

No. 621,490.

Patented Mar. 21, 1899.

D. CRANE.  
GUARD RAIL CHAIR.

(Application filed Mar. 29, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

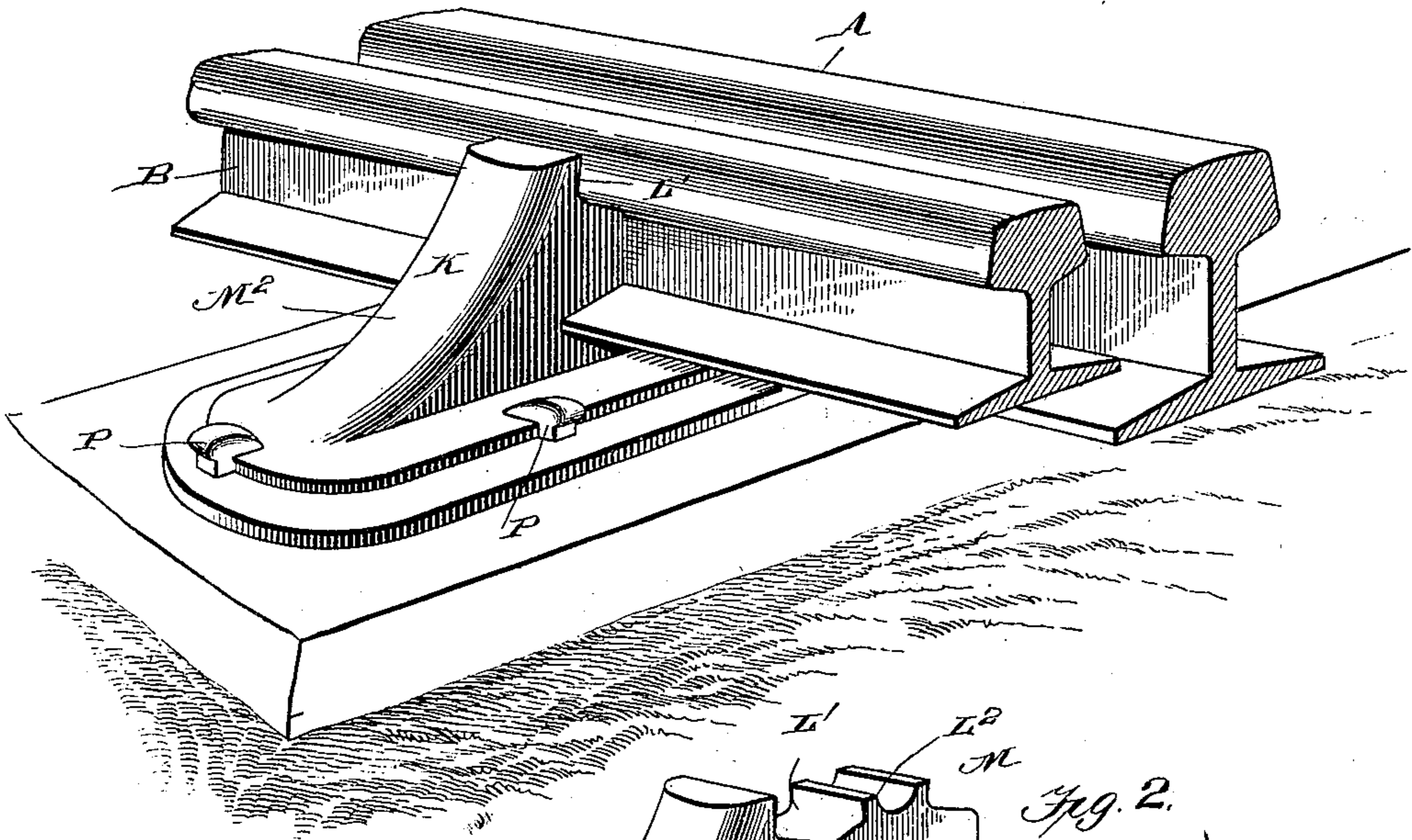


Fig. 2.

