No. 694,600. Patented Mar. 4, 1902.

A. P. BAMBERGER.

METALLIC RAILWAY TIE.

(Application filed Sept. 12, 1901.)

(No Model.) 2 Sheets—Sheet 1.

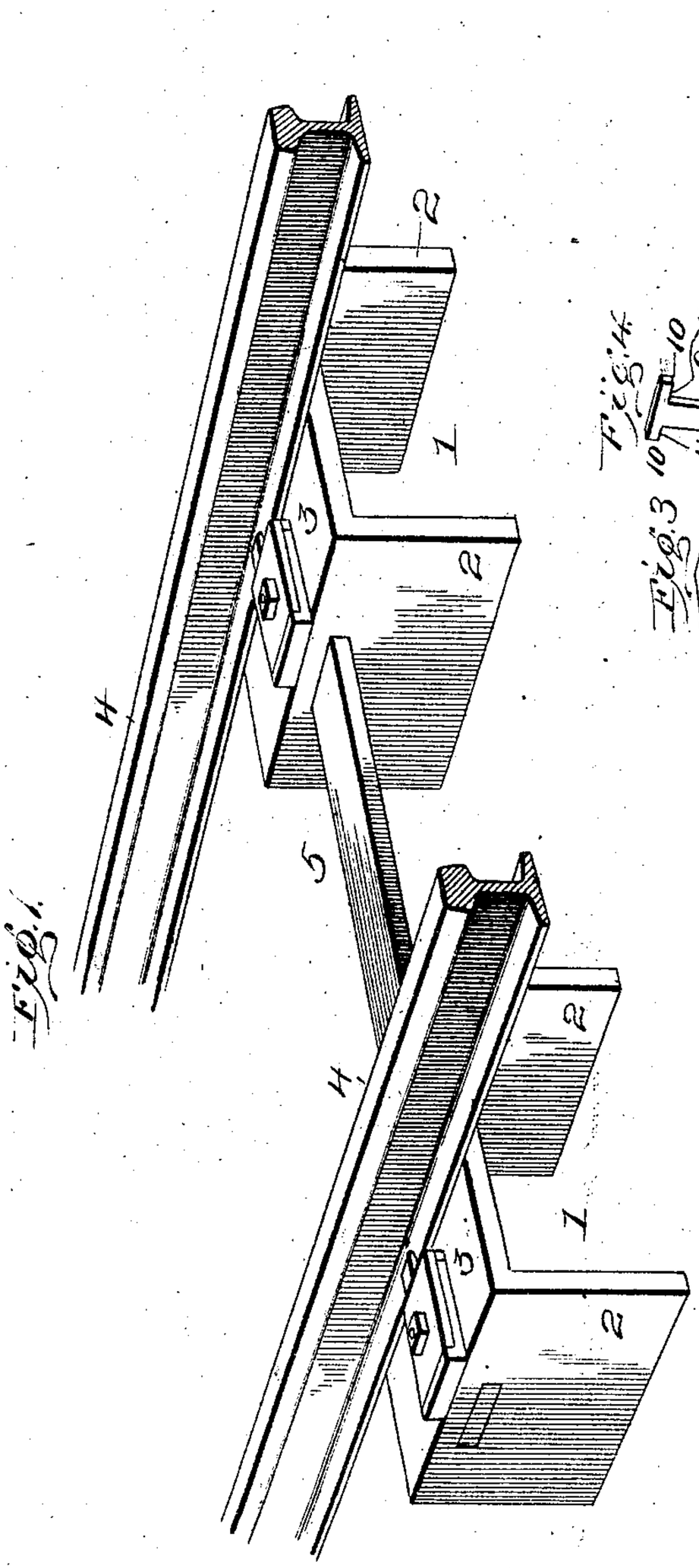

Fig. 1.

Fig. 4. Fig. 3.

