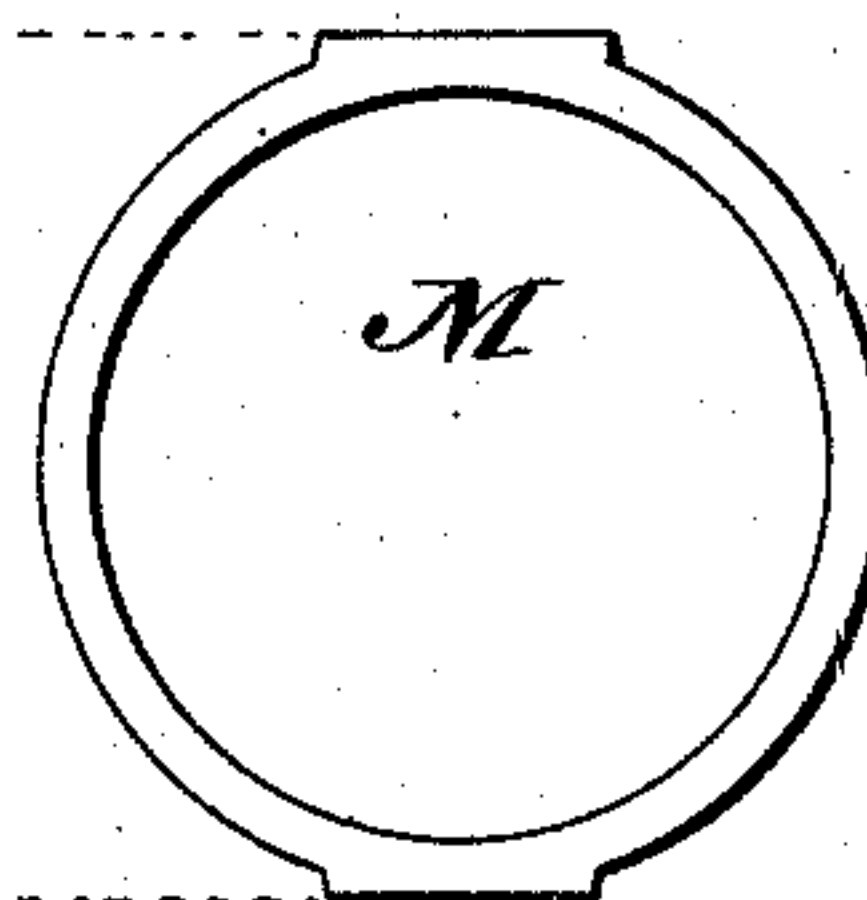
