

(No Model.)

J. BARKLEY.  
METAL RAILWAY TIE AND FASTENING.

No. 547,706.

Patented Oct. 8, 1895.

Fig. 1.

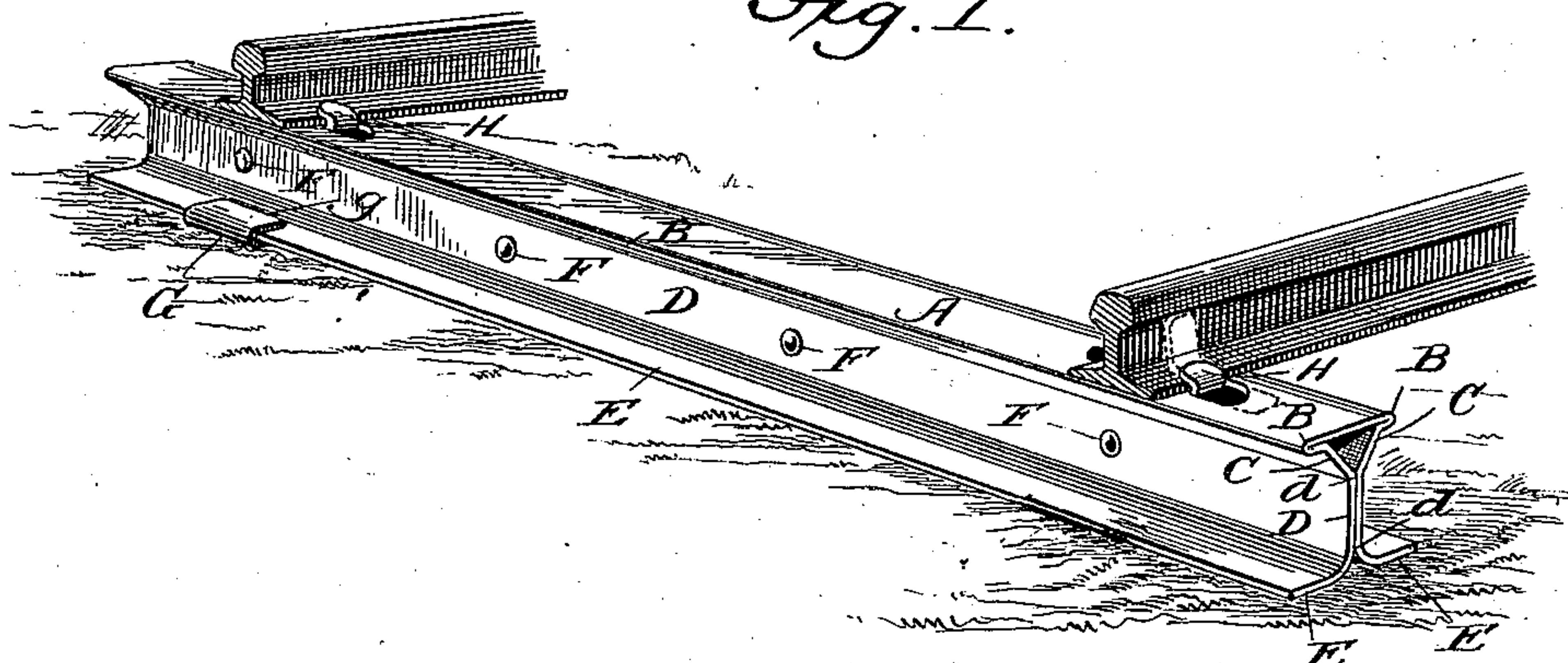


Fig. 2.

