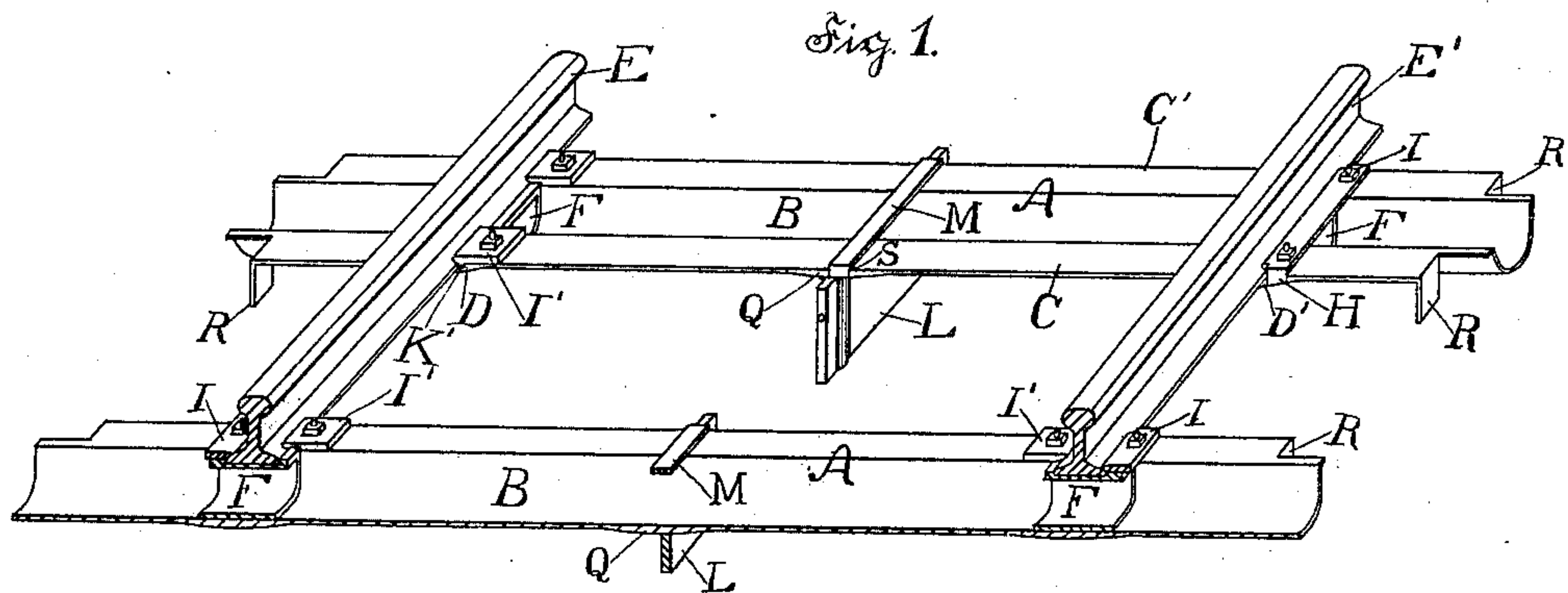
(No Model.)

H. P. SWEET.

METALLIC ROAD BED DRAIN AND SAFETY TIE.

No. 446,900.

Patented Feb. 24, 1891.



Witnesses

M. C. Galer.

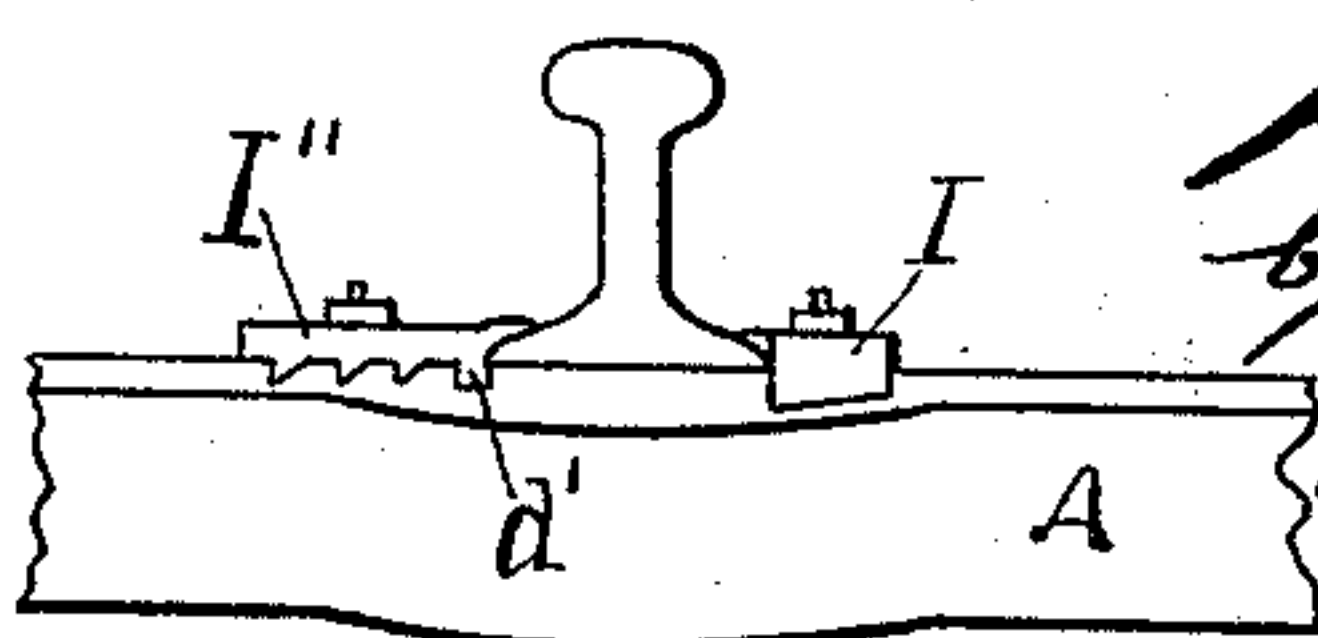
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Inventor