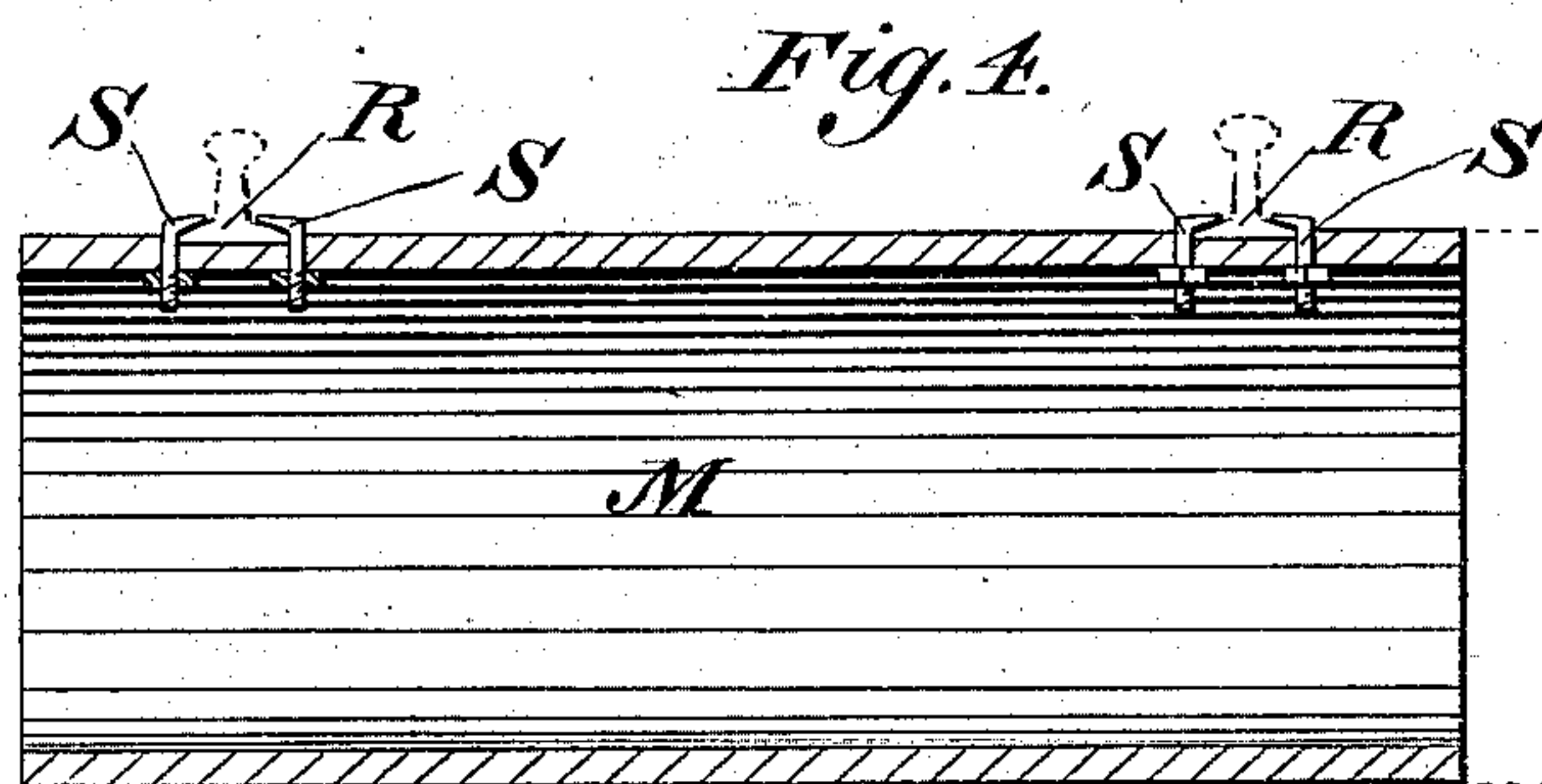
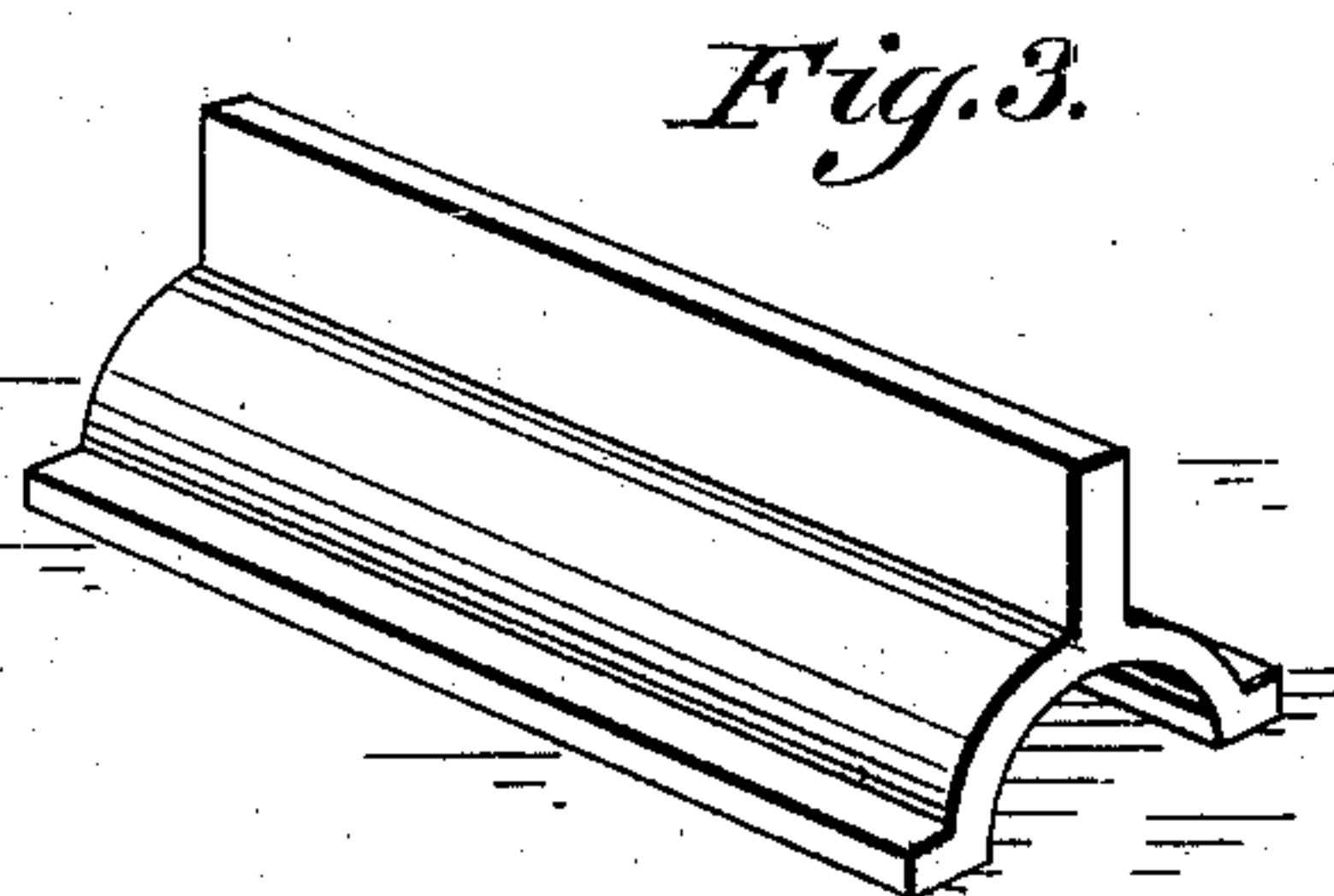
