

No. 843,517.

PATENTED FEB. 5, 1907.

W. H. CASTLE.  
RAILWAY TIE.

APPLICATION FILED JUNE 9, 1906.

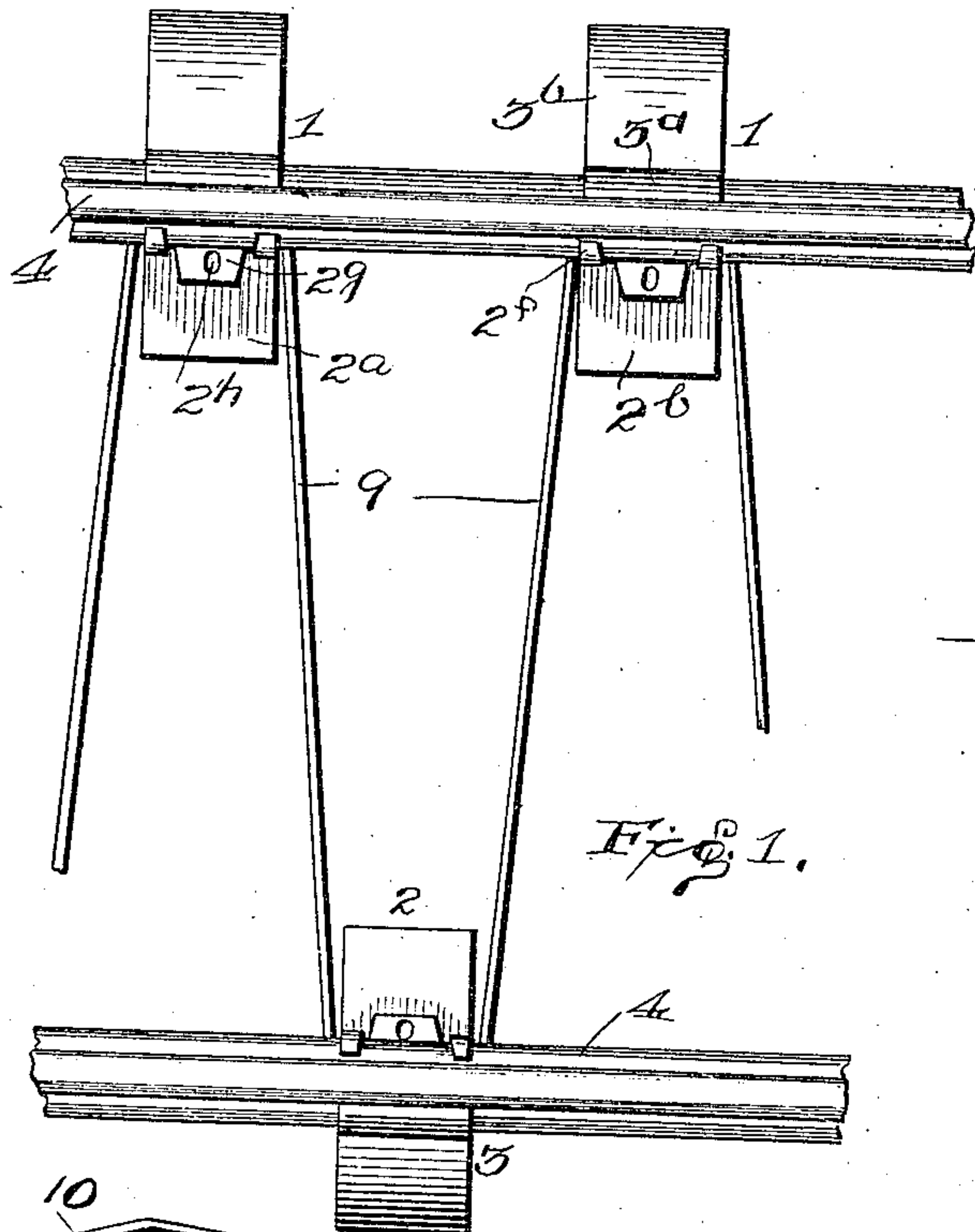


Fig. 1.