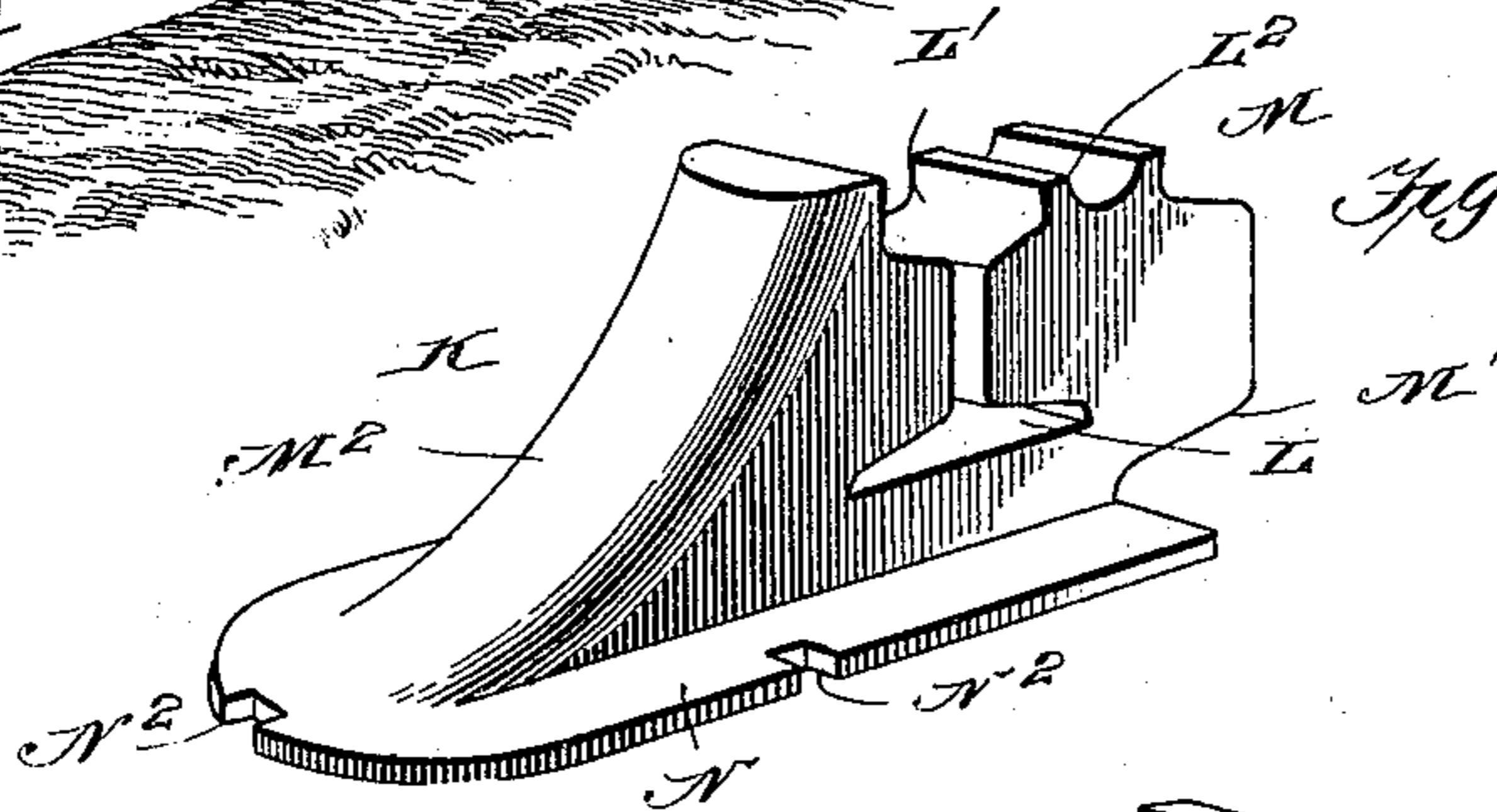


Fig. 3.