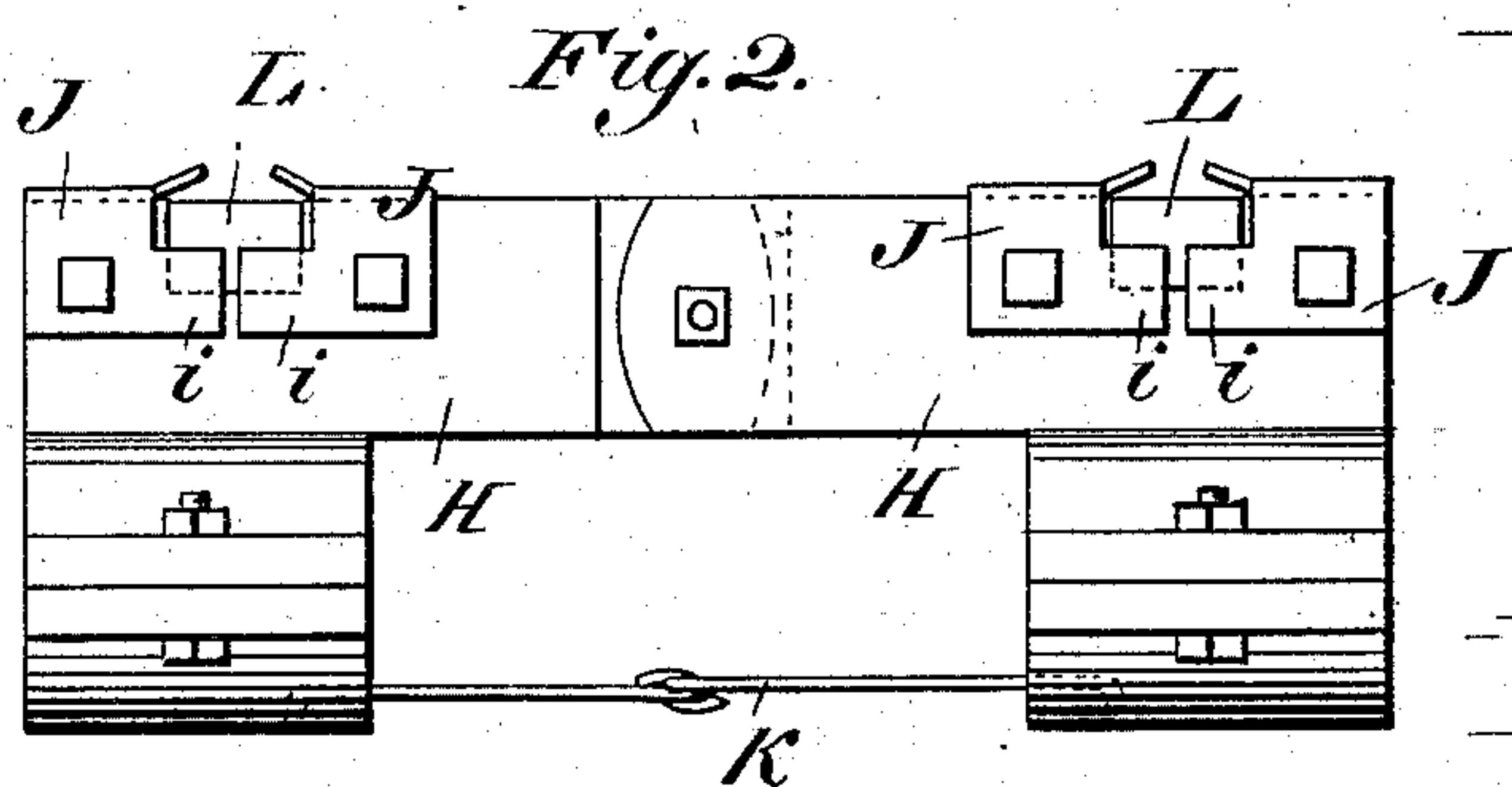