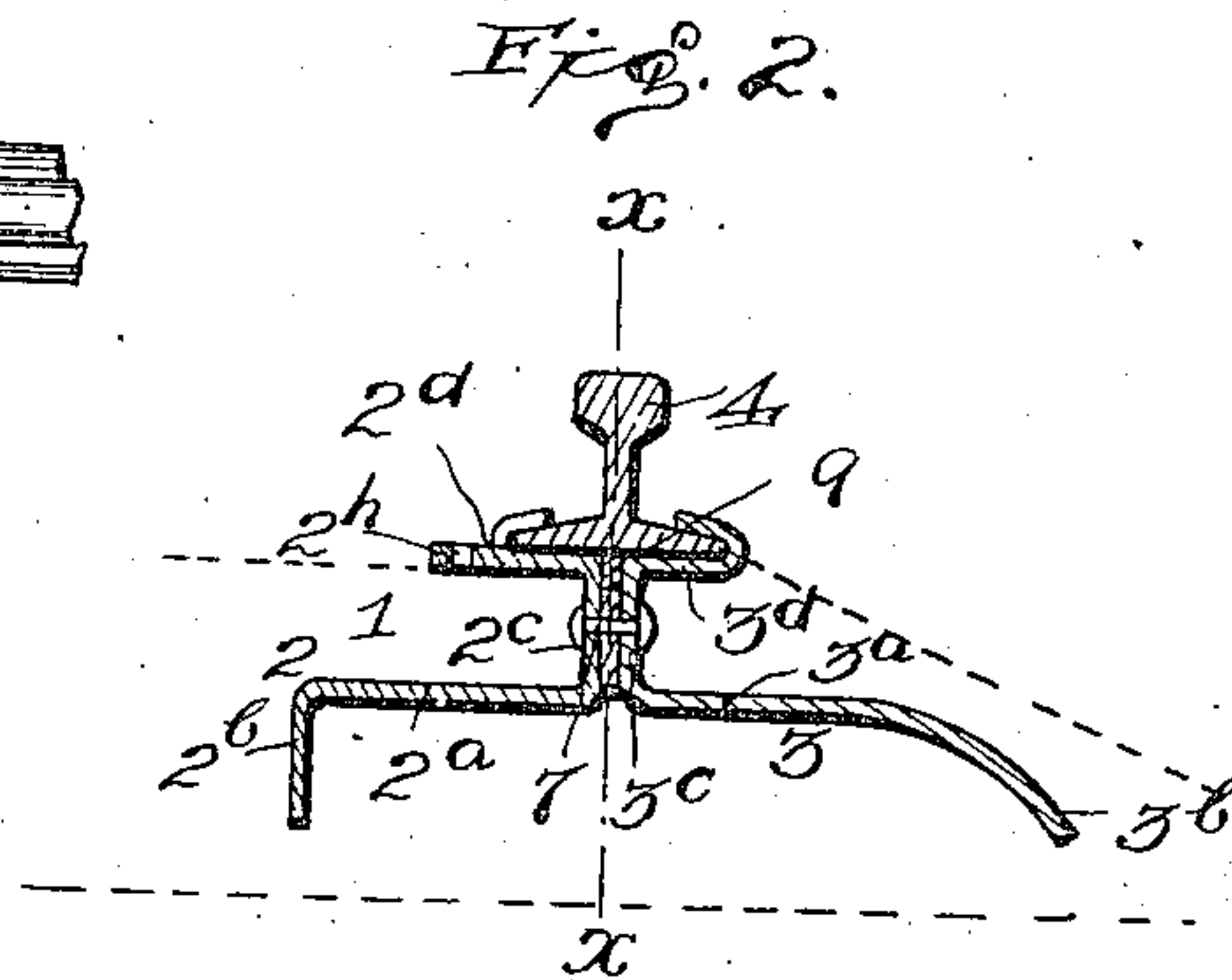


Fig. 2.

