No. 857,656. PATENTED JUNE 25, 1907.

D. P. McQUEEN.

METALLIC TIE FOR RAILWAYS.

APPLICATION FILED APR. 19, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

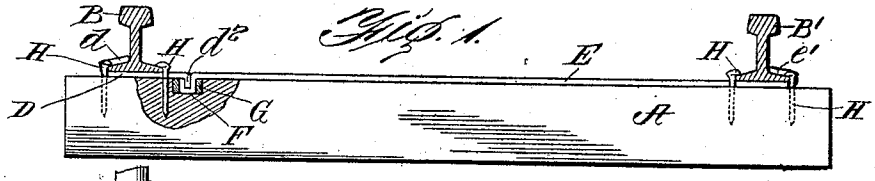


Fig. 2.

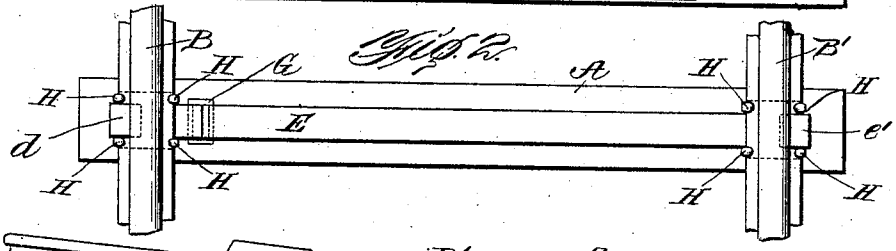


Fig. 3.

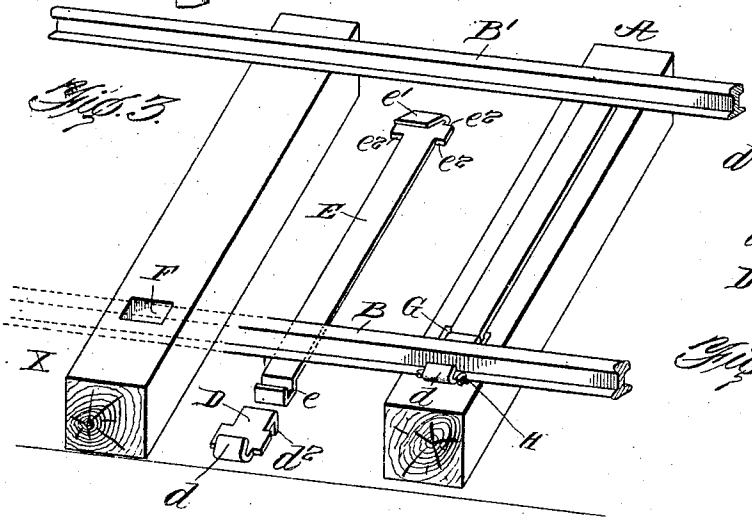


Fig. 4.

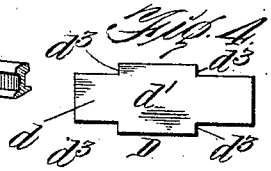


Fig. 5.

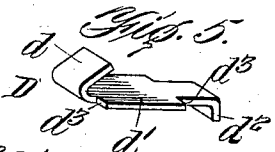


Fig. 6.

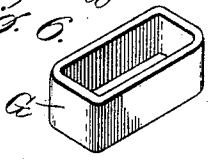


Fig. 7.

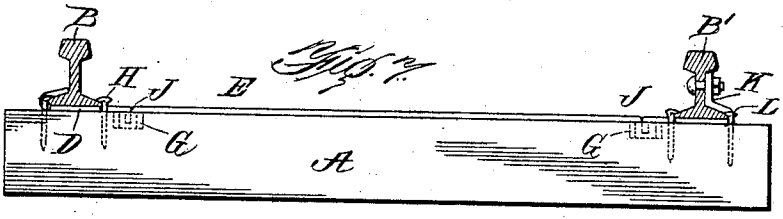


Fig. 8.

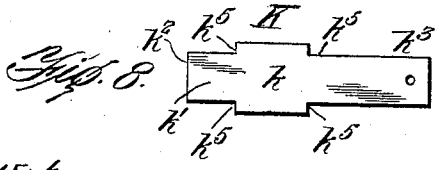
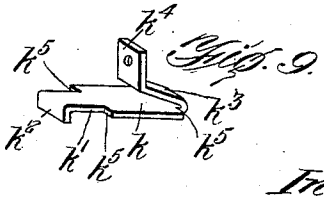


Fig. 9.



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2 SHEETS—SHEET 2.

Fig. 10.

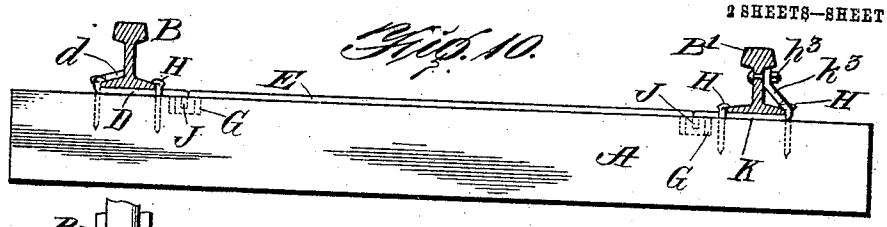


Fig. 11.

