

(No Model.)

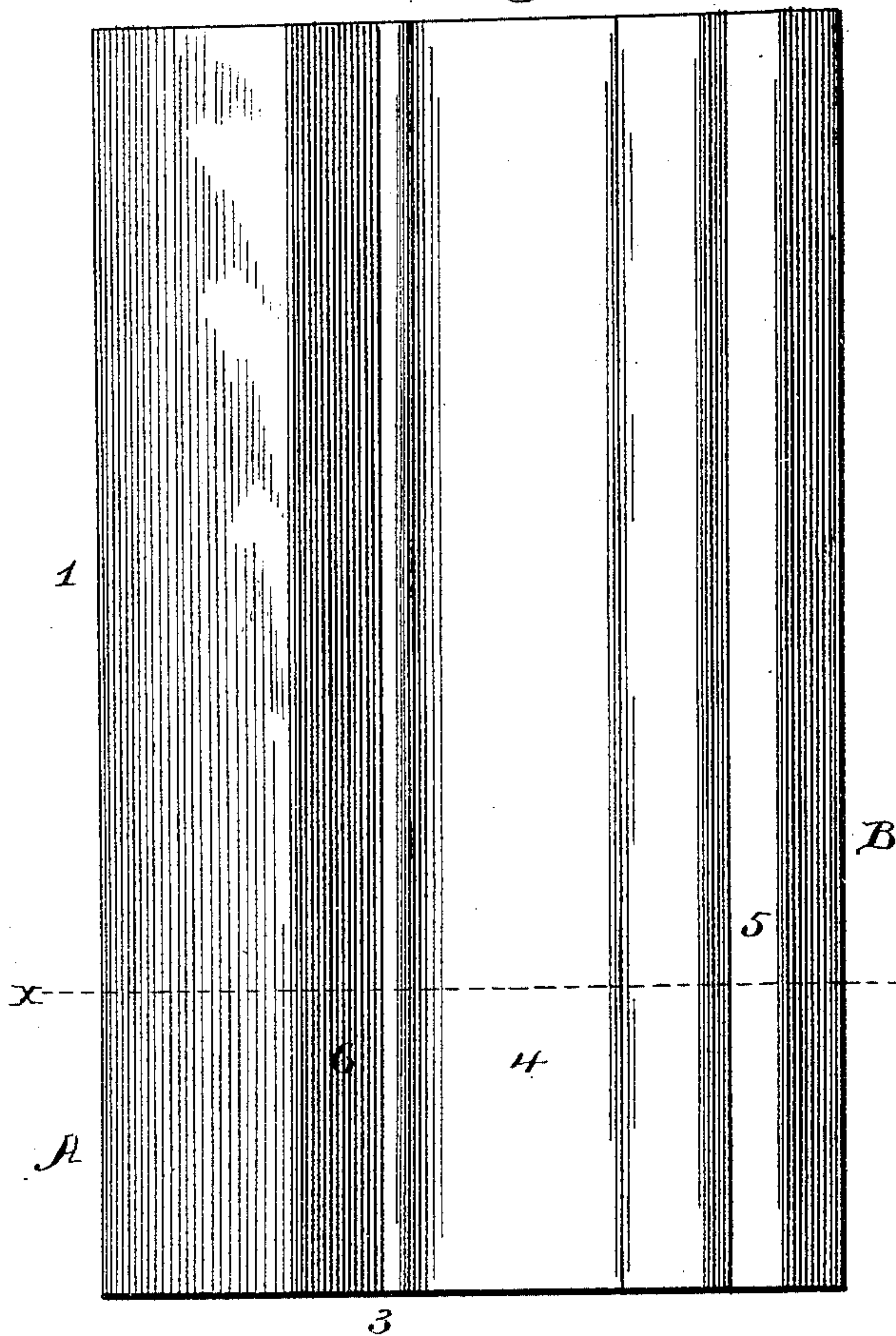
2 Sheets—Sheet 1.

McL. W. THOMSON.  
ART OF MAKING RAILWAY SPLICE BARS.