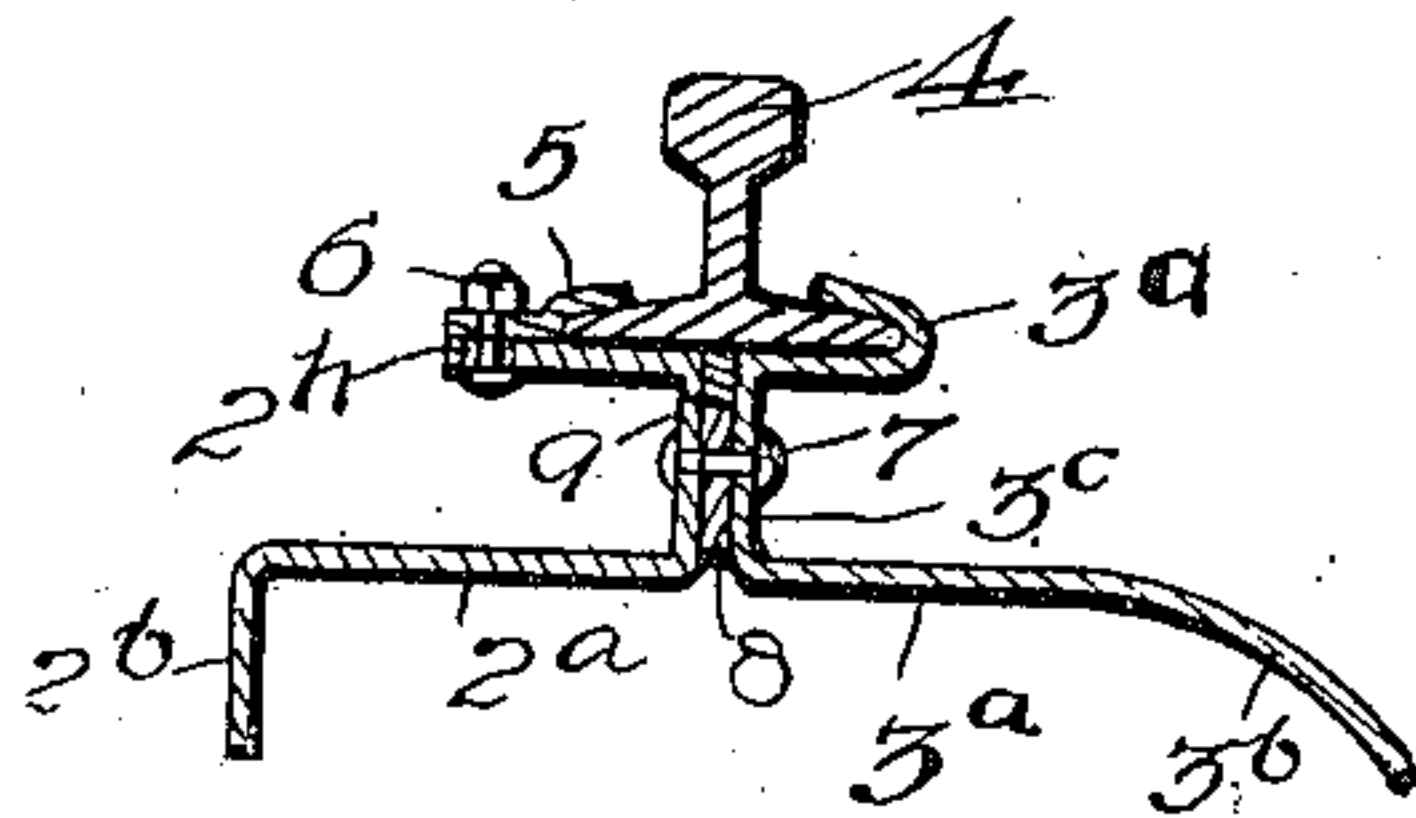


Fig. 3.

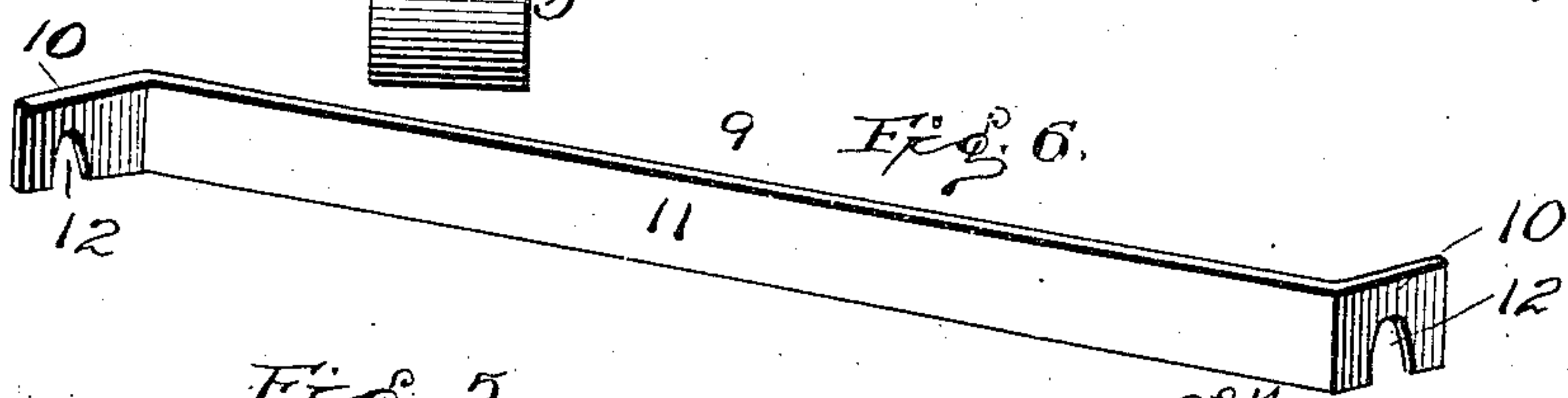


Fig. 4.