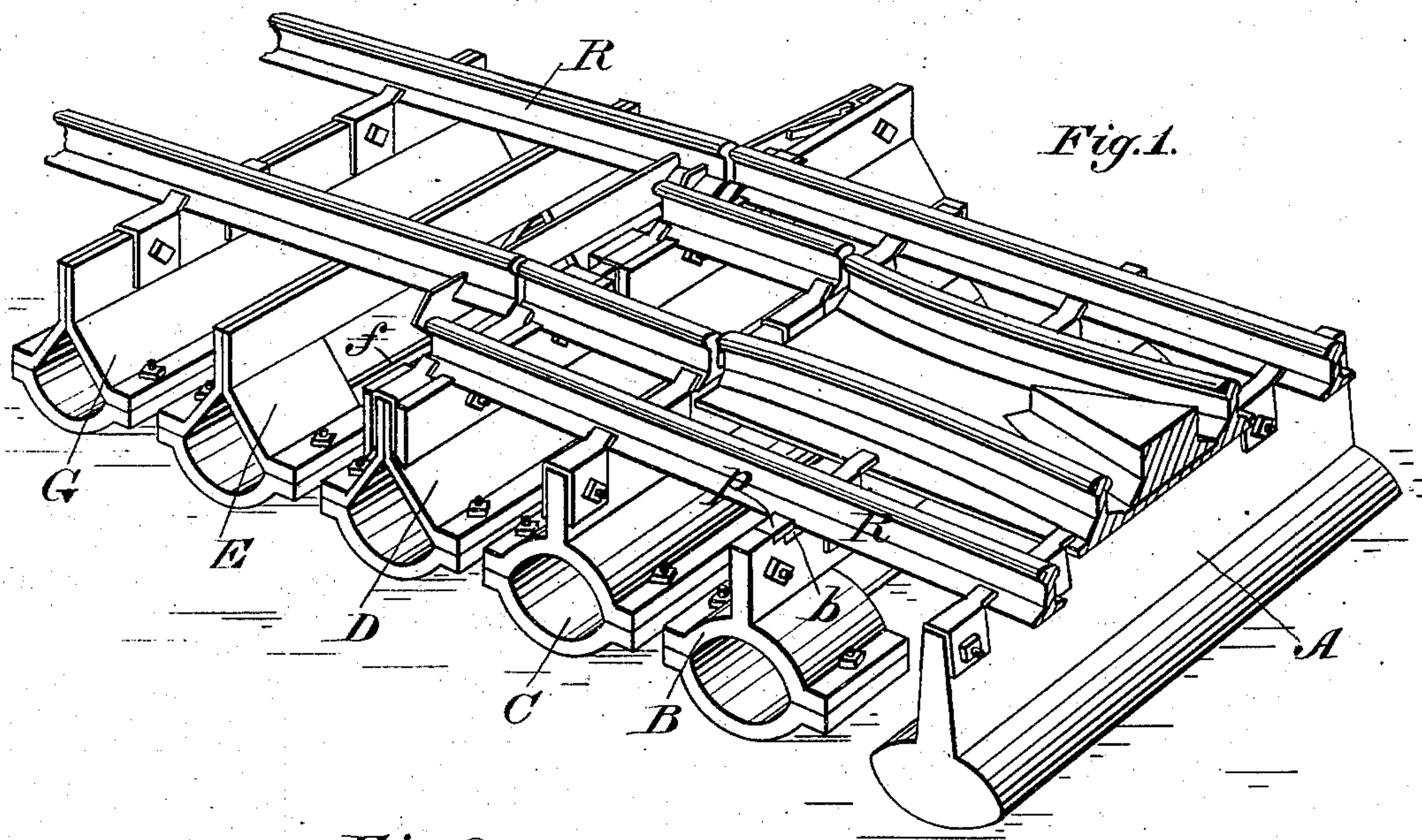