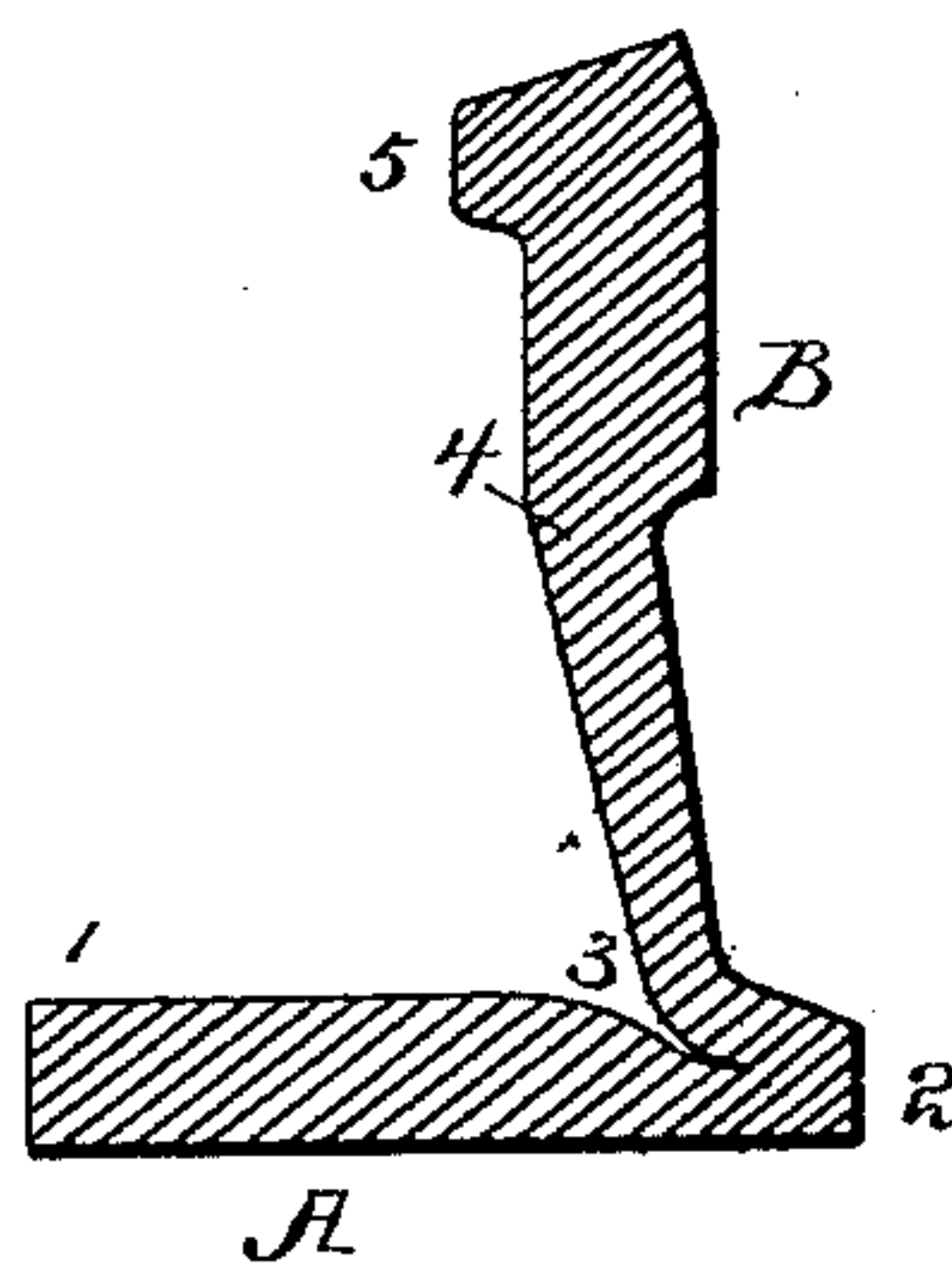
No. 460,899.

Patented Oct. 6, 1891.