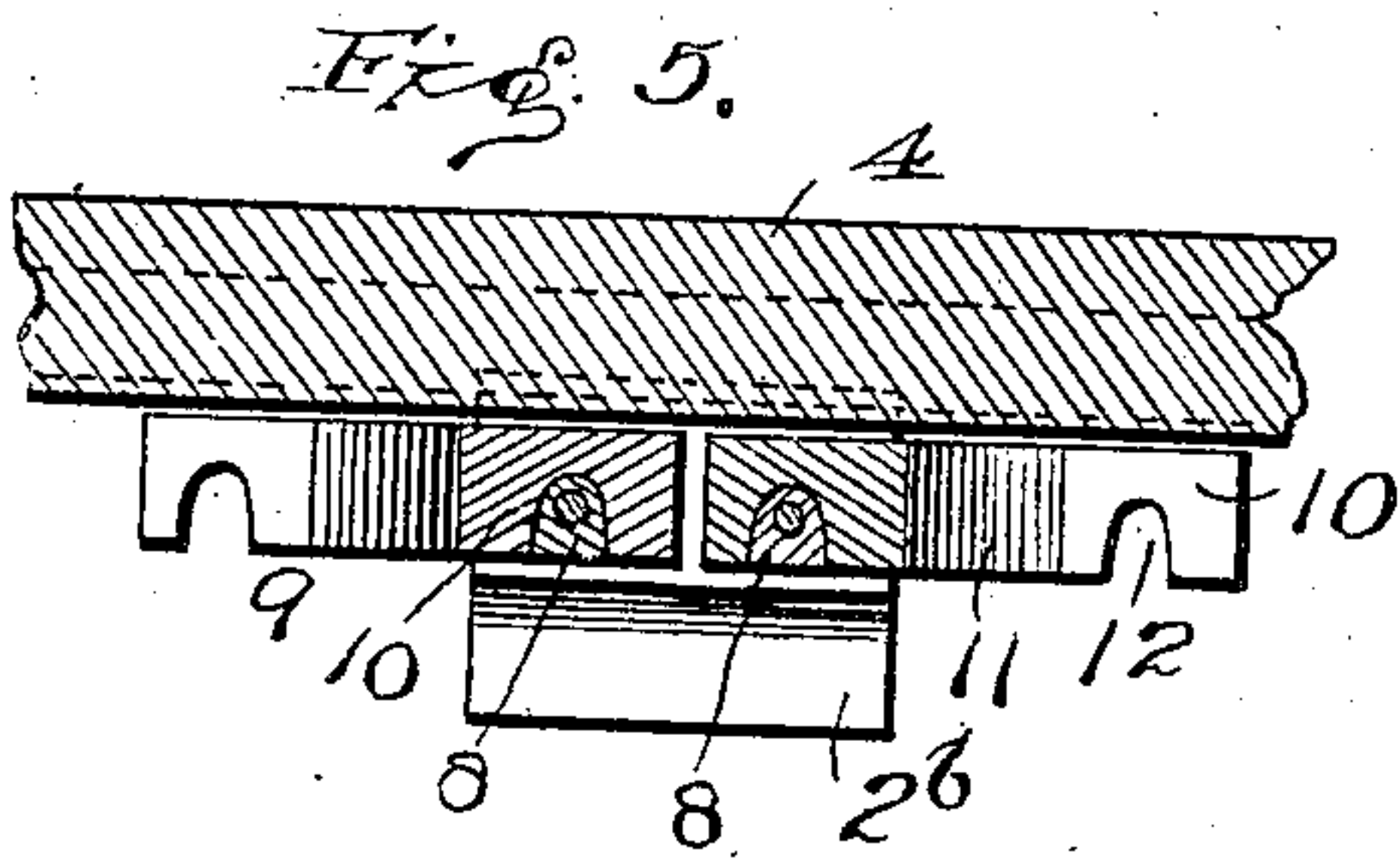


Fig. 5.