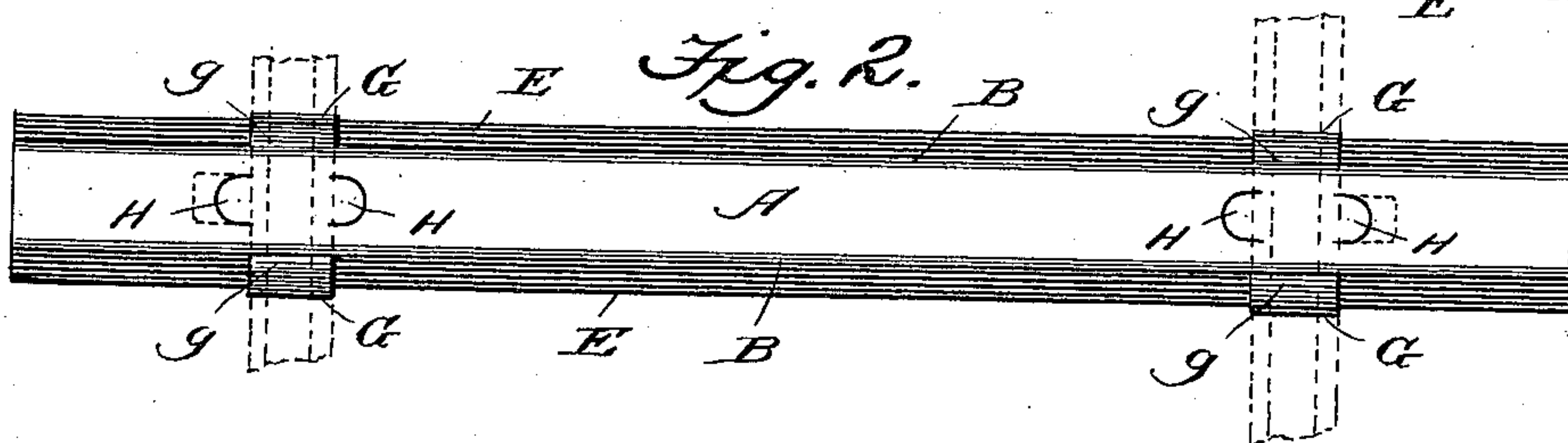


Fig. 3.