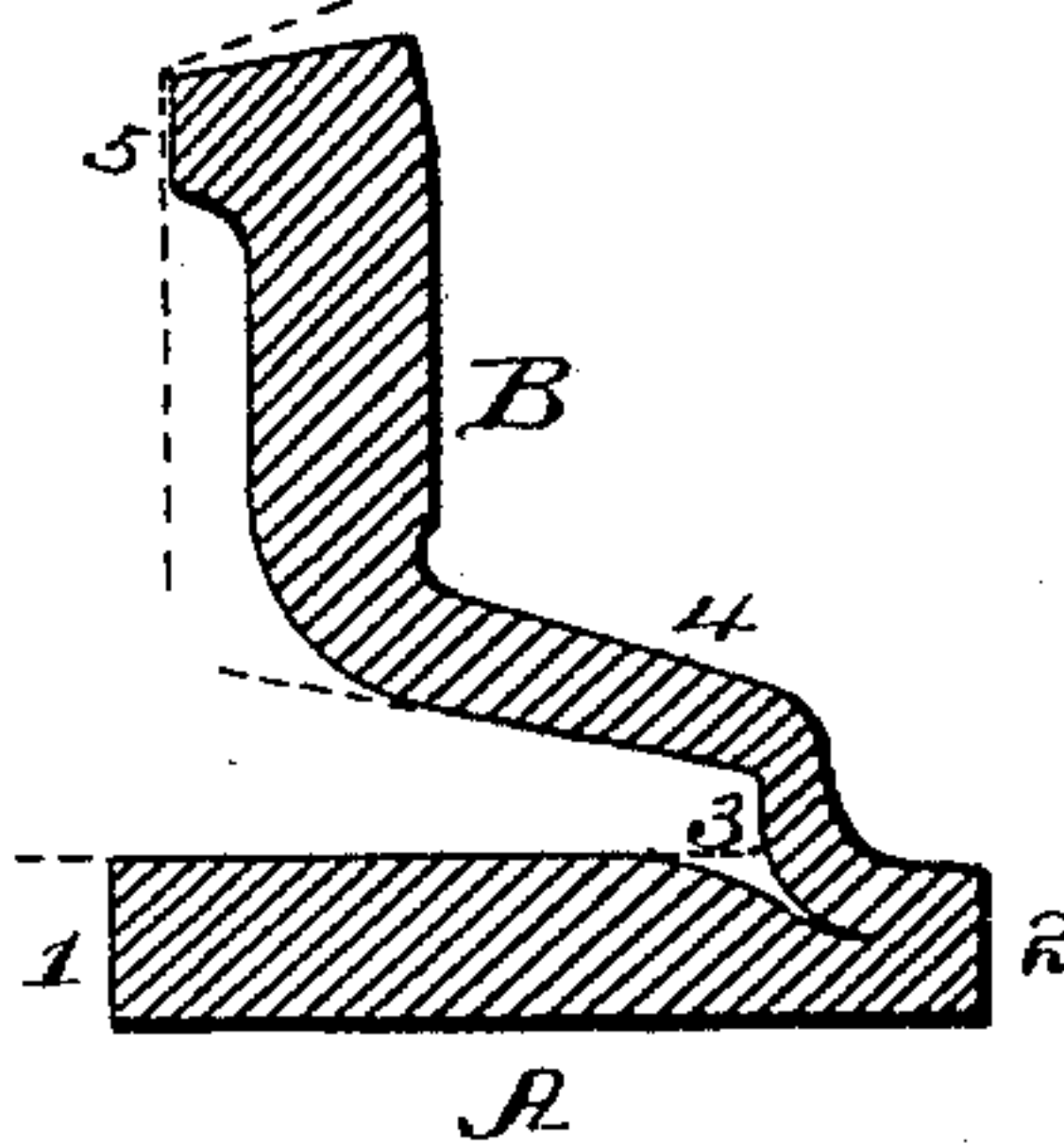
*Fig. I.*



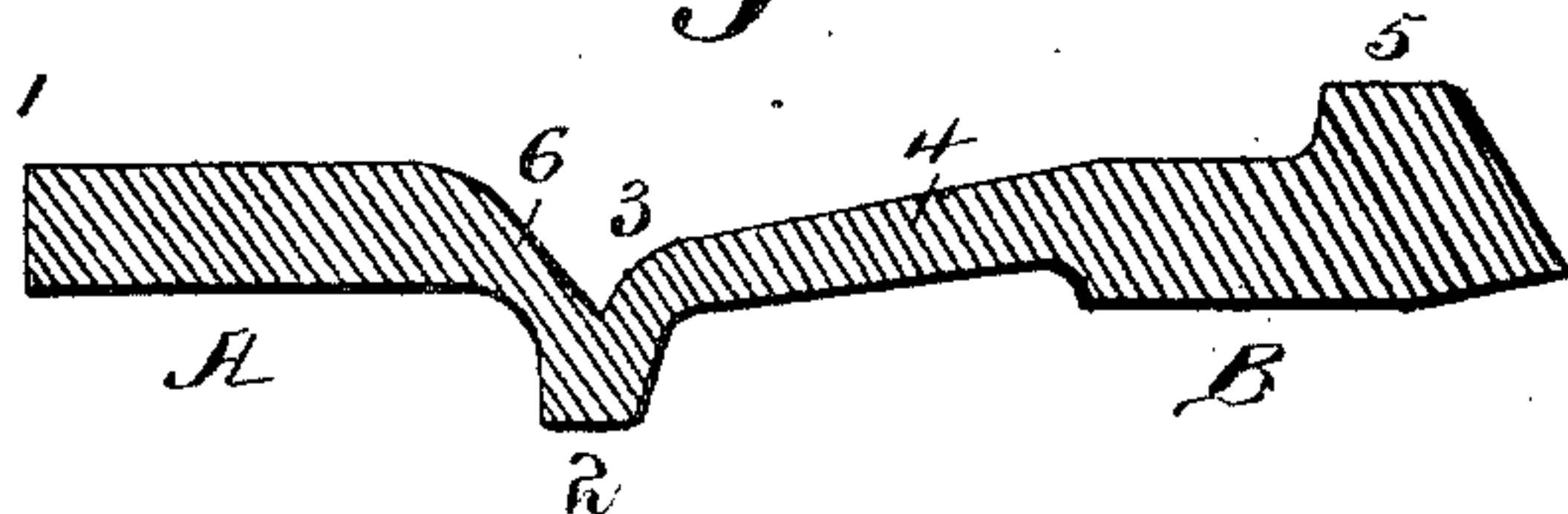
*Fig. III.*



*Fig. IV.*



*Fig. II.*



Witnesses:  
*J. B. M. Givv.*  
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Inventor  
*McL. W. Thomson*  
By his Attorneys,  
*Edson Bros.*

(No Model.)