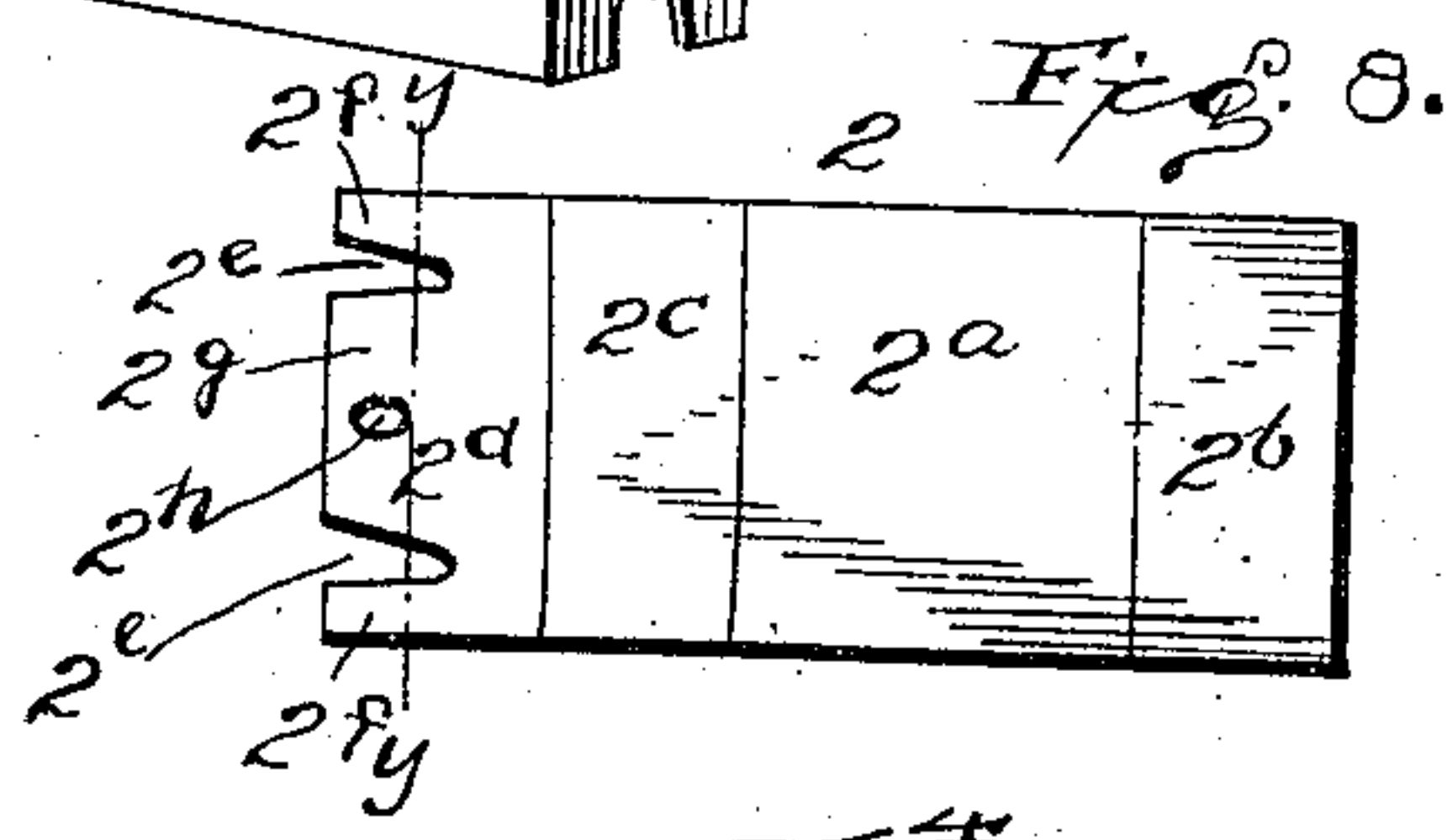


Fig. 6.