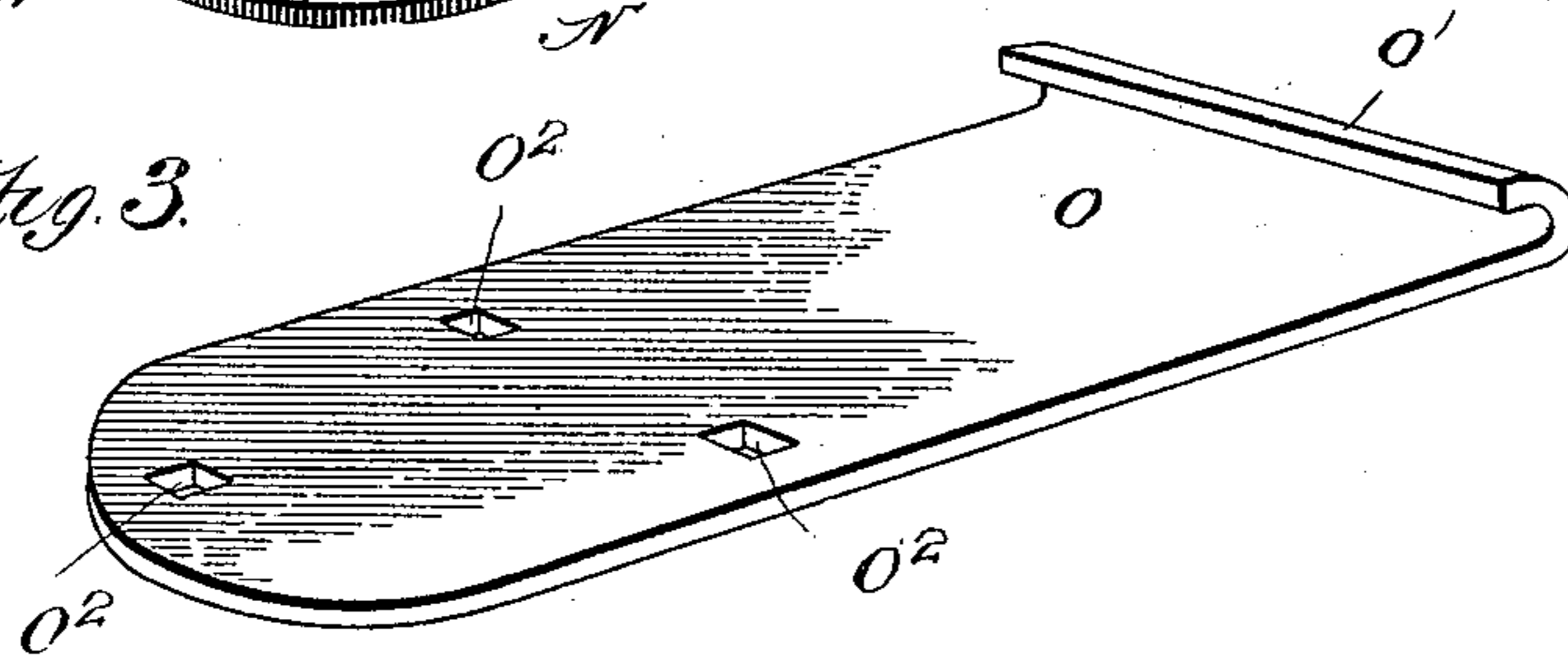