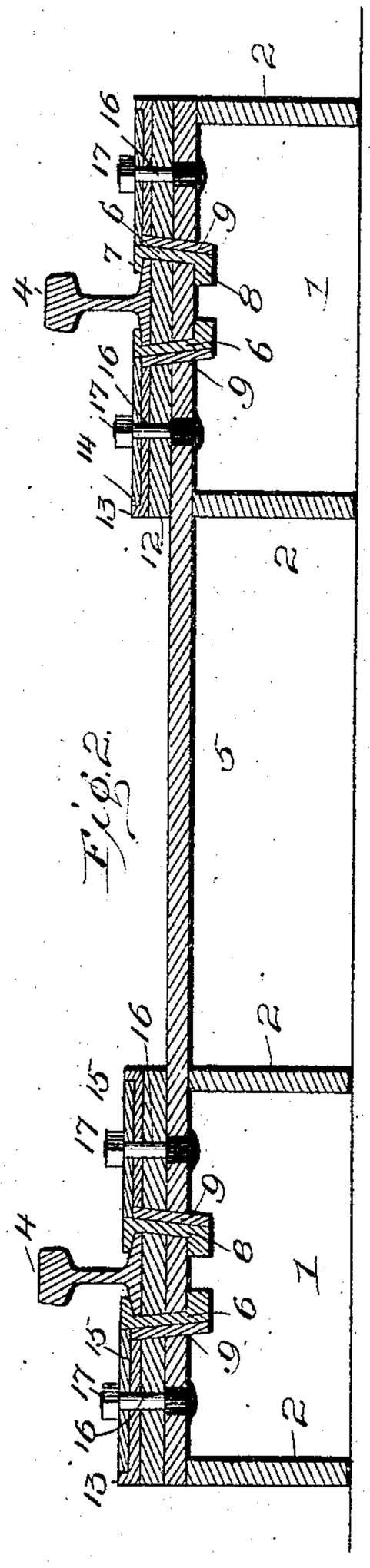

Fig. 2.

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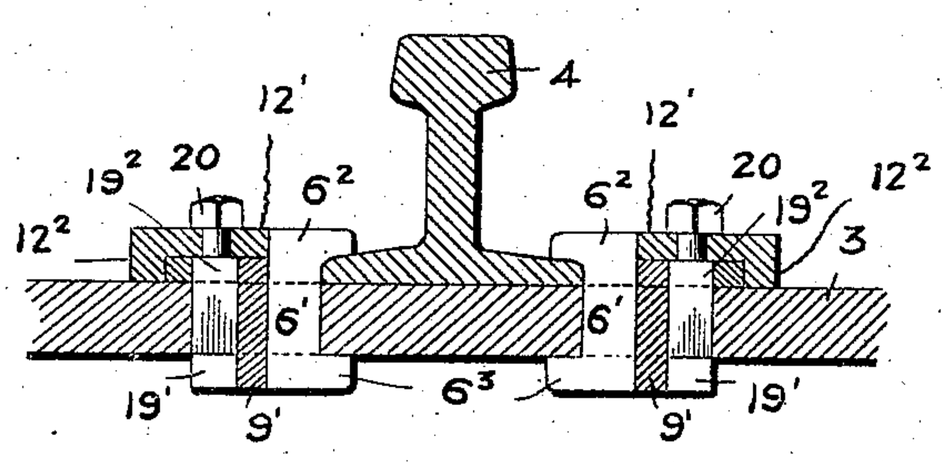
Fig. 5.