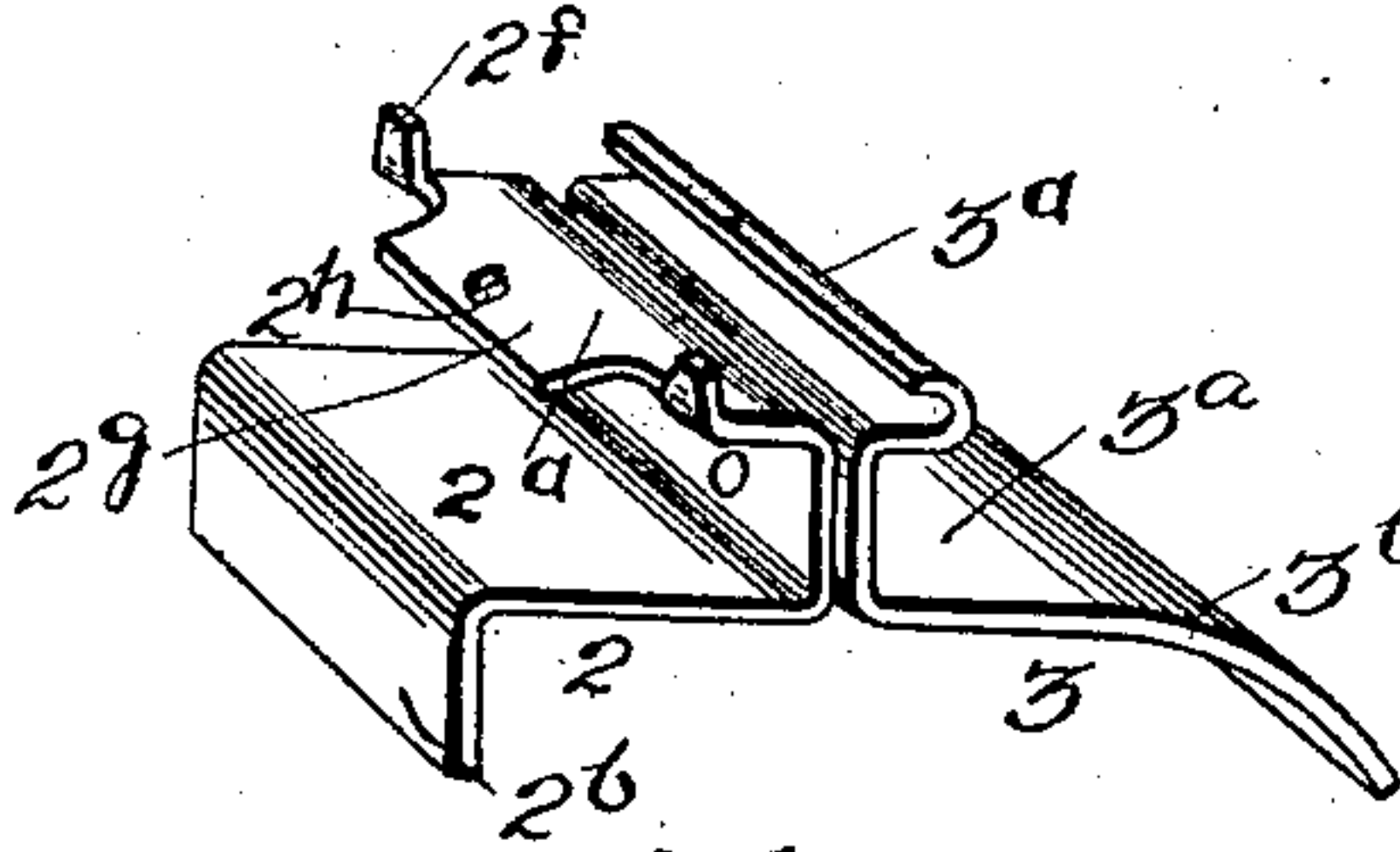


Fig. 7.