(No Model.)

W. C. LUTZ.  
Railway Ties.

No. 241,389.

Patented May 10, 1881.



WITNESSES:

Donn P. Twitchell.  
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# UNITED STATES PATENT OFFICE.

W. CLAY LUTZ, OF BEDFORD, PENNSYLVANIA.

## RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 241,389, dated May 10, 1881.

Application filed July 14, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, W. CLAY LUTZ, of Bedford, in the county of Bedford and State of Pennsylvania, have invented a new and useful  
5 Improvement in Railway-Ties, of which the following is a specification.

My invention relates to improvements on that which forms the subject-matter of my application for Letters Patent filed February 21, 1880, and allowed May 11, 1880. Said former invention consisted in a solid iron tie and a novel  
10 construction of the chair and fastening-clip.

The present invention consists, essentially, in an iron tie made with its base or foot hollow instead of solid, and in certain details of  
15 construction hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view, illustrating modes of carrying out my invention. Figs. 2, 3, and 4 are  
20 views hereinafter referred to.

The tie marked A is of the same general description as the one shown and described in my former application, above referred to, as are also the clips shown in Fig. 1.

25 The ties marked B and C are of the same general form as the tie A in their general external outline; but instead of being solid they are hollow, and are composed of upper and lower sections bolted to each other. The tie  
30 B has its lower section made in two parts, each of which is immediately under the rail-rest. The upper section has the two parts and a straight web made in one piece, as shown in Fig. 3. The two parts of the lower section may  
35 be connected by a rod to prevent them from spreading laterally, if found necessary. The tie C has its lower section all in one piece, and its upper section the same as the upper section of the tie B. In both of these ties the upper  
40 and lower section are concavo-convex, and curved in such form that when connected together a cross-section of the base of the tie forms an ellipse on its interior surface.

45 The tie D has its lower section concavo-convex and curved in semi-elliptical form. The upper section is made in two pieces. Each piece is inclined upward and inward and then vertically; and the two vertical portions, when bolted together, form the web and rail-rest.

This tie D is here shown as forming a head- 50 block and supporting the movable ends of switch-rails.

The tie E is similar to the tie D, except that its lower section is made in two parts, connected together by a rod, *f*, to prevent them  
55 from spreading.

The tie G is similar to the tie D, except that it is not so long, and is used only for supporting the rails, and not as a head-block.

The tie B is shown as provided with a block, 60 *b*, which may be used when the tie wears away under the rail R, and a plate, *p*, which may be used when the tie wears laterally.

Fig. 2 shows a form of tie, H, which is intended to prevent jarring. The upper section 65 of the tie is made in two pieces, the web being divided midway of its length, and united by a tongue-and-groove joint and a pivot. The lower section is also made in two parts, which are connected by a rod, K, to prevent them  
70 from spreading. This figure also shows the tie H as provided with a rubber or other elastic block or cushion, L, upon which the rail rests. The chair or clip J, for holding the rail in place, is extended, as shown at *i*, so as to hold the  
75 elastic block or cushion L in place under the rail.

Fig. 4 shows a longitudinal section and an end view of a tie, M, made in a single piece, and of an approximate cylindrical form. In 80 this case, instead of a chair or clip, bolts S may be employed for securing the rails R to the tie M. The bolts S have hooked heads, and their shanks pass through the tie M, and are fastened by nuts on the interior surface 85 thereof.

It will be seen that the upper section of any one of these ties may, if desired, be used without the lower section, and will form a strong  
90 and efficient tie.

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

1. A hollow iron railroad-tie composed of an upper and lower section bolted together, 95 the said upper section being provided with a vertical web, substantially as herein shown and described.

2. The tie H, having its web divided midway of its length and connected by a tongue-and-groove joint and a pivot, and having its lower sections connected by a rod, K, as herein shown  
5 and described.
3. The combination, with the tie H, of the elastic block or cushion L, and the chairs or clips J, provided with the extensions i, as shown and described, for the purpose specified.

W. CLAY LUTZ.

Witnesses:

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