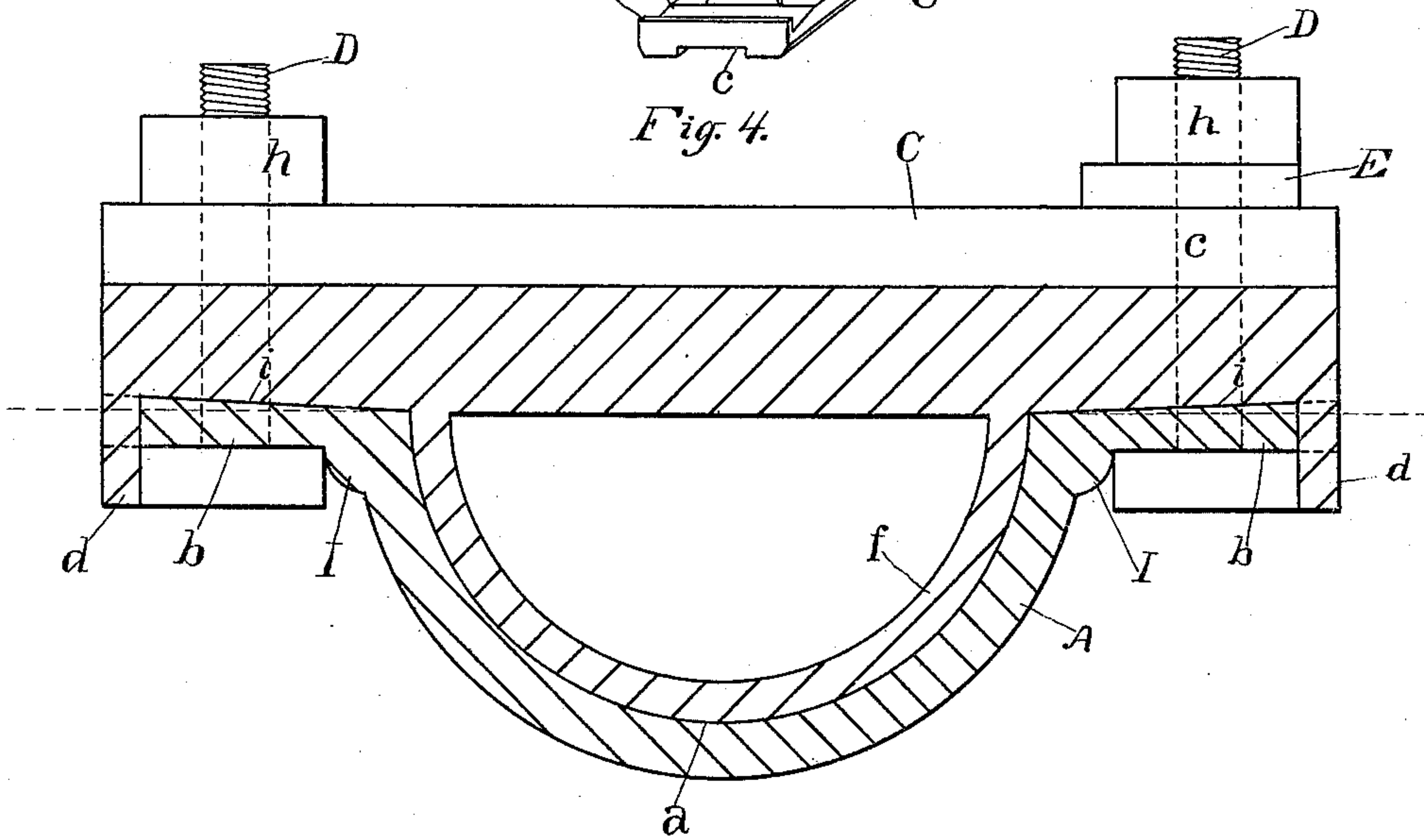