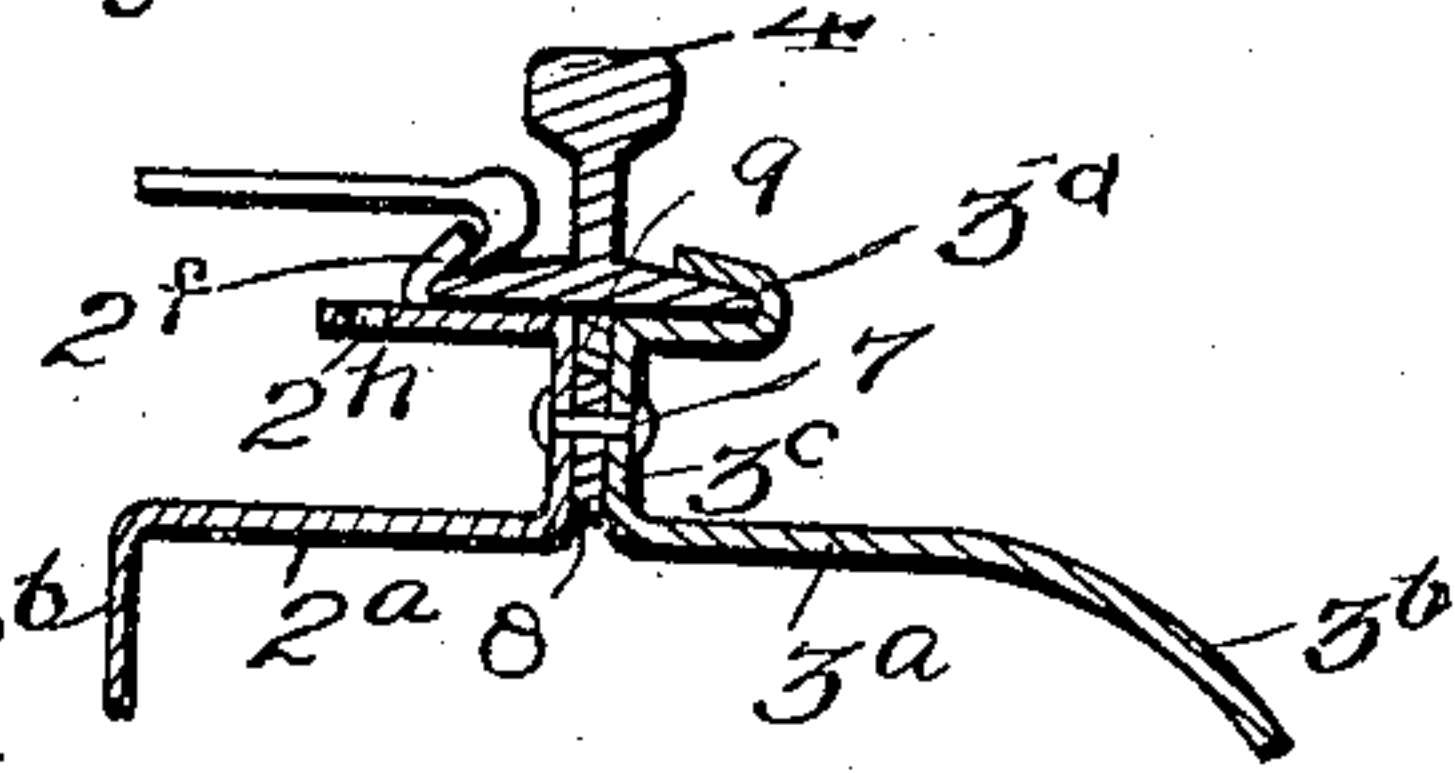


Fig. 8.

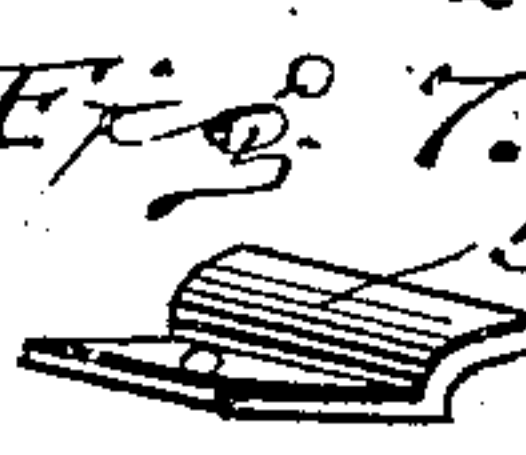


Fig. 9.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. CASTLE, OF GENEVA, OHIO.

## RAILWAY-TIE.

No. 843,517.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed June 9, 1906. Serial No. 320,970.

*To all whom it may concern:*

Be it known that I, WILLIAM H. CASTLE, a citizen of the United States, residing at Geneva, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Railway-Ties; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in railway-ties.

It has for its object to provide a device for supporting and tying together the rails of a railway-track, which is of simple construction, cheap of manufacture, and durable.

The invention consists of the features of construction and combinations of parts hereinafter described, and more particularly pointed out in the claims concluding this specification.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a plan view of a portion of track constructed in accordance with my invention, showing it before the ballasting has been put on. Fig. 2 is a cross-sectional view through one of the chairs and rails of the track, the outline of the ballasting being shown in dotted lines. Fig. 3 is a cross-sectional view of one of the chairs with a rail in place thereon and the adjustable locking-plate in place. Fig. 4 is a perspective view of one of the chairs. Fig. 5 is a sectional view taken on the line  $xx$  of Fig. 2, showing more particularly the manner of securing the tie to the chair. Fig. 6 is a detailed perspective view of one of the tie-bars. Fig. 7 is a detailed perspective view of one of the adjustable locking-plates. Fig. 8 is a plan view of a piece of sheet metal in course of being formed into one of the inside plates of a chair; and Fig. 9 is a cross-sectional view through a chair and rail, showing a tool for raising the lugs on the inside plate of the chair.

In carrying out my invention I employ chairs arranged at intervals along the rails to support the same and having means to grip said rails. Said chairs are preferably arranged in alternating positions, first on one rail and then on the other, and each chair on one rail is connected to the next one on each side of it on the other rail by means of the bars, which are locked in connection with

said chairs when the rails are in place thereon, but which are readily removable without taking the chairs apart when the rails are removed therefrom.

Referring more particularly to the drawings, each of the chairs 1 is composed of two bent plates 2 and 3, respectively. The inner plate 2 is bent to form a lower horizontal bearing portion  $2^a$ , having a downwardly-extending vertical flange  $2^b$ , an upwardly-extending vertical portion  $2^c$ , and an upper horizontal portion  $2^d$  to support the rail.

In Fig. 8 I have shown a plan view of one of the plates 2 before it is bent into shape. The end of the plate, as shown in this figure, is provided with incisions  $2^e$  near each edge, forming two small outer lugs  $2^f$ , adapted to be bent up over the base of the rail 4, as shown in Fig. 2. The portion  $2^g$  of the plate between the lugs  $2^f$  is provided with a slot  $2^h$  to provide for the adjustment of the locking-plate 5, which is secured thereto by a bolt 6, as shown in Fig. 3.