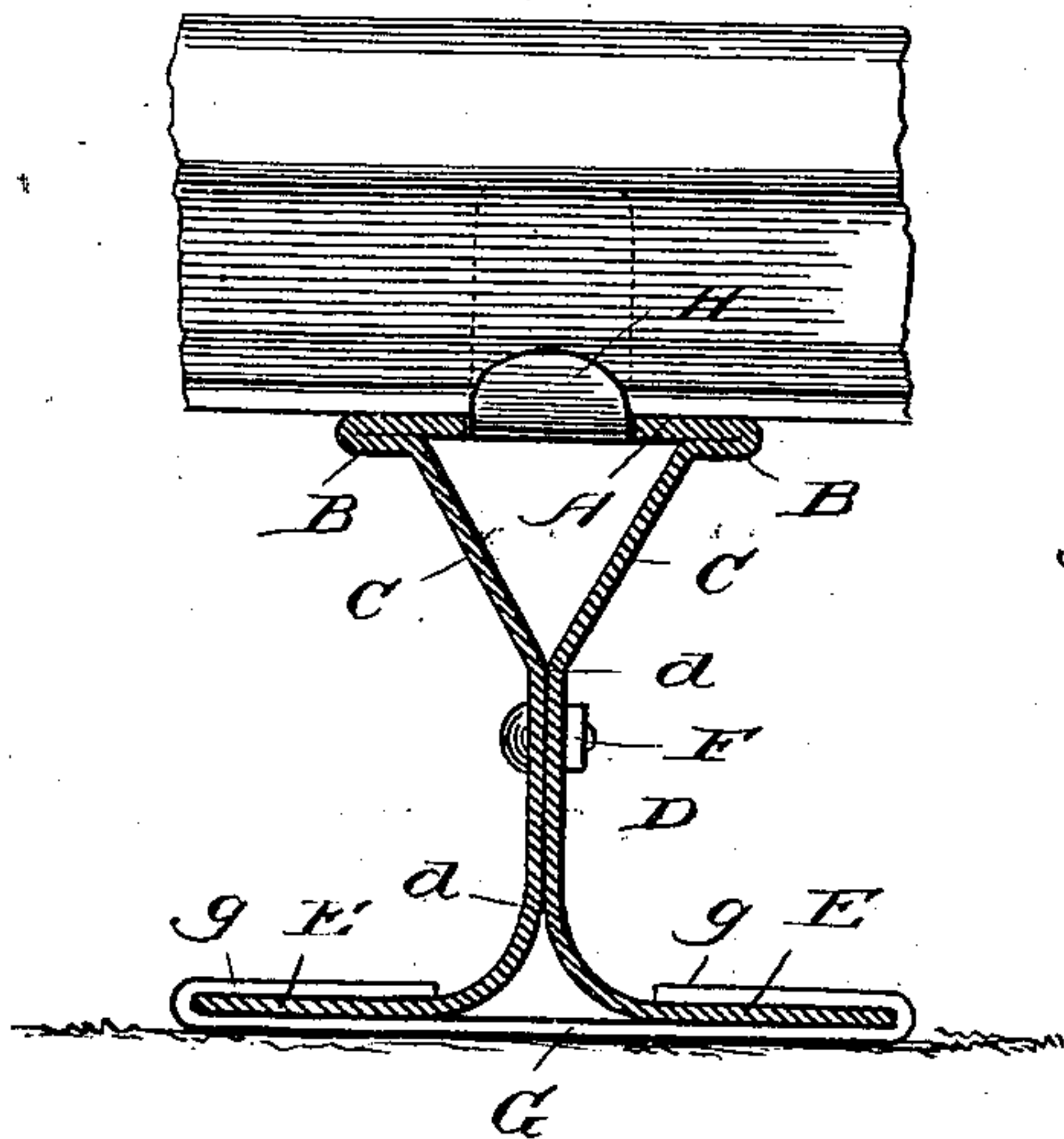
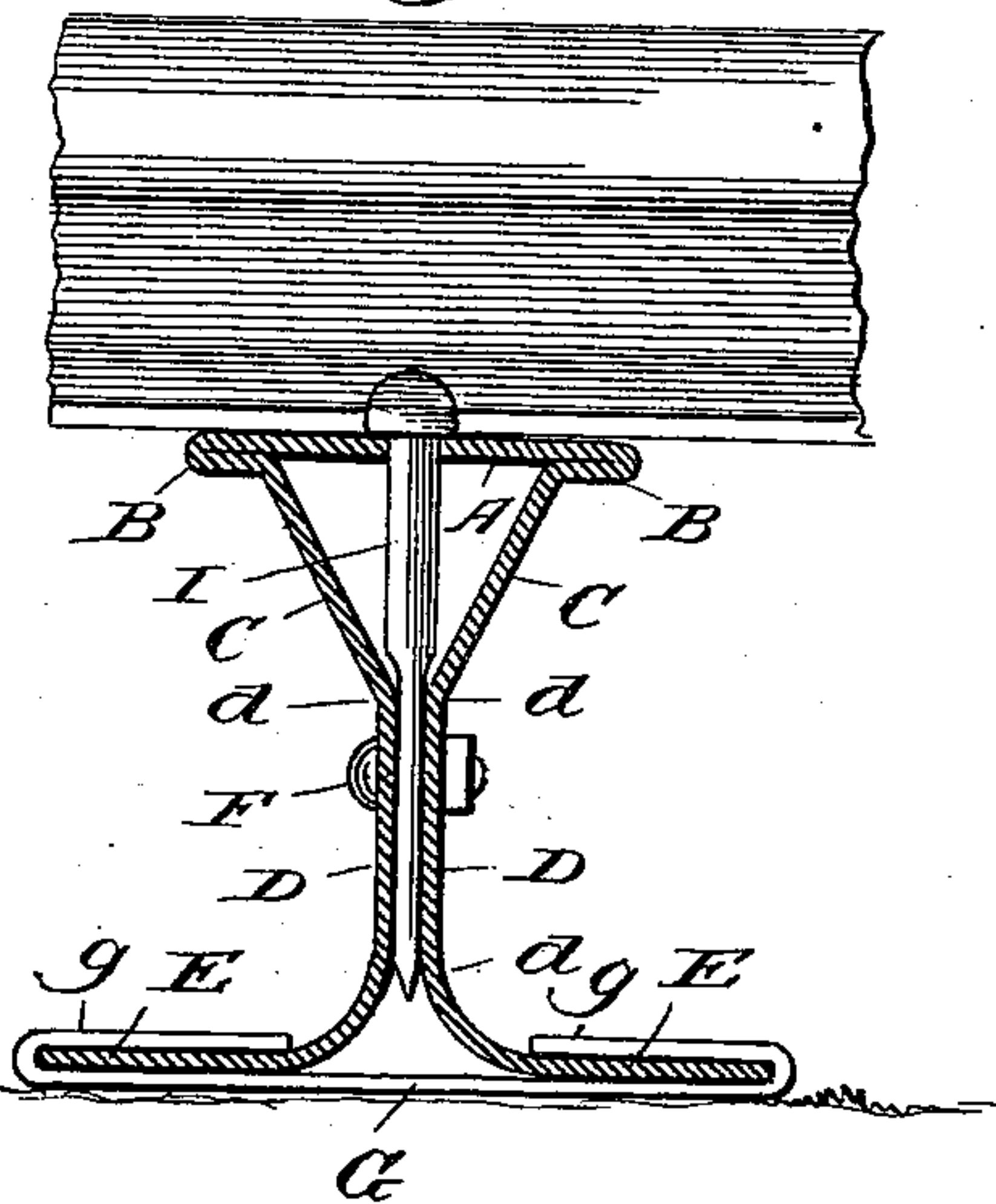
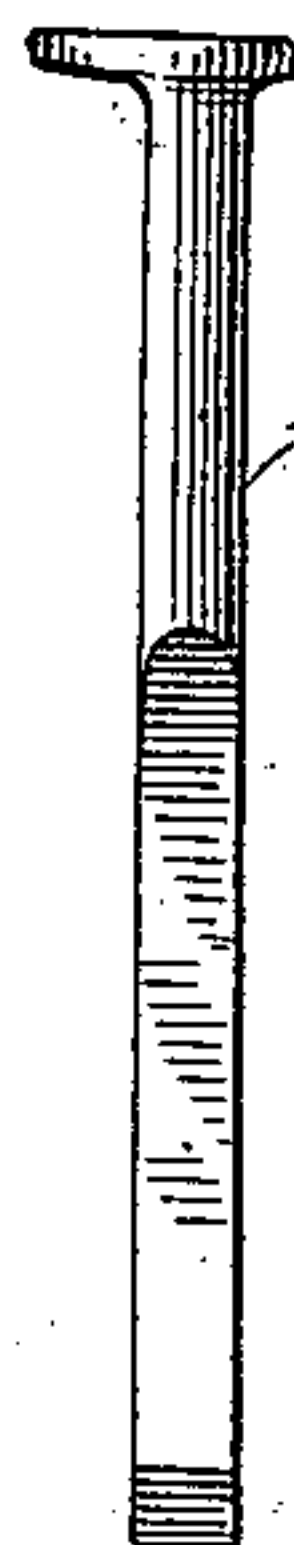