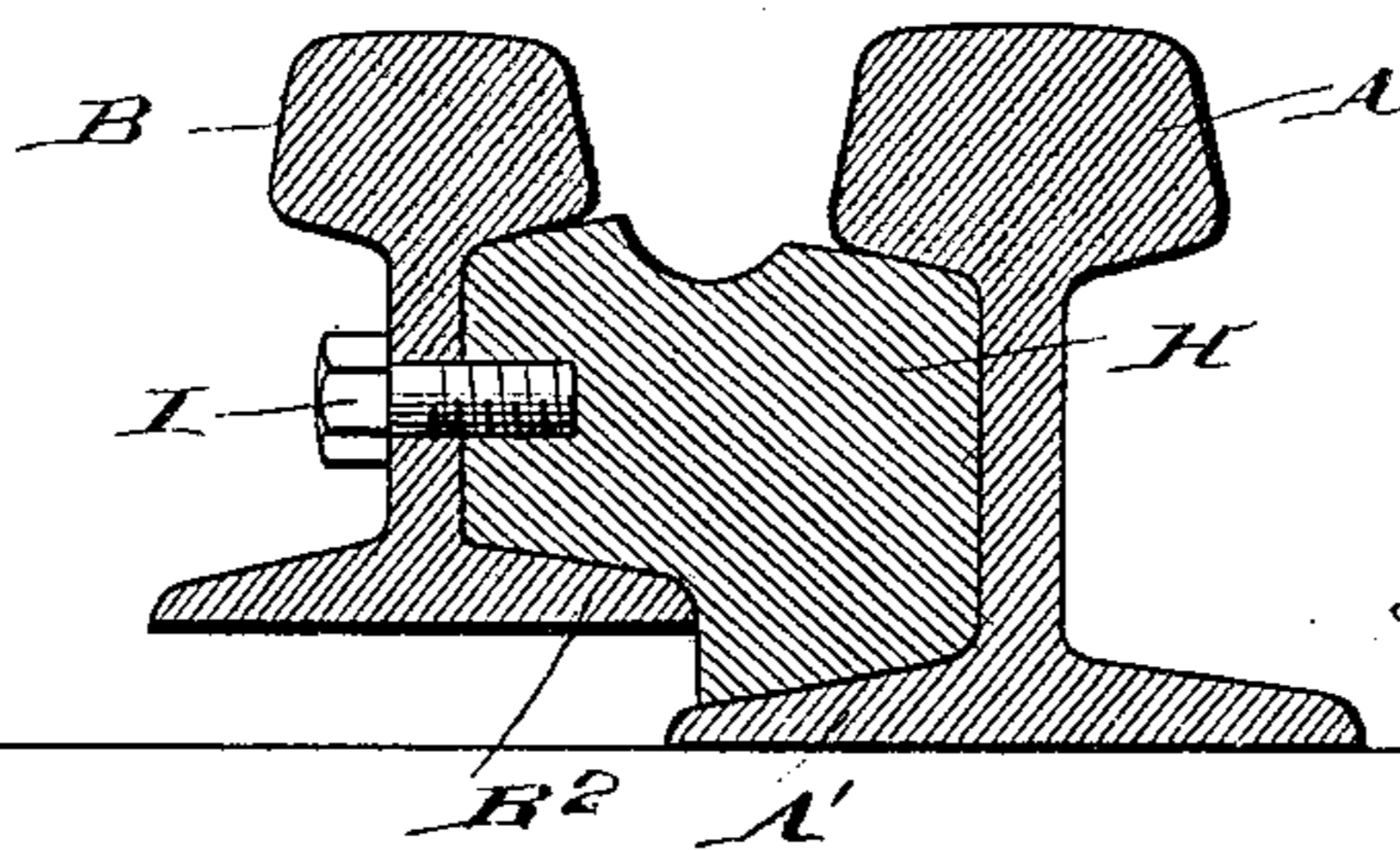