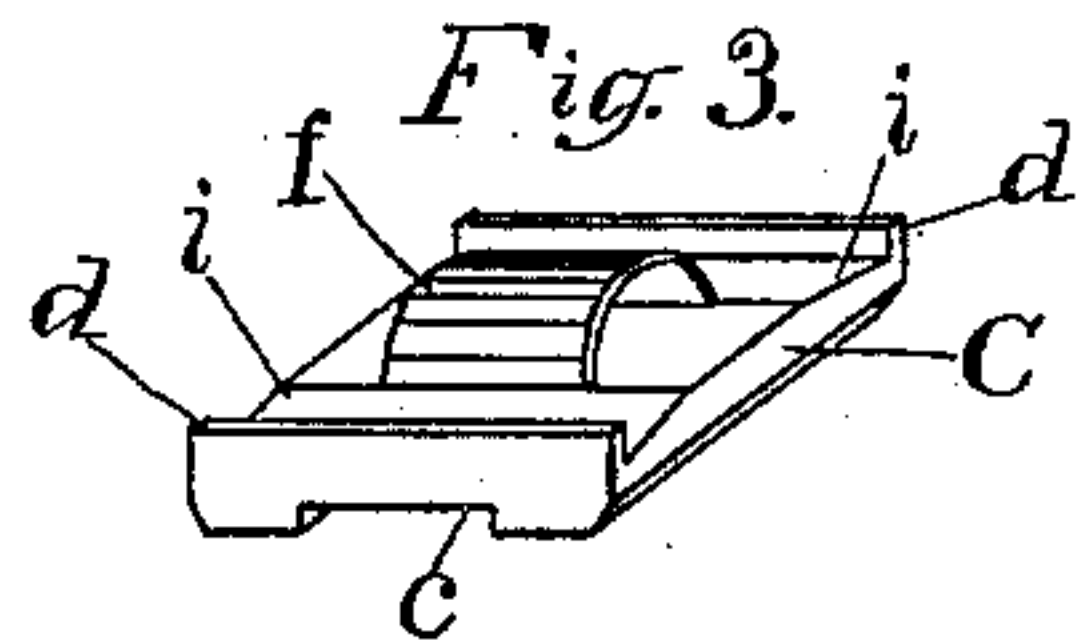
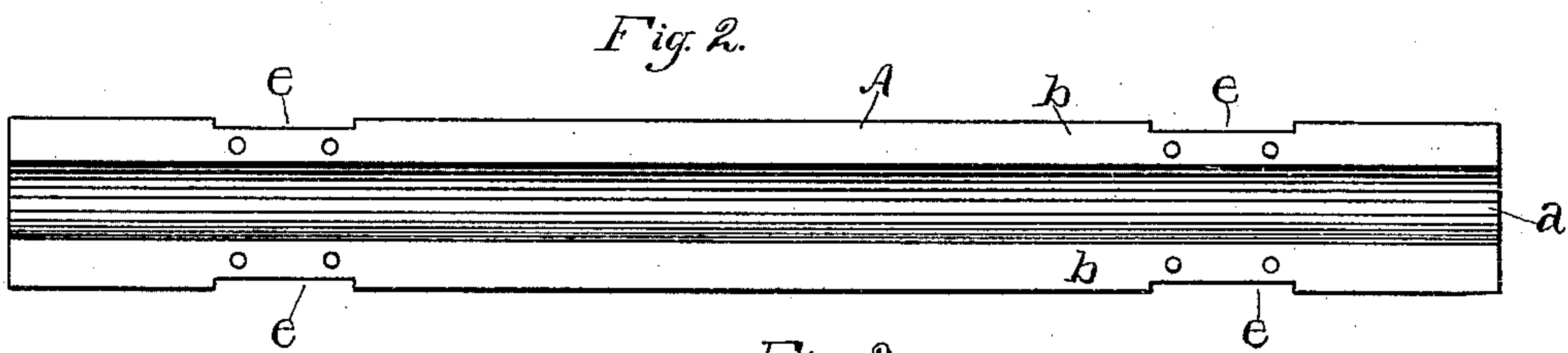