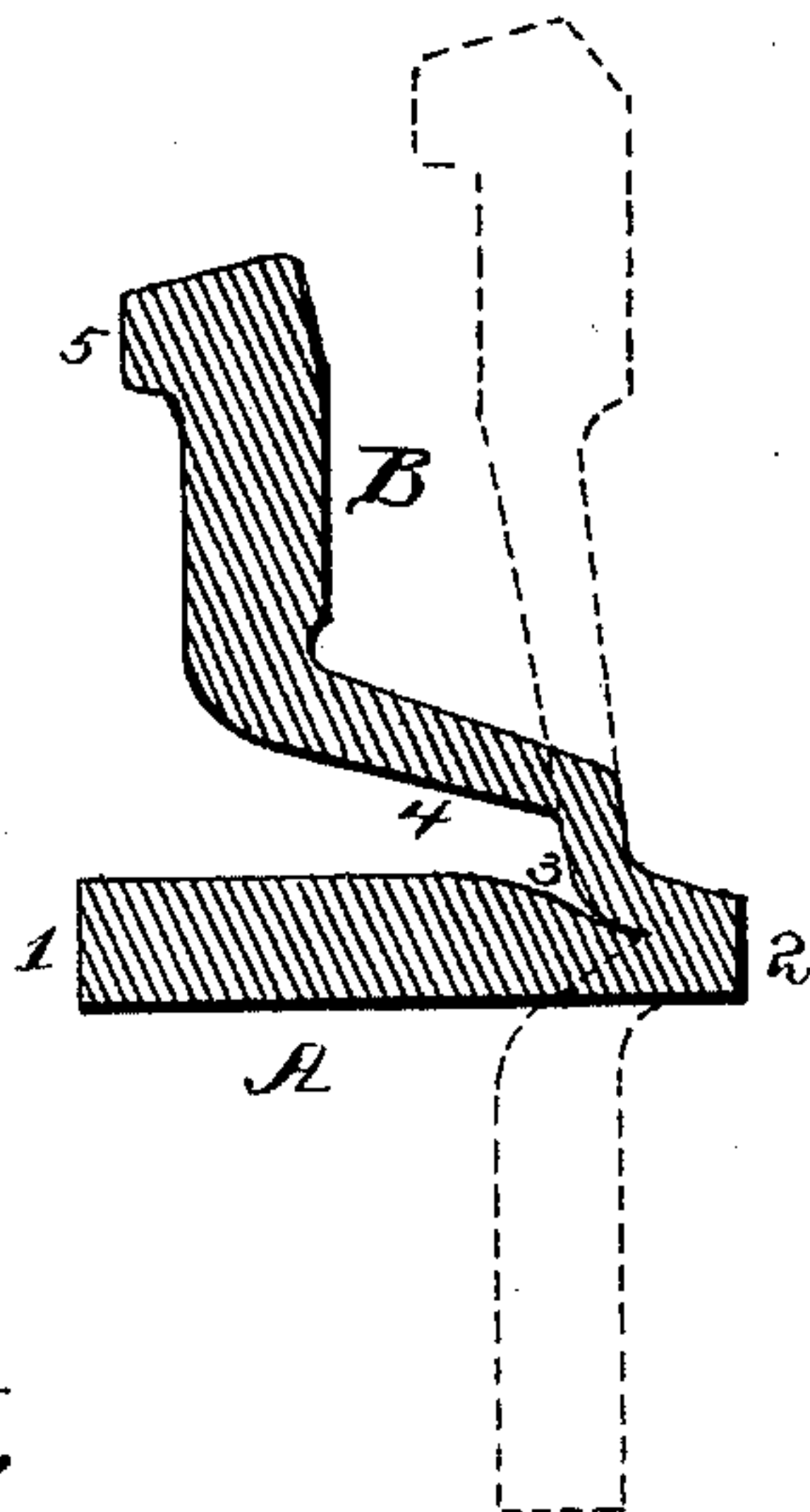
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McL. W. THOMSON.  