Fig. 7.



Witnesses

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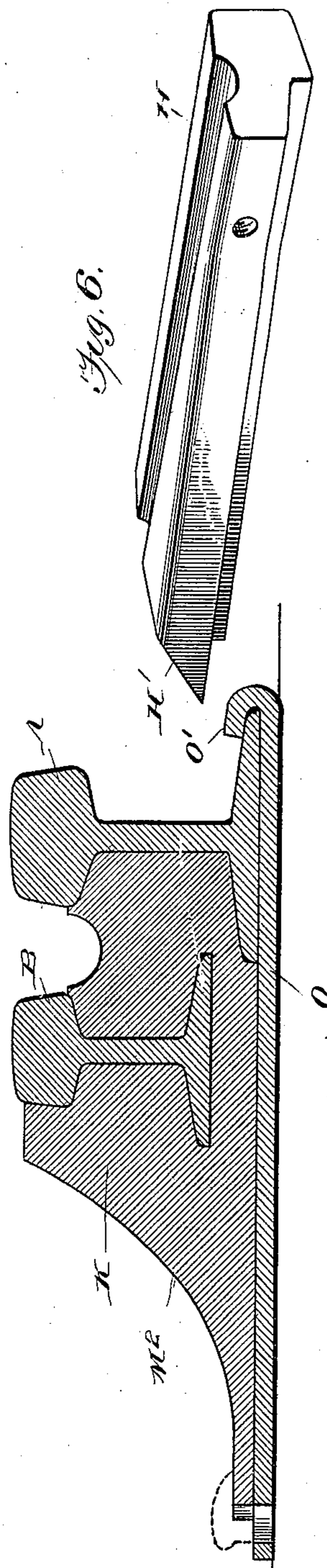
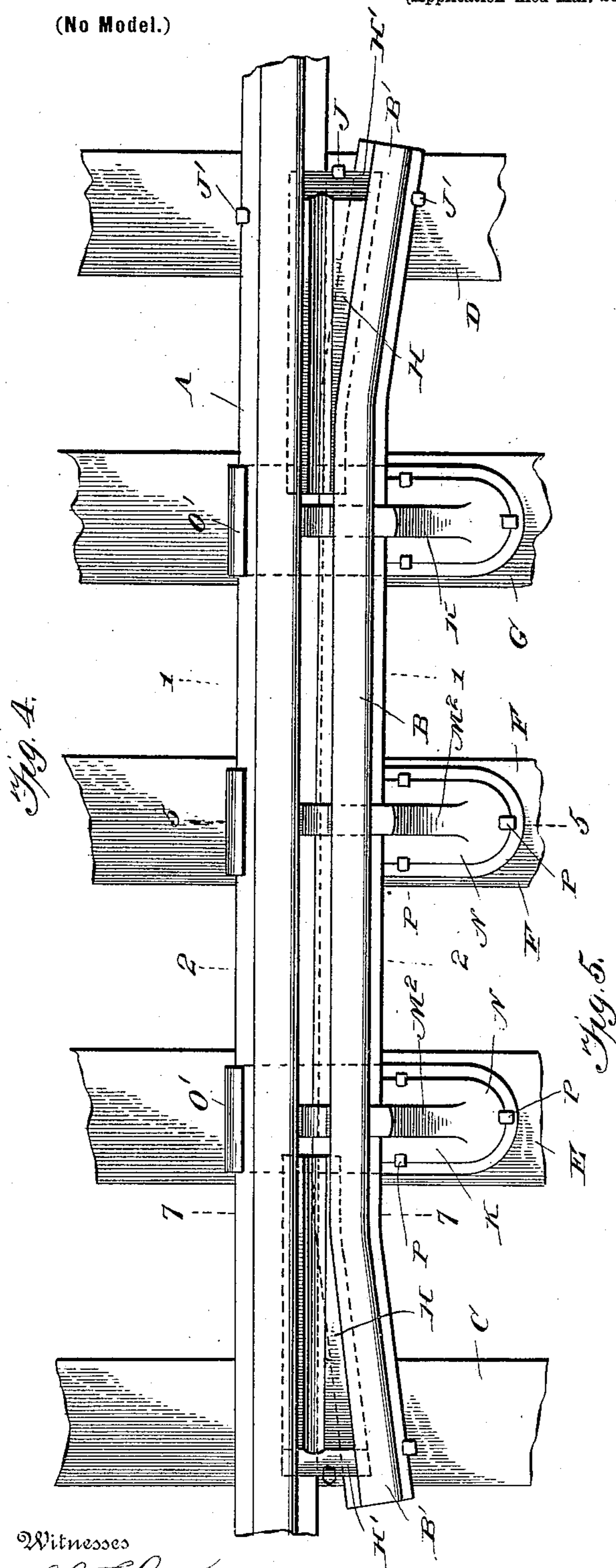
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

DAVID CRANE, OF RUTLAND, VERMONT.

## GUARD-RAIL CHAIR.

SPECIFICATION forming part of Letters Patent No. 621,490, dated March 21, 1899.

Application filed March 29, 1898. Serial No. 675,619. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID CRANE, a citizen of the United States, residing at Rutland, in the county of Rutland and State of Vermont, have invented a new and useful Guard-Rail Chair, of which the following is a specification.

This invention relates to railway-chairs, and more particularly to that class of railway-chairs adapted to hold guard-rails firmly in position with relation to the main rail of a railroad-track.

The object of the invention is to generally improve the construction of such devices, whereby sections of smaller rails may be used to form the guard-rail.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of that portion of the main rail and guard-rail between the broken lines 1 1 and 2 2 of Fig. 4, illustrating also in operative position the chair, clamp-plate, and tie. Fig. 2 is a perspective view of the chair detached. Fig. 3 is a perspective view of the clamp-plate detached. Fig. 4 is a top plan view of a section of the main rail with guard-rail secured in position in accordance with my invention. Fig. 5 is a transverse vertical section taken on a plane indicated by the broken line 5 5 of Fig. 4. Fig. 6 is a detail perspective view of the separating-block which fits between the outer end of the guard-rail and the main rail. Fig. 7 is a transverse vertical section taken on a plane indicated by the broken line 7 7 of Fig. 4.

Like letters of reference indicate the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by letters, A indicates one of the main track-rails, and B a guard-rail to be secured inside of the track-rail.

C and D are the ties or timbers under the ends of the guard-rail, and E, F, and G are the ties or timbers under the straight middle portion.

The outer ends B' of the guard-rail B are bent inward, and the tapering blocks H are placed between these bent ends and the main rail, the flange A' of the main rail resting under the blocks H, and the flange B<sup>2</sup> of the guard-rail B resting in a rabbet or groove formed under the inner edge of the blocks.