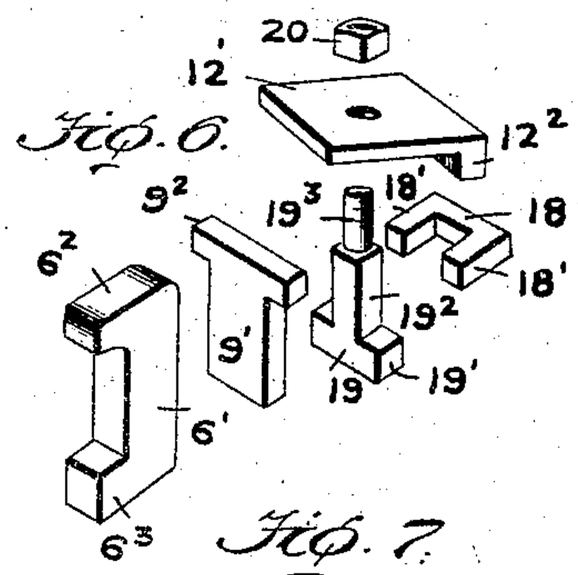


Fig. 6.

Fig. 7.

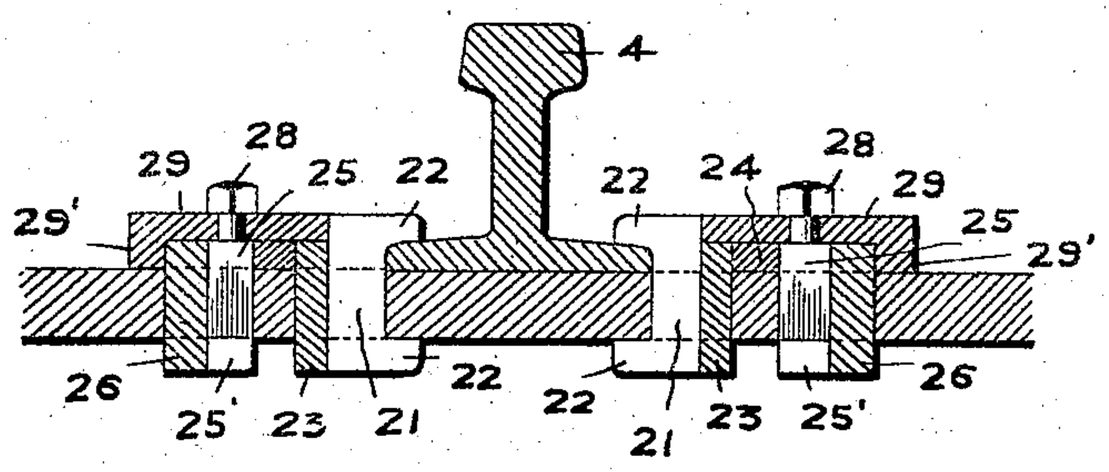
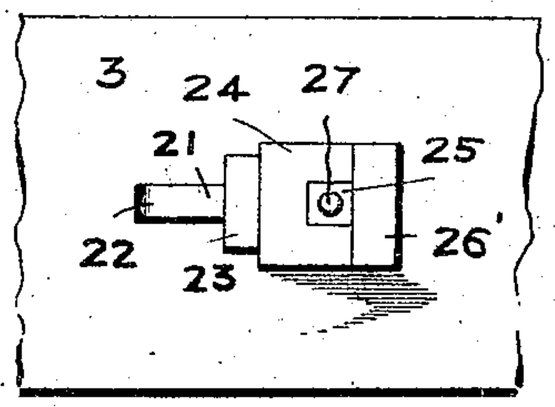


Fig. 8.



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ALFRED P. BAMBERGER, OF NEW CUMBERLAND, PENNSYLVANIA.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 694,600, dated March 4, 1902.

Application filed September 12, 1901. Serial No. 75,207. (No model.)

To all whom it may concern:

Be it known that I, ALFRED P. BAMBERGER, a citizen of the United States, residing at New Cumberland, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Railway-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 metallic railway-ties and fastenings for the rails, and more particularly to that class of such devices in which are employed two tie-heads and a connecting-bar or tie-plate, with means for attaching the tie-plate to the heads and the rails to the latter.