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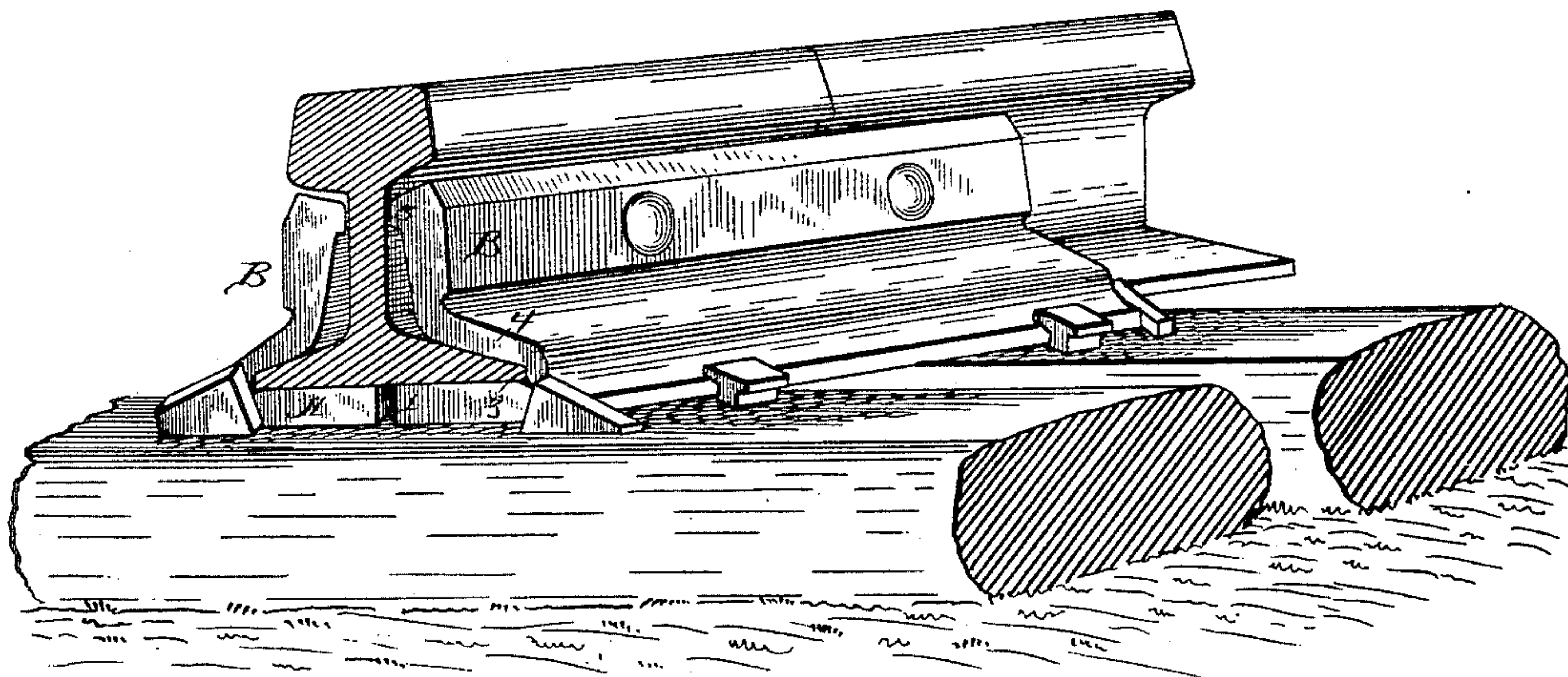
