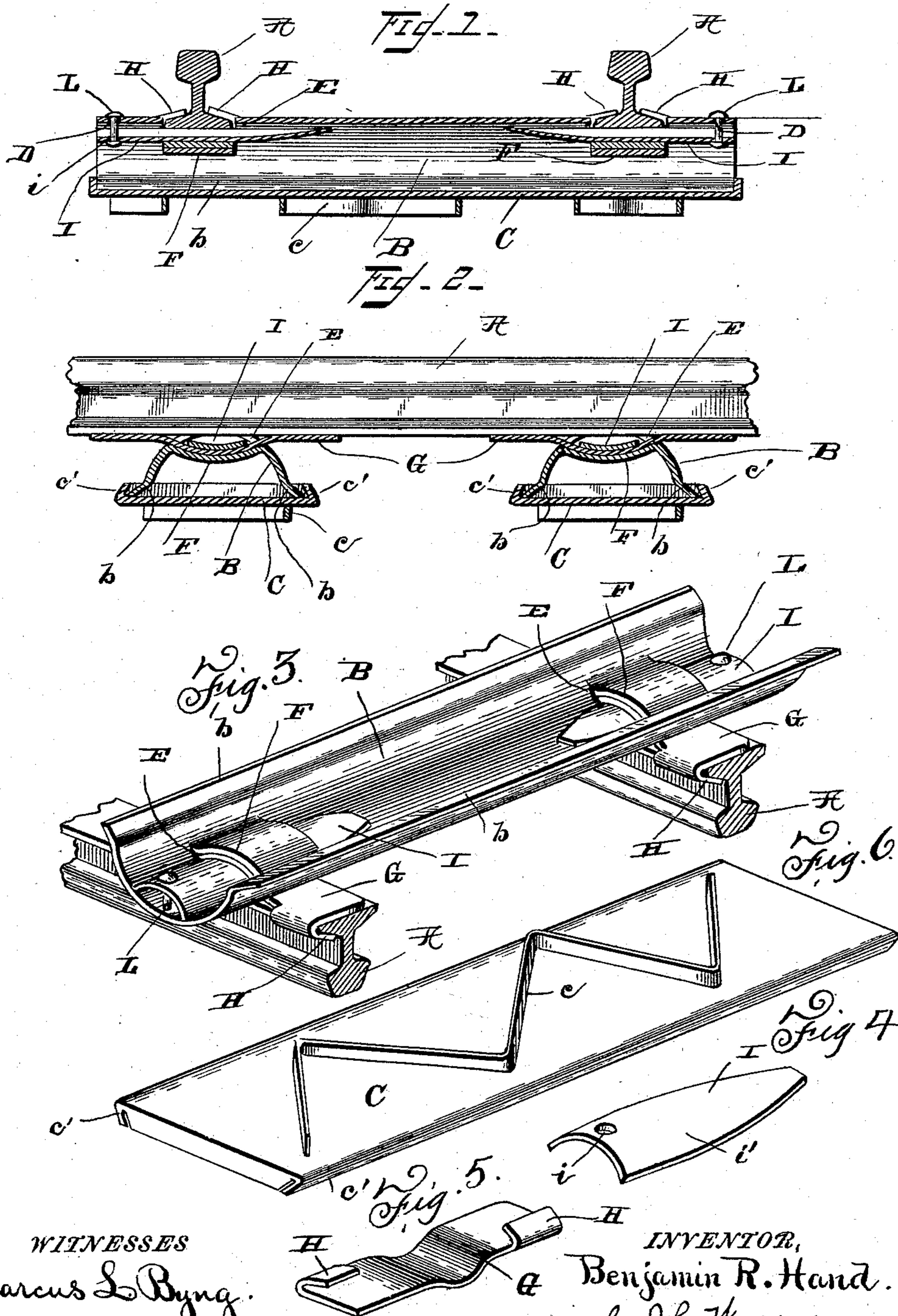


(No Model.)

B. R. HAND.  
RAILROAD TIE.

No. 580,667.

Patented Apr. 13, 1897.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

BENJAMIN R. HAND, OF GOLDSBOROUGH, NORTH CAROLINA.

## RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 580,667, dated April 13, 1897.

Application filed September 3, 1896. Serial No. 604,767. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN R. HAND, a citizen of the United States, residing at Goldsborough, in the county of Wayne and State of North Carolina, have invented certain new and useful Improvements in Railroad-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.

This invention relates to certain new and useful improvements in railroad-ties; and it has for its objects, among others, to provide a simple and cheap, yet strong and durable, tie, and means for securing the same and the rail together, so as to allow of the necessary yielding movement and yet avoid all possibility of disengagement or displacement of the rail. The spring-key is so shaped as to allow of its ready insertion but not removal.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The invention in this instance resides in the peculiar combinations and the construction, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which--

Figure 1 is a longitudinal section showing my invention. Fig. 2 is a cross-section. Fig. 3 is an under perspective view with the chair removed. Fig. 4 is a detail of the spring-key. Fig. 5 is a detail of the reversible shoe. Fig. 6 is a detail of the chair.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates the rails of usual construction.

B is my improved tie. It is of standard length, but is arched, as shown, with its lower edges extended to form the flanges *b*, which do not extend at a right angle from the body portion, but are inclined slightly outward and downward from a right angle, as shown,

so that when the tie rests in its chair the arched portion will be caused to spring to the chair or base C until the said edges or flanges of the tie come in contact with the vertical walls of the chair or base, when it becomes rigid, having sprung sufficiently for the required purpose. The chair or base is formed upon its under side with the ribs *c*, preferably zigzag, as shown, to strengthen the same, and prevents its moving when once set in position. Upon its upper face it has the side flanges *c'*, that are bent, as shown, so as to form the vertical walls and the inclines extending therefrom to correspond with the inclination of the flanges on the edges of the tie.

The tie is formed at each end with a vertical hole D, for a purpose which will soon appear. Near each end the tie is provided with the transverse kerfs or slits E, and the metal between them is forced downward to form curved seats F, none of the metal being removed, and hence the tie is not materially weakened.

G is the shoe. It is formed with the central transverse curved depression *g*, conforming to the curved seat of the tie, and at its opposite ends it is provided with the oppositely-disposed flanges or bent-over tongues H, which are adapted to receive the flange of the rail, as shown.

I is the spring-key. It is provided at one end with a hole *i*, and its other end is somewhat pointed to facilitate its being inserted in position, and near its center it is slightly wider than at either end, as shown at *i'*, to form a sort of wedge to prevent its working out when once in position.

The operation will be apparent. The bases are set in position and the ties placed therein, the flanges riding down the inclines of the edges of the base. The shoe is then placed on the rail, as indicated, and the rail seated in the recess in the end of the tie. The curved depressions of the shoe and tie come coincident, and the spring-key is then inserted endwise between the curved portion of the shoe and the under wall of the tie, and the parts are securely held in place. If desired, for further safety a pin or key L may be inserted through the hole in the end of the tie and that in the end of the spring-key.

Modifications in detail may be resorted to

without departing from the spirit of the invention or sacrificing any of its advantages.

It is to be understood that the tie may be made of any suitable material, preferably metal, and that metal steel, although it will be obvious that other materials may be employed.

What is claimed as new is—

1. The combination with the tie having a transverse recess with a downwardly-curved portion, of the rail with its shoe with downwardly-curved portion, and a spring-key, all substantially as specified.

2. A tie having transverse recesses near its ends with a downwardly-curved portion opposite each recess combined with a spring-key curved to fit said curved portion substantially as and for the purpose specified.

3. A tie having a transverse recess near each end with a downwardly-curved portion opposite each recess and its edges inclined outwardly and downwardly, combined with a spring-key curved to fit said curved portion as and for the purpose specified.

4. The combination with a tie having trans-

verse recesses and downwardly-curved portions opposite the recesses, of a shoe having a downwardly-curved portion and side flanges to embrace the flange of a rail, and spring-key all substantially as and for the purpose specified.

5. The combination with the arched tie having side flanges extended at an angle, and a transverse recess to receive the key of a base having upturned flanges with inclined walls, and a curved spring-key substantially as and for the purpose specified.

6. The combination with the base having ribs upon its under side and its edges turned up and inclined, of a tie arched as shown and having its edges turned outwardly and downwardly, substantially as and for the purpose specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

BENJAMIN R. HAND.

Witnesses:

J. A. WASHINGTON,

G. C. KORNEGAY.