The present invention has for its objects, among others, to provide an improved tie of this character which shall be light, though strong, cheap, and durable, and by means of which the rails may be easily and quickly secured in position, yet held against all tendency to become accidentally displaced. The tie serves to effectually hold the track in line, there being a bearing in eight different ways against the ballast, the boxes, one under each rail, filling the space of a cross-tie, and putting an end to the tearing up of road-beds in order to take out bad ties and replace them with new ones, which tends to loosen the solid-packed ballast and cause sinking joints and dips in the rails.

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 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 perspective view showing my improved tie in position and the rails secured thereon. Fig. 2 is a substantially central vertical longitudinal section through the same. Fig. 3 is a perspective view of one of the heel-plates removed. Fig. 4 is a perspective view of the spike-key removed. Fig. 5 is a sectional view of a modified form. Fig. 6 shows in perspective the parts thereof separated. Fig. 7 is a sectional view of another form. Fig. 8 is a top plan with the heel-plate removed.

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

Referring now to the details of the drawings, 1 designates the tie heads or boxes, of suitable material, preferably steel, having the depending sides 2 and the flat top 3, forming a broad bearing and support for the rails 4.

5 is the tie-plate or connecting-bar. It passes through openings in the opposite sides of the boxes, as seen in Figs. 1 and 2, and is securely held in position in a manner which will soon be described.

6 represents the spikes. They are each formed with a lug 7 at the top and a lug 8 at the lower end, as shown best in Fig. 2.

9 represents the spike-keys, each formed with a head extended upon both sides, as seen best in Fig. 4, the lateral portions 10 forming shoulders 11, which bear upon the top 3 of the box.

12 represents heel-plates, formed each with a raised portion 13 at one end, forming a shoulder 14, as seen clearly in Figs. 1, 2, and 3.

15 represents the spike-key plates.

In practice the parts are assembled as follows: The rails being placed in position on the tops of the boxes the spikes 6 are first inserted through suitable openings in the tops of the boxes and corresponding openings in the tie-plate, the lower flange engaging the under side of the tie-plate and the upper flange the flange of the rail, as seen in Fig. 2. The spike-keys 9 are then placed in position, passing through the openings in the tops of the boxes and in the tie-plate, as seen in Fig. 2, with the heads resting on the tops of the boxes. The spike-key plates 15 are then placed in position, as shown, resting on the heel-plates and the heel-plates placed in position with their inner edges bearing against the heads of the spike-keys and the spike-key plates resting at their extended inner edges on top of the heads of the spike-keys and their inner edges bearing against the outer faces of the spikes, all as clearly seen in Figs. 1 and 2. Bolts 16 are then passed

through the heel-plates, spike-key plates, tops of the boxes, and the tie-plate, as shown in Fig. 2, and nuts 17 applied, as shown. By this construction it will be seen that I have provided a very strong and durable tie and securing means in which the parts are so held that they cannot become accidentally disengaged, being mutually braced, as will be readily understood from Fig. 2, in which it will be seen that the plates 15 are held between the shoulders 14 of the plates 12 and the outer faces of the spikes and the spike-keys prevented from moving vertically and the spikes from movement laterally or vertically, until the bolts are removed and the plates 15 and 12 removed.