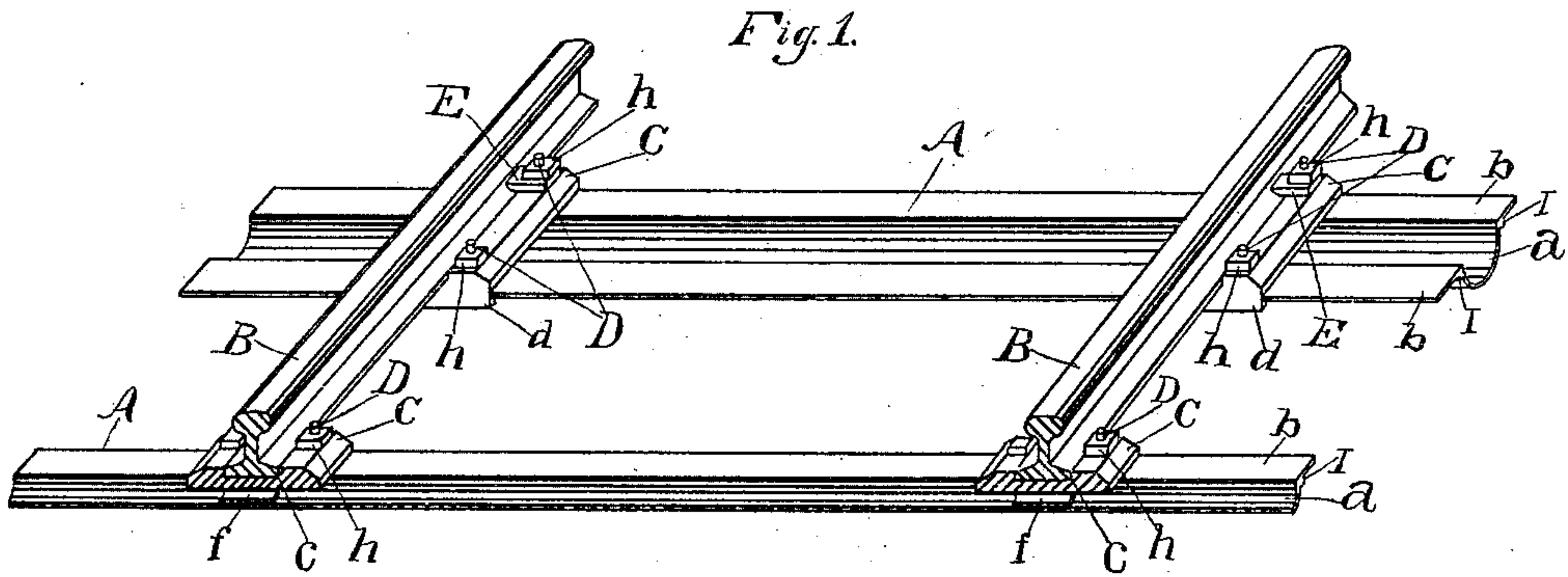