Harlan P. Sweet

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Fig. 8.



UNITED STATES PATENT OFFICE.

HARLAN P. SWEET, OF LOS ANGELES, CALIFORNIA.

METALLIC ROAD-BED DRAIN AND SAFETY TIE.

SPECIFICATION forming part of Letters Patent No. 446,900, dated February 24, 1891.

Application filed September 19, 1890. Serial No. 365,560. (No model.)

To all whom it may concern:

Be it known that I, HARLAN P. SWEET, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Metallic Road-Bed Drain and Safety Tie, of which the following is a specification.

My invention is an improvement on a metallic tie heretofore invented by me and for which I filed an application for Letters Patent in the United States Patent Office May 17, 1890, Serial No. 352,185, and which comprises a flanged semi-cylindrical tie and a chair adapted to fit thereon to receive the rail.

The object of my present invention is to reduce the weight and cost of the tie and its attachments and to secure safety against spreading of the rail, and also to secure the greatest amount of strength with the least possible weight and provide a metallic tie that can be used with rails of different widths without changing the gage of the road.

Another object of my invention is to produce a tie that can be made by one set of rolls and can be produced cheaply and quickly.

The accompanying drawings illustrate my invention.

Figure 1 is a view of a fragment of track embracing my invention, one drain-tie being shown entire and another being shown in axial mid-section. Fig. 2 is a side view of a portion of one of my improved ties, showing the thickened portions and the mid-anchor plate. Fig. 3 is a perspective top view of one end of my improved tie, showing the ends of the flanges turned down and my improved strengthening-chair in place to receive the rail. Fig. 4 is a perspective view of my improved anchor-plate and fastener. Fig. 5 is a perspective view of my improved outside clip for fastening the rail to the tie. Fig. 6 is a perspective view of my improved inside clip for fastening the rail to the tie. Fig. 7 is a perspective end view of my improved strengthening-chair. Fig. 8 represents a modified form of clip and tie where the rail-seat D is dispensed with.

My improved tie comprises a rolled metallic plate A, crimped to form an axial approximately semi-cylindrical channel B in its upper face, with lateral flanges C C' extending,

respectively, along the sides of such channel and provided with rail-securing gains in such flanges, and with two thickened and depressed rail-seats D D' in the top faces of the flanges, arranged, respectively, to receive and sustain the rails E E', and suitable fastenings for securing the rails in place.

It also comprises the peculiar clips and fastenings I employ for securing the rails in place, as will be hereinafter more fully set forth.

It also comprises the combination of the peculiar rigid strengthening-chair F with the tie, whereby superior strength is secured with but little additional weight, and whereby the drain feature of the tie is left unimpaired.

It also comprises other combinations and features of construction hereinafter more fully set forth.

The seats D D' are formed by a transverse gain or depression in the top faces of the flanges, and the body of the tie is preferably thickened at this point, thereby giving great strength at the point required with but a small increase in weight. The transverse gains which form the seats D D' are wide enough to receive and seat the base of the largest rail for which the tie is designed to be used.

In the edge of each flange on the outside of each rail-seat—that is to say, on the side of each of such seats nearest the end of the tie—I provide a gain G to receive, respectively, the lugs H of the outside clip I, arranged to fit into the rail-securing gains G, respectively. The clips I and I' are secured in place, respectively, by the bolts J, which pass through the tie for that purpose. The clip I and also the inside clips I' may be formed with or without a transverse rib K K' to fit into the transverse gains or seats D to fill the space left between the walls d of such gains and the base of the rail when a rail having a narrow base is used.

In practice the same tie is made to accommodate rails of different widths of base by providing the clips with gage-ribs K K' of such thickness as to so fill the space between the base of the rail and the walls of the gain that the rail is thereby held in position to give the desired gage to the track. By this arrangement the ties can be used where a light rail

is sufficient to bear the traffic, and they will afterward serve to receive heavier rails when the traffic increases, the only change required being in the clips, which when the light rail is used are provided with the ribs, but when the heavier rail is used clips having no ribs are used.