From the foregoing it will be seen that I have devised a novel, cheap, and efficient metallic railway-tie and rail-fastening means, and while the structural embodiment of the invention herein shown is what I at the present time consider the preferable, it is evident that the same is subject to slight changes, variations, and modifications without departing from the spirit of the invention or sacrificing any of its advantages, and I therefore do not wish to restrict myself to the exact details herein disclosed, but reserve the right to make such changes, variations, and modifications as come properly within the scope of the protection prayed. For example, in Fig. 5 I have shown a construction in which the same principle is involved and upon reference to which it will be seen that the spike 6′ is the equivalent of the spike 6 in the forms just described, having the lugs 6^2 and 6^3, corresponding to the lugs 7 and 8 and answering the same purpose. The spike-key 9′ has the head 9^2, while the bolt 19 has the head 19′, the rectangular portion 19^2, and the threaded portion 19^3 to receive the nut 20. 12′ is the heel-plate, with a flange 12^2, while 18 is a lock-plate having the right-angled portions 18′. All of these parts are shown in detail in Fig. 6 and in assembled position in Fig. 5. The spike 6′ is placed in position. Then the spike-key is dropped into the hole in the top 3 till its head rests upon the upper face of the said top. The bolt 19 is then inserted from beneath. The lock-plate 18 is placed in position with its portions 18′ embracing the rectangular portion of the bolt, and then the heel-plate 12′ is placed in position with its flange engaging the outer edge or face of the lock-plate, and when the nut 20 is applied and screwed up the parts are all firmly held against movement, and none can be removed till the nut and heel-plate are first removed. It will be noted that the bolts are rectangular where engaged in the openings in the top 3, and thus the bolts are prevented from turning, as are the bolts shown in Fig. 2, where they are shown as rectangular where passed through corresponding holes in the tie-plate. It will be noted that the effect is substantially the same as in the construction shown in Fig. 1, the heel-plate being reversed, its flange being turned downward instead of upward, as in Fig. 1.

In Figs. 7 and 8 are shown a section and top plan of a construction embodying the same generic idea and practically the same parts. The spike 21 has the lugs 22. The spike-key 23 is headed, as seen best in Fig. 8. The lock-plate 24 and bolt 25 are substantially the same, the nut 28 being applied to the threaded end of the bolt, and the heel-plate 29 is present with its flange 29′, all as seen in Fig. 7; but in this instance, instead of all the parts passing through the same hole in the top 3, the spike and spike-key pass through one hole, and the bolt and the bolt-key 26, having a head 26′, pass through another hole; but the one bolt serves, in connection with the flanged heel-plate, to secure all the parts against accidental displacement. These illustrate but a number of ways in which the principle of the invention may be carried into practical effect.

Each and all of the forms above described may be employed either in connection with the tie-plate or in connection with boxes where such tie-plate is not used.

What I claim as new is—

1. A metallic railway-tie consisting of metallic boxes, a tie-plate passed through the sides thereof and supported therein and rail-securing devices, embodying spike-keys and plates covering the heads thereof and means adapted to secure the said tie-plate to the boxes, as set forth.

2. The combination with the boxes and tie-plate, of flanged spikes, spike keys and fastenings mutually bracing each other and securing the tie-plate to the boxes and resting on the heads of the keys, as set forth.

3. The combination with the tie and the rail, of the spike having a flange at each end, a spike-key having a head, a heel-plate engaging said key, a spike-key plate resting upon the top of the key and a securing-bolt, as set forth.

4. The combination with the boxes, the tie-plate passed through the same, and the flanged spikes, of the headed spike-keys, the heel-plates, the spike-key plates and the securing-bolts, all substantially as shown and described.

5. The combination with the boxes, the tie-plate, the spikes flanged at each end, the headed spike-keys, the heel-plates with shoulders, with one end bearing against the spike-key, and the spike-key plates bearing against the shoulders of the heel-plates and against the spikes and resting upon the heads of the spike-keys, all substantially as described.

6. The combination with the box and the spike having flanges or lugs, of the spike-key, and a flanged heel-plate and bolt passed vertically through said flanged heel-plate for securing the same in position, as set forth.

7. The combination with the box, of the

spike having lugs, the headed bolt, the headed spike-key, the flanged heel-plate, means engaging the flange of said heel-plate, and the spike-key and a nut on said bolt, all substantially as described.

8. The combination with the box and the spike, of a spike-key, a flanged heel-plate having one end disposed above and resting on the head of the key, a bolt and a locking member engaged by the flange of the heel-plate, as set forth.

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

ALFRED P. BAMBERGER.

Witnesses:
JNO. F. LEE,
HARRIET KAUFMAN.