(No Model.)

H. P. SWEET.
METALLIC RAILWAY TIE AND CHAIR.

No. 446,899.

Patented Feb. 24, 1891.



Witnesses
M. G. L. L.
Alfred I. Townsend

Inventor
Harlan P. Sweet
by Hazard & Townsend
his attys.

UNITED STATES PATENT OFFICE.

HARLAN P. SWEET, OF LOS ANGELES, CALIFORNIA.

MÉTALLIC RAILWAY TIE AND CHAIR.

SPECIFICATION forming part of Letters Patent No. 446,899, dated February 24, 1891.

Application filed May 17, 1890. Serial No. 352,185. (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 Combined Metallic Railway-Road-Bed Drain Tie and Chair, of which the following a specification.

The object of my invention is to produce a metallic road-bed-draining tie of superior simplicity, elasticity, lightness, and economy, which, when in use on the track, will serve to carry off the rain-water falling thereupon, thereby preventing the track from becoming guttered or saturated with water.

My invention comprises a road-bed drain and tie formed of a rolled metallic plate crimped to form an axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending along the sides of such channel and inclined from their outer edges downward to such channel to carry the water into such channel, whereby it is conducted off of the road-bed.

It also comprises the combination, with such drain-tie, of the chair, more fully described hereinafter.

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 section. Fig. 2 is a plan view of my improved drain-tie. Fig. 3 is a view of the chair inverted. Fig. 4 is a cross-section of the drain-tie and chair at the mid-line of the chair.

A represents the drain-tie; *a*, the axial semi-cylindrical crimp or channel; *b b*, the lateral flanges, having their upper faces inclined from their outer edges downward to the channel.

B is the rail.

C is the chair, having the rail-channel *c* in its top, the downwardly-extending edge plates *d*, arranged to fit the gains *e* in the edges of the drain-tie, and the semi-cylindrical brace-plate *f*, conforming in cross-section to the cross-section of the channel *a* and projecting downward from the under face of the chair opposite the rail-channel and at a distance from the two edge plates equal to the width of the flanges at their gained portion.

In practice the chairs are fitted upon the open face of the drain-tie with their edge plates *d* inserted in the gains *e* and the brace-plate *f*, fitting into the channel *a* of the tie. The rail is placed in position in the channel *c* of the chair, and the tie, chair, and rail are secured together by bolts *D*, nuts *h*, and suitable clips *E*. The under face of the tie has the two beveled portions *i i* to fit upon the sloping upper faces of the flanges *b*.

The junction of the flanges *b* with the crimp or channel *a* is provided on its inside angle with a thickened portion, such as the bead or quarter-round *I*, which serves the double purpose of stiffening and strengthening the tie, and also of filling the angle into which it is difficult to tamp the ballast.

It will be seen by reference to Fig. 4 that there is absolute security against flattening of the tie, because by means of the brace-plate *f* and the beveled facets *i* the under face of the chair is made to conform to the tie, so that the pressure will have no spreading or flattening effect upon the tie, while at the same time the downwardly-projecting edge pieces or plates *d* also serve to prevent the spread as well as to prevent the chair from slipping on the tie.

It will be understood that when the ties and rails are in place the ballast of the road is made flush with the top of the flanges, and that it is raised slightly above this level between the ties, so that the water falling upon the road-bed between the ties will be conducted onto the flanges, the downward and inward inclination of which causes the water to flow into the open channels of the ties, and be thereby conducted to the side of the track and there discharged.

It will be observed that there is no possibility for the rail to slip upon the tie, as it is held by its seat in the chair, while the chair is absolutely secured by the interlocking of the gained flanges and the edge plates *d*.

In practice the flanges are each of a width equal to half the width of the channel, as this gives the best result for stiffness and stability.

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

1. The railway-road-bed drain-tie formed of a rolled metallic plate crimped to form an

axial approximately semi-cylindrical channel in its upper face, with lateral flanges extending along the sides of such channel and having their upper faces inclined from their outer
5 edges downward to the channel, substantially as and for the purpose set forth.

2. The combination of the tie formed of a metallic plate crimped to form an axially approximately semi-cylindrical channel in its
10 upper face, with lateral flanges extending along the sides of such channel and provided with the gains *e*, and the chair having the rail-channel in its top, the downwardly-ex-

tending edge plates *d*, arranged to fit the gains, and the semi-cylindrical brace-plate *f*, 15 conforming in cross-section to the cross-section of the channel and projecting downward from the under face of the chair.

3. A tie substantially such as described, having each of the junctions of its flanges 20 with the channel provided on the inside angle with a thickened portion.

HARLAN P. SWEET.

Witnesses:

JAMES R. TOWNSEND,
ALFRED I. TOWNSEND.