To strengthen the tie at the point subject to the crushing force of the rail, I provide the semi-cylindrical top-grooved or edge-flanged strengthening-chair F, arranged to fit in the channel of the tie with its flat top flush with the rail-seats, so as to receive the rail on such flat top or groove *b*, formed between the two side ribs *e e*.

Fig. 3 illustrates the position in which this strengthening-chair is placed to receive the rail. When the rail is in place, the ribs *e e* prevent the removal of the chair.

In order to prevent any lengthwise movement of the tie when it is laid, I provide the mid-anchor plate L, which consists of a vertical sheet of metal having its upper edge shaped to approximately conform to the under side of the tie when placed transversely therebeneath and fitted beneath the tie at or near the middle thereof transverse thereto and secured to the tie by suitable means. The means I prefer to employ are illustrated in the drawings, and comprise a stirrup M, the downwardly-projecting legs N of which are fitted into the stirrup-receiving sockets O in the anchor proper, where the legs N are secured by the pins or dowels P.

The anchor-seat consists of a thickened portion at the middle of the tie, or at the point designed to receive the anchor.

In the drawings, Q represents the thickened portion of the tie which receives the anchor, and S represents stirrup-securing gains in the edge of the tie to receive the legs N of the clip or stirrup M to prevent lateral motion thereof.

In addition to the anchor-plate L, I provide anchor-plates R R at the ends of the tie. These are formed integral with the tie by bending down the ends of the lateral flanges.

In practice the mid-anchor may sometimes be omitted and the end anchor-plates R depended upon entirely to prevent slipping of the tie, and when the mid anchor-plate L is used the end anchor-plates R may be dispensed with.

In Fig. 1 I have shown the rail pushed to the outer edge of the gain D, while the inner clips I' are provided with ribs K' to fit into the space between the base of the rail and the inside wall of the gain, and the outside clip I is shown without any rib.

In Fig. 5 I show the clip I provided with lugs K, so that when it is desired to set the rail nearer the center of the tie it may be done by using an outside clip provided with the rib, as in Fig. 5, while the inside clip is cast smooth, as indicated by the dotted line in Fig. 6. Clip I extends across the entire width

of the tie, and the lugs H, which project down into the side gains G, serve a double purpose. They serve to assist in preventing lateral motion of the rail and also serve to prevent the tie from spreading. By this device it becomes possible to dispense with the top transverse gains D. The form shown in the drawings, however, is preferable, as it prevents all possibility of spreading of the track.

In the modified form shown in Fig. 8 the top face of the flange is provided with serrations, and the under face of the outer clip, which in this figure is marked I'', is correspondingly serrated. In this figure the rail-gains D are dispensed with, but a smaller transverse gain *d'* is provided in its stead.

It is to be understood that I do not limit my claim to any particular method of manufacture, as it is obvious that my improved tie can be formed by stamping, rolling, or forging, or by any other method which may be deemed desirable.

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

1. A railway-tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with the thickened and depressed seats arranged, respectively, to receive and sustain the rails.

2. The combination of a railway-tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with rail-securing gains in such flanges and with the thickened and depressed seats arranged, respectively, to receive and sustain the rails, the inside clips, the outside clips provided with lugs arranged to fit into the rail-securing gains, and means for securing the clips to the tie.

3. The combination of a railway-tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with means to prevent the lateral movement of the rail on such tie, the anchor-plate fitted beneath the tie transverse thereto, and means for securing the anchor-plate to the tie.

4. The combination of a railway-tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with means to prevent the lateral movement of the rail on such tie, and with the stirrup-securing gains, the anchor-plate fitted beneath the tie transverse thereto and provided with the stirrup-receiving sockets, the stirrup provided with legs, and the dowels.

5. The combination of the tie comprising a

metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with rail-seats in such flanges, the clips provided with the gage-ribs, and means for securing the clips to the tie.

6. The combination of a railway-tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with the thickened and depressed rail-seats and the thickened anchor-seat, the anchor-plate fitted beneath the tie transverse thereto, means for securing the rails to the tie, and means for securing the anchor-plate to the tie.

7. The combination of a railway-tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with means for preventing the lateral movement of the rail on the tie, the semi-cylindrical top-grooved strengthening-chair, and means for securing the rail to the tie.

8. A railway-tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and having the ends of such flanges bent down to form the anchor-plates, substantially as set forth.

9. The combination of a tie comprising a metallic plate having a longitudinal channel

in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with the rail-seats in the top faces of such flanges, the clips provided with the end lugs, and means for securing the clips to the plate.

10. The combination of a tie comprising a metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with the gains G, the clips provided with the end lugs H, and means for securing the clips to the tie.

11. The combination of a tie comprising a metallic plate having an axial channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with the gains in the edges of such flanges, the clips provided with end lugs arranged to fit in such gains, and means for securing the clips to the plate.

12. The combination of the rail, the tie comprising a metallic plate crimped to form a semi-cylindrical channel in its upper face, with lateral flanges extending, respectively, along the sides of such channel and provided with depressed rail-seats in such flanges to sustain the rails, the rigid flat-topped semi-cylindrical strengthening-chair arranged to fit in the channel of the tie with its top flush with such rail-seats, and means for securing the rail to the tie.

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Witnesses:

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