Fig. 4.

Fig. 5.



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES BARKLEY, OF CARLYLE, ILLINOIS.

## METAL RAILWAY-TIE AND FASTENING.

SPECIFICATION forming part of Letters Patent No. 547,706, dated October 8, 1895.

Application filed June 4, 1895. Serial No. 551,679. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES BARKLEY, of Carlyle, in the county of Clinton and State of Illinois, have invented an Improved Metal Railway-Tie and Fastening, of which the following is a specification.

This invention relates generally to railroad-ties, and particularly to a metallic railway-tie composed of a single piece of sheet or plate metal, bent or folded into such shape as to provide a suitable rigid bearing for the rail and at the same time provide a tie having a definite amount of tensile elasticity, whereby the jar incident to rapid travel will be taken up or compensated for without injury to either tie, rail, or any of the connections thereto. Heretofore in constructing metallic railway-ties they have usually been composed of a number of sections so united that there was great rigidity in the structure, but little elasticity, so that the constant jar upon said ties soon resulted in deranging the parts, making them unsafe. Metallic railway-ties have also been constructed of a single piece; but they have lacked that degree of strength and elasticity which my invention is designed to overcome.

Another object of my invention is to provide a metallic tie which shall have a fastening device integral therewith, and a still further object is to so construct said tie that a rail can be secured thereto at any intermediate point by a peculiar form of spike, hereinafter described.

My invention consists in a peculiar construction of the various parts and the novel combination or arrangement, all of which will be fully described hereinafter, and designated in the appended claim.

In the drawings hereto annexed and forming a part of this specification, Figure 1 is a perspective view of my improved tie, showing the manner of securing the rails thereto. Fig. 2 is a top plan view of the tie, the rails being removed, but shown in dotted lines. Fig. 3 is a transverse section of the tie with the rail secured thereto. Fig. 4 is a transverse section showing the manner of securing the switch-rail to the tie by means of a spike, and Fig. 5 is a detail view of the spike.