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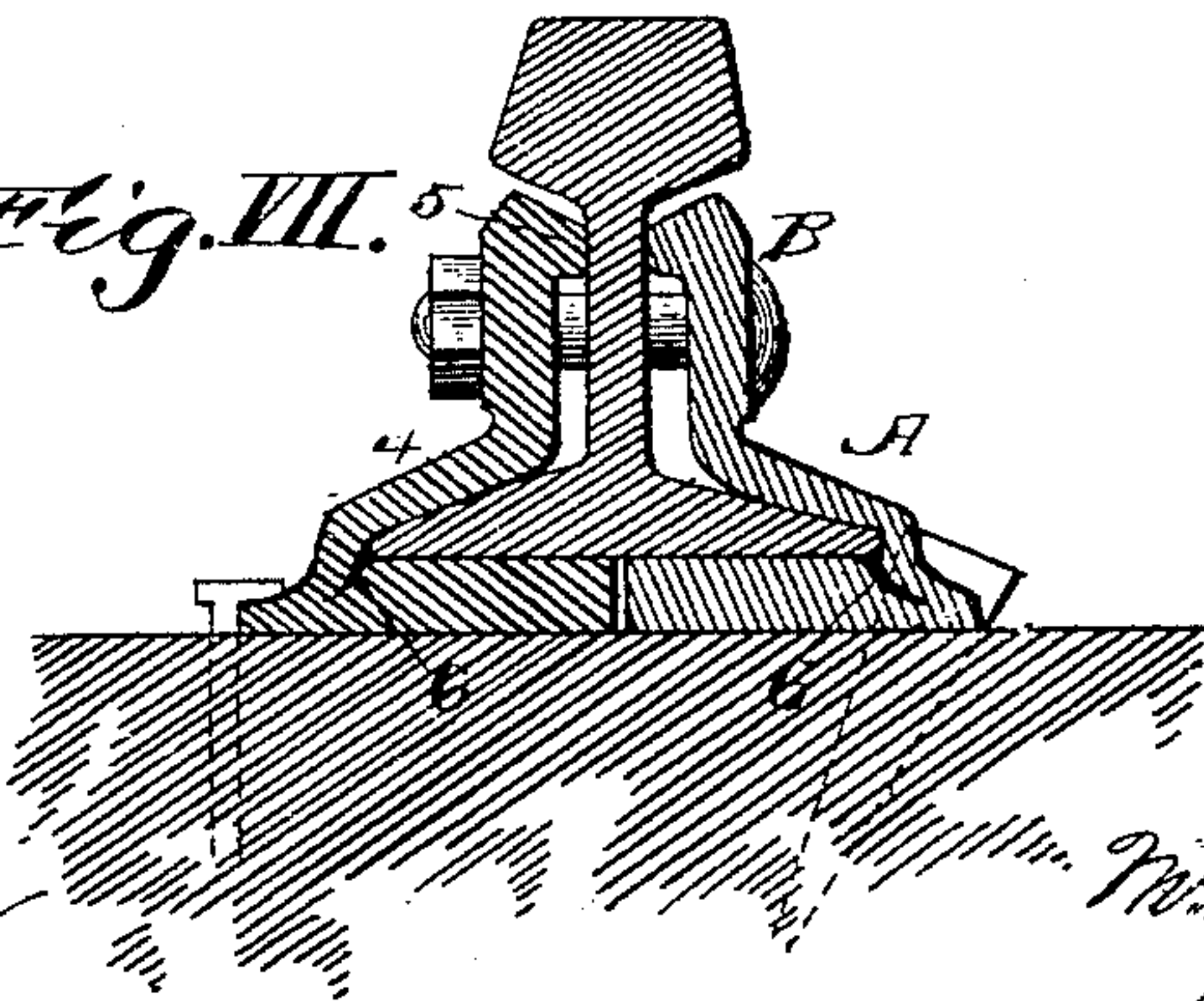
*Fig. V.*