Bolts I pass through the web of the guard-rail into the inner side of the blocks H, and spikes J are driven into the timbers C and D, with their heads overlapping the beveled ends H' of the blocks H to prevent endwise movement of the blocks. Spikes J' are driven into the timbers C and D outside of the main rail and inside of the guard-rail, with their heads overlapping the flanges of the rails.

K indicates my improved chair, which is formed with an opening L to receive the guard-rail, said opening being enlarged at its upper end L' to support the head of the guard-rail, and a groove L<sup>2</sup> is formed in the upper face of the chair to accommodate the flange of a wheel passing over the rail.

The chair is cut away at M and M' to cause it to fit snugly the inside of the main rail, and the inner end M<sup>2</sup> of the chair is inclined downward and inward, the whole chair resting upon a base N, formed with it and provided with notches N<sup>2</sup> to receive spikes. A clamp-plate O is first laid upon the timber or tie, with its outer hook-flange end O' engaging over the outer edge of the flange of the main rail. The chair is then placed in position upon the clamp-plate, with the notches N<sup>2</sup> of the chair registering with holes O<sup>2</sup> in the clamp-plate, and spikes P are driven through the notches and holes, with their heads projecting over the sides and inner end of the chair, there being no spikes used between the two rails or on the outside of the main rail in the ties or timbers upon which the chairs are placed. It will be noticed that the bottom of the opening L in the chair, in which the guard-rail is seated, is raised a slight distance above the timber upon which the main rail rests, so that a small rail may be used for the guard-rail and still bring the heads of the main rail and guard-rail on the

same level. This is of great advantage, inasmuch as it is not absolutely necessary to have the guard-rail as heavy as the main rail, and is of special advantage where, as is now  
 5 the case with some railroads, four-inch rails are being removed and five-inch rails substituted, because it permits of the utilization of some of the old rails as guard-rails, thus saving the same length of new rails.

10 The fact that the guard-rail and main rail are both firmly supported without the use of spikes, either between the rails or outside of the main rail, is also of special advantage, inasmuch as the removal and replacement of  
 15 the guard-rail does not involve the drawing and redriving of many spikes, an operation which tends to rot out the timbers and shorten their lives.

I have found by practical experiment that  
 20 a guard-rail will be held so firmly with this chair that the usual length of fifteen feet can be shortened to ten, rendering it possible to cut three guard-rails out of one thirty-foot length instead of two, as heretofore.

25 While I have illustrated and described the best means now known to me for carrying out my invention, I do not wish to be understood as restricting myself to the exact details of construction shown; but hold that any slight  
 30 changes or variations, such as might suggest themselves to the ordinary mechanic, would properly fall within the limit and scope of my invention.

Having thus fully described my invention,  
 35 what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The guard-rail chair herein described, consisting of a base and a main body projecting upward therefrom, the outer edge of  
 40 the main body being shaped to fit the inner edge of the main rail, and an opening being formed transversely through the body to receive the guard-rail, said opening being lo-

cated to support the head of the guard-rail on a level with the head of the main rail and  
 45 the flange of the guard-rail above the flange of the main rail, substantially as described.

2. The combination with the timber, of a flat plate laid thereon, provided with spike-openings and a hook-turned flange on its outer  
 50 end, the main rail resting upon the clamp-plate with the outer edge of its flange under the hook-flange, a chair mounted upon the clamp-plate having its outer end fitting against the web and between the head and  
 55 flange of the main rail and provided with a transverse opening, the guard-rail inserted in said opening and supported with its head on a level with the head of the main rail and  
 60 its flange higher than the flange of the main rail, the base of the chair being provided with notches registering with the spike-holes of the clamp-plate, and spikes driven in the notches and holes into the timber, with their  
 65 heads overlapping the sides and inner ends of the chair, substantially as described.

3. The herein-described guard-rail chair, provided with the base N having notches N<sup>2</sup> in its sides and inner end, and the main body projecting upward from the base, shaped at  
 70 its outer end to fit against the web and between the head and flange of the main rail and provided with a transverse opening L located above the level of the base and adapted to receive the guard-rail, said opening being  
 75 enlarged at its upper end L' to provide a seat for the head of the guard-rail, and a groove L<sup>2</sup> being formed in the upper surface of the guard-rail to accommodate the flanges of the  
 80 wheels passing over the rail, substantially as described.

DAVID CRANE.

Witnesses:

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