The outer plate 3 of the chair is bent in a manner corresponding to the plate 2, except that the flange  $3^b$  at the end of the lower horizontal portion  $3^a$  is curved instead of being bent vertically, and the end of the upper horizontal portion  $3^d$ , arranged above the vertical portion  $3^c$ , is bent over as a whole to engage the base of the rail. The two plates forming the chair are secured together by means of rivets 7, and said plates are spaced apart by means of washers 8, preferably comprising pieces punched or cut from the ends of the tie-bars 9. The ends of said tie-bars, from which the pieces 8 are cut, are bent with relation to the main portions 11 thereof, as shown in Figs. 1 and 6. Said ends are adapted to be inserted above into the spaces between the plates of the chairs, so that the slots 12, made by cutting the pieces 8, will engage said pieces or washers. Then when the rails are placed in position on the chairs they will lock said tie-bars in place, whereby a simple but effective connection is provided between the tie-bars and chairs. Each chair has two tie-bars connected thereto, as shown in Figs. 1 and 5, one extending to the adjacent side of the chair on the opposite rail at each side thereof.

The ballasting of the road-bed is preferably filled in up to the upper horizontal portions of the chairs, as shown in Fig. 2 in dotted lines. The flanges on the lower horizontal portions of said chairs, and especially



the curved flanges 3<sup>b</sup>, prevent lateral movement of said chairs. It will be understood that the locking-plates 5 need not be used except when desired to insure the fastening of the rails, as the lugs 2<sup>f</sup> are sufficient in most cases. In Fig. 9 I have illustrated a tool which may be used for raising said lugs. It will be noted that in Fig. 8 the incisions 2<sup>e</sup> extend past the line *y y*, which represents the line upon which said lugs are bent. The object of this is to lessen the liability of said lugs fracturing in case they have to be raised to release the rails.

The tie-bars are preferably arranged obliquely between the chairs, but the length of said chairs or the distance between them may be such that said tie-bars will extend straight across the track parallel to one another. Other changes may be made in the construction shown and described herein without departing from the spirit or sacrificing the advantages of my invention.

I claim—

1. A rail-chair comprising a lower horizontal portion having its ends bent downward for the purpose specified, a vertical portion and an upper horizontal portion having integral means to grip a rail.

2. A rail-chair comprising a lower horizontal portion having one end bent down vertically and the other end curved downward for the purpose specified, a vertical portion and an upper horizontal portion having means to grip a rail.

3. A rail-chair comprising two bent plates, suitably secured together, each plate having a lower horizontal portion with a downwardly-extending flange, a vertical portion, and an upper horizontal portion, the last-named portion of one plate having its edge turned over to engage one edge of the base of a rail and said portion of the other plate having two lugs arranged at the edges thereof and adapted to be turned over upon the other edge of the base of said rail.

4. A rail-chair comprising two bent plates, suitably secured together, each plate having a lower horizontal portion with a downwardly-extending flange, a vertical portion, and an upper horizontal portion, the last-named portion of one plate having its edge turned over to engage one edge of the base of a rail and said portion of the other plate having two lugs arranged at the edges thereof and adapted to be turned over upon the other edge of the base of said rail and a horizontal extension arranged between said lugs and provided with a slot, and a rail-locking piece

adapted to be adjustably secured to said extension through said slot.

5. In a device of the character described, the combination, with rail-chairs for each of the rails of a track, each of said chairs having a passage therein extending in line with the rails and below the same and pieces arranged in said passage, of tie-bars having bent recessed ends fitting into the passages in said chairs over the pieces therein and retained in position by the rails.

6. In a device of the character described, the combination, with rail-chairs for each of the rails of a track, of tie-bars for connecting the chairs on the opposite rails, each chair having a passage therein extending in line with its rail and below the same and two pieces arranged in said passage, each tie-bar having its ends bent and recessed, one fitting into the passage in one of the chairs and engaging one of the pieces therein, the passage in each chair holding the ends of two tie-rods which are retained in position by the rail supported upon said chair.

7. In a device of the character described, the combination, with rail-chairs for each of the rails of a track, each chair comprising two bent plates having vertical portions extending in line with the rails and secured together by rivets but spaced apart by pieces inserted between said plates around said rivets, of tie-bars having bent recessed ends fitting between the vertical portions of said plates over the pieces carried by the securing-rivets, said tie-bars retained in position by the rails when in place on said chairs.

8. In a device of the character described, the combination, with rail-chairs, each chair comprising two plates having vertical portions extending in line with the rails and secured together by bolts or rivets but spaced apart by pieces inserted around said bolts or rivets, oppositely-extending lower horizontal portions having downwardly-bent ends and oppositely-extending upper vertical portions having means to grip a rail, of tie-bars having bent recessed ends fitting between the vertical portions of said plates over the pieces carried by the securing-bolts or rivets, said tie-bars retained in position by the rails when in place on said chairs.

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

WILLIAM H. CASTLE.

Witnesses:

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