In the practical embodiment of my invention I employ a sheet or plate of stout metal,

steel being preferred, and bend it upon itself longitudinally from each edge to provide a flat top plate A, said plate being bent back upon itself upon each side for a short distance, as shown at B, for the purpose of reinforcing or strengthening the outer edges of the top plate A. The portions of the sheet-metal plate are then bent downward in a convergent style, as shown at C, until they contact with each other at D, and are pressed together between points *a a'* to form a solid web portion, and below the point *a'* the portions of the plate are made to diverge in such a manner as to provide the broad flat base-flanges E, upon which the tie rests. By reinforcing the outer edges of the top plate A, as shown at B, the plate A is practically the same as when of double thickness, as all or nearly all of the strain will be placed upon these outer edges, and by uniting the portions of the web at points *d* and *d'* said web is practically a double one, and inasmuch as the convergent portions C extend from points within the area of the top plate A the support will be much more substantial than if said portions C extended downward from the outer edges of said plate, so that in addition to reinforcing the outer edges of said plate, as at B, the supporting portions C are thrown inward to such an extent as to provide a more durable support. The divergent flanges E lend elasticity to the tie and take up all jar and strain to which the tie is subjected by the rapid travel of a train thereover. The sections of the web where they contact are securely bolted or riveted by means of bolts or rivets F, so that there is no possibility of the members spreading or becoming displaced. It is obvious that a tie constructed in this manner has great strength, and at the same time has a high-tensile elasticity both longitudinally and transversely, and if it is desired to lend additional rigidity to the structure the plate from which it is made may be crimped or corrugated in any desired form. If desired, a base plate or clamp G, formed also of stout plate or sheet metal, may be connected to the base of the tie by overlapping the ends *g* thereof upon the base-flanges E.

In order to avoid the use of spikes as far as possible and provide a means for securing the rail to the said tie, and which means shall be



integral with the tie, I strike out and punch up lips or ears H from the top plate A at proper intermediate points, and these ears or lips can be punched out either before or after the metal plate is shaped into the tie; but in practice I will probably stamp them out before the plate is folded. These lips or ears are intended to be bent up and clamped upon the base-flanges of the rail, and in constructing said tie I shall probably bend up and turn down the outer lips or ears, so that the rail-flange can be rapidly slipped thereunder, and then it will only be necessary to turn up and clamp the inner flanges. This attachment, it will be seen, is quick, easy, and convenient, and avoids the use of spikes. Inasmuch as a curved rail is subjected to the greater lateral pressure (toward the outside) than a straight one, I prefer to construct a modified form of tie for securing the curved rails, and this I accomplish by making the outer ears or lips considerably longer than usual, so that when it is turned up to fasten the rail the extra length can be pressed against the web of said rail and thereby provide a lateral brace upon the outside of such rail.

Whenever it is desired to attach a rail to my improved form of tie at any point between or beyond the ears or lips H, it is done by means of my improved spike I, which I construct in a peculiar manner for this precise purpose, the shank near the head being round, while near the bottom or point it is flattened and terminates in a chiseled point. In attaching the rails holes are drilled in the top plate and upon each side and the spike

inserted in said holes and driven home, the flat portion of the spike being forced down between the contacting portions D of the tie, and inasmuch as these portions are securely bolted together the spike will be firmly held between the same.

It will thus be seen that I provide an exceedingly cheap, simple, durable, and efficient form of metallic railway-tie, which has combined therewith a novel and efficient form of rail-fastening, one that is integral with said tie, so that no extra expense is incurred for such fastening, one which can be quickly and easily manipulated to secure the rail, and one which can be constructed in such a manner as to provide both a rail fastening and brace, as in the case of securing a curved rail.

Another advantage of my improved tie is that a switch or other rail can be secured at any point between or beyond the usual rail-fastenings.

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

The combination with the metal tie, comprising the top plate, web and base flanges, of the securing bolts or rivets, and the spike having a shank rounded at the top, and flat at the lower end, substantially as shown and described.

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

JAMES BARKLEY.

Witnesses:

HARVEY F. JONES,  
JOHN C. LAMPEN.