*Fig. VI.*



*Fig. VII.*



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# UNITED STATES PATENT OFFICE.

MCLEOD W. THOMSON, OF ALTOONA, PENNSYLVANIA.

## ART OF MAKING RAILWAY SPLICE-BARS.

SPECIFICATION forming part of Letters Patent No. 460,899, dated October 6, 1891.

Application filed March 7, 1891. Serial No. 384,136. (No model.)

*To all whom it may concern:*

Be it known that I, MCLEOD W. THOMSON, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in the Art of Making Railway Splice Bars; 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.

In prior patents of the United States issued to me October 18, 1887, and October 8, 1889, officially numbered 371,862 and 412,681, respectively, I have shown and described a construction of railway-rail chairs and a splice-bar, by which all the vertical or downward stresses are carried to the bottom of the joint or to the base of the splice-bar.

The present invention relates, however, to the manufacture of a splice-bar of the character disclosed in my patents above mentioned, and the object is to facilitate and make easy the manufacture of the splice-bar by rolling, bending, and cutting the same in a novel manner, (with the aid of suitable mechanical appliances,) and at the same time effect economy in the metal.

With these and other ends in view my invention consists in a blank or bar of metal rolled in a general flat shape and formed with a longitudinal flange on the lower side, a re-entrant angle on the upper side which extends longitudinally of the blank bar and lies substantially over the flange on the lower side thereof, and a tapering neck situated at one side of said re-entrant angle and flange, and joining those portions of the blank bar which constitute the base and upright head of the splice-bar after the blank bar has been bent, as contemplated by my improvement.

My invention further consists in the art of making a splice-bar for a railway-chair from the aforesaid blank bar, after it has been cut into a suitable length, consisting in bending the same longitudinally along the line of the base of the re-entrant angle to produce a base-section and an upright section, and then bending the blank bar along the tapering neck to impart to the upright section the desired shape in cross-section to take bearing against the foot and web of a railway-rail, all as

will be hereinafter more fully described and claimed.

To enable others to more readily understand my invention, I have illustrated the same in the accompanying drawings, in which—

Figure I is a plan view of a blank bar before it is bent or shaped into the splice-bar. Fig. II is a transverse section thereof. Figs. III and IV are views showing the various bends which the blank bar is subjected to in shaping the same into the complete splice-bar ready for use in the railway-chair, said blank being shown in transverse section in each of said figures. Fig. V illustrates a modified bending of the blank bar, which may be followed in practicing the method. Figs. VI and VII are views in perspective and transverse sections, respectively, of a railway-chair, composed, in part, of two splice-bars made in accordance with the improvement.

Like letters and numerals of reference denote corresponding parts in the several figures of the drawings.

In carrying my invention into practice I first roll out a blank bar in the general form or shape shown in Figs. I and II, which blank as it comes from the rolls and while still in a heated condition passes to the shears or saw to be cut into suitable lengths, and then the said lengths or parts are successively bent into the shapes shown in Figs. III and IV. The blank bar 1 is provided with a longitudinal flange 2 on its lower side, and the upper side of the blank bar is formed with a re-entrant angle or longitudinal groove 3, which lies immediately over the flange 2 and extends longitudinally of said blank. On one side of the re-entrant angle the blank bar is bottle-shaped, the neck or tapered portion 6 forming one side of the re-entrant angle and being joined to flange 2, while on the opposite side of said re-entrant angle the bar is tapered in thickness from the angle outwardly for a portion of the width to produce the neck 4, the outward part of the portion B being of greater thickness for strength and durability, and being formed with a longitudinal rib 5 on its upper surface.

To produce the splice-bar after the blank has been rolled and cut, the blank is first bent along the neck 6, forming one side of the re-entrant angle, so as to produce the



flat base-section A and the upright section B, as shown in Fig. IV, and then the section B has its lower reduced portion 4 adjacent the base A bent inwardly to conform approximately to the contour or shape of the base or foot of a railway-rail, thus causing the upper thickened part of said upright section B to stand substantially vertical over the base A and in such position that the rib 5 will take bearing against the web and under the head of a railway-rail, as indicated in Fig. IV.

By making the blank with the re-entrant angle or groove 3 and the tapering necks 4 and 6 the right-angled bending of the lower portion of the upright section B is made practicable, and the tapering necks which join the two parts A B also effect economy in metal and insure bending with ease and facility.

As the blank bar is bent at right angles along the groove or angle which lies over the flange 2, the latter is brought or forced into a position parallel with the base A, and it projects beyond the vertical line of the upright section B, whereby the flange 2 is made to serve as the spike-flange to receive the head of the spikes, which serve to fasten the splice-bar in place on the ties.

Instead of leaving the side or section A of the blank bar unbent and free from manipulation, or, in other words, instead of manipulating the section B only, I may bend the side A relatively to the section or side B, so as to lie in a position at right angles to the side or section B, such bending of the section A being along the line of the neck 6 or the base of the re-entrant angle. Thus it is only necessary to bend the section or side B along the tapering 4 and into the desired shape in cross-section to take bearing against the foot and under the head of a railway-rail.

Two of the splice-bars are required to form a railway-chair contemplated by my invention, one splice-bar being on the left-hand side and the other splice-bar being on the right-hand side of the rail; but as the splice-bars necessary to form the joint or chair are duplicates it is evident that by arranging one of my improved bars in reverse position to the other a complete chair will be provided when the two bars are properly bolted to the rails and spiked to the ties.

A splice-bar made from a blank manipulated in accordance with my invention has the neck 4 bent so as to impinge against the upper side of the base of the rail, the enlarged part above the neck 4 parallel with the web of the rail, and the rib 5 impinges on the web of the rail under the fillet that joins the web with the head of the rail. The ribs 5 on the inner sides of the splice-bars bear laterally against the webs of the rails in order to secure perfect alignment; but, as explained in my prior patents, the distinguishing feature of the joint therein described is that all vertical stresses are carried to the bottom A of the chair.

The manufacture of the splice-bar according to my present invention is attended with advantageous results in that the operation of rolling, cutting, and bending is comparatively easy, thus facilitating the work, and economy of metal is also secured.

I am aware that changes in the form and proportion of parts and details of construction of the parts herein shown and described as an embodiment of my invention can be shown without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such modifications as fall within the scope of my invention.

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

1. In the manufacture of railway splice-bars, the blank bar, having the longitudinal re-entrant angle or groove on one side and the projecting flange on the other side, adapted to form the spike-flange as the blank bar is bent in two directions on longitudinal lines substantially parallel with its re-entrant angle or groove, as set forth.

2. In the manufacture of railway splice-bars, the blank bar having the re-entrant angle or groove and the tapering necks on either side of said angle, the blank bar being bent on the line of said angle and neck in two directions to attain the necessary shape in cross-section, as set forth.

3. In the manufacture of railway splice-bars, a blank bar adapted to be bent in different directions on two longitudinal lines and provided with a longitudinal protruding flange on one side, a groove or re-entrant angle on the other in juxtaposition to said flange, and the tapering necks, which join opposite sides of the blank bar to one another, substantially as described.

4. In the manufacture of railway splice-bars, the herein-described blank bar adapted to be bent in two directions on longitudinal lines and having a portion thereof on one side of a flange and groove mostly of uniform thickness and joined by a tapering neck and the other side thereof thickened and joined by a tapering neck, substantially as described.

5. The improvement in the art of manufacturing railway splice bars, which consists in rolling a blank bar with a re-entrant angle and the tapering necks, then transversely dividing said blank into suitable lengths, and finally bending the blank bar on two longitudinal lines parallel with the line of the angle and thereby secure the desired shape in cross-section, substantially as described.

6. The art of manufacturing railway splice-bars, which consists in rolling a blank bar with a continuous re-entrant angle and the adjacent tapering necks, dividing said bar transversely into suitable lengths, and bending each length longitudinally on the line of one tapering neck and again bending the bar on



the line of the other neck, so as to overhang the base of the splice-bar, substantially as described.

7. The art of manufacturing railway splice-bars, which consists in rolling a blank-bar with a flange, the groove or re-entrant angle, and the tapering necks, then bending said blank bar longitudinally on the line of the groove or angle to cause the sides of the bar to lie substantially at right angles to each other and bring the flange in line with the base, and finally bending inwardly one of

the tapering necks and giving the upright section the desired shape in cross-section to take bearing against the foot and web of a railway-rail, substantially as shown and described.

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

MCLEOD W. THOMSON.

Witnesses:

A. C. SHAND,

G. A. HOUSER.