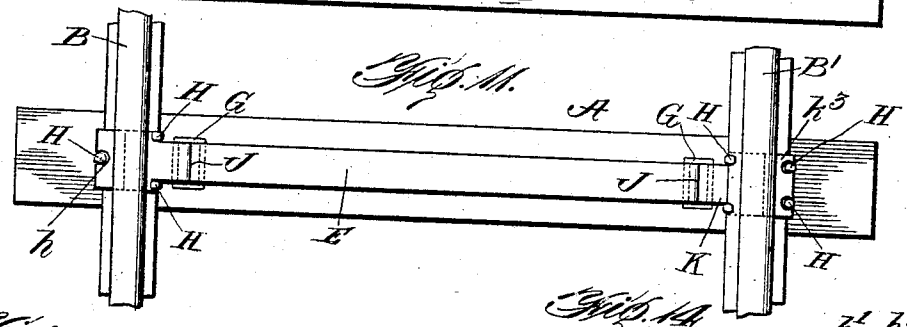


Fig. 12.

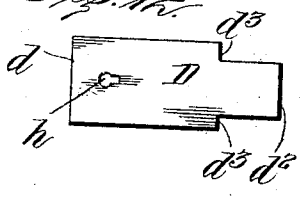


Fig. 13.

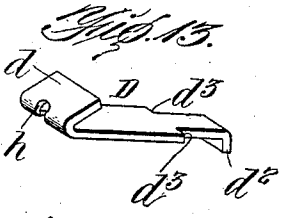


Fig. 14.

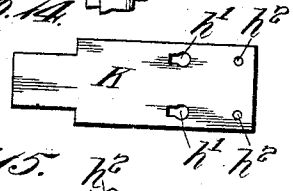


Fig. 15.

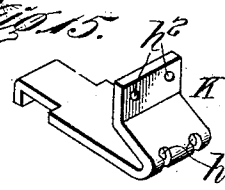


Fig. 16.

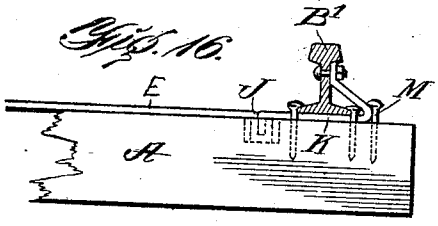


Fig. 17.

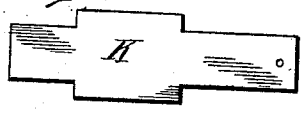


Fig. 18.

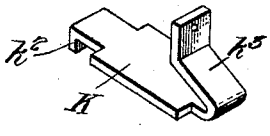


Fig. 19.

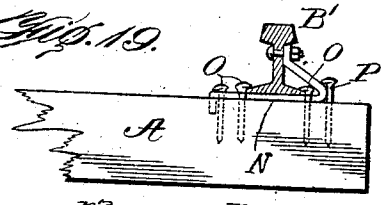


Fig. 20.

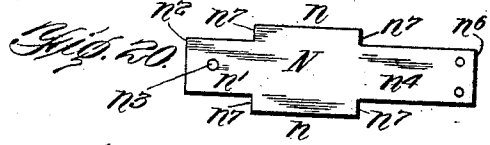


Fig. 21.

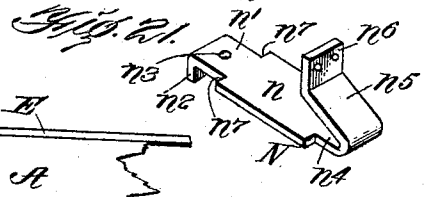
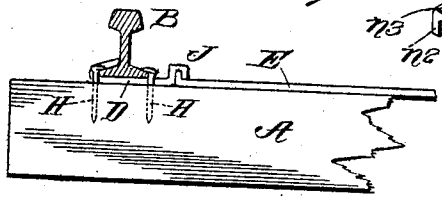


Fig. 22.



Witnesses:

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Inventor.

Daniel P. McQueen.

By his Attorneys:

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UNITED STATES PATENT OFFICE.

DANIEL P. McQUEEN, OF SARATOGA SPRINGS, NEW YORK.

METALLIC TIE FOR RAILWAYS.

No. 857,656. Specification of Letters Patent. Patented June 25, 1907.

Application filed April 19, 1907. Serial No. 369,065.

To all whom it may concern:

Be it known that I, DANIEL P. McQUEEN, a citizen of the United States of America, residing in Saratoga Springs, county of Saratoga, and State of New York, have invented certain new and useful Improvements in Metallic Ties for Railways, of which the following is a specification.

The object of my invention is to provide a simple and efficient means for preventing the rails of railways from spreading when subjected to unusual strain as is the case especially on the curved portions of railway tracks. Devices for this purpose have been before used or suggested but they have been either complicated, inefficient or expensive to manufacture.

According to my invention, I provide a metallic tie which is adapted to rest on the ordinary wooden tie or sleeper and which extends under both rails and it is formed with jaws which engage the outer sides of the rails. The tie is made in parts or sections and with interlocking devices whereby they may be easily assembled while the jaws are drawn firmly against the rails which are rigidly held against lateral displacement. The tie sections near the rails are recessed or shouldered to receive spikes which secure them firmly in place.

In the accompanying drawings, I have shown several ways of embodying my improvements.

Figure 1 shows a transverse section through a railway track with one form of my invention applied thereto. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view showing one of my improved metallic auxiliary ties applied and another ready to be applied. Fig. 4 is a top plan view of a blank from which one of the jaws is formed. Fig. 5 is a perspective view of one of the jaws. Fig. 6 is a perspective view of a box which is sunken into the wooden tie or sleeper to receive the interlocking joint of the metallic tie sections. Fig. 7 shows a transverse section through a railway track containing a modified form of my auxiliary tie. Fig. 8 is a top plan view of the blank from which one of the locking jaws shown in this modification is formed. Fig. 9 is a perspective view of a locking jaw or brace formed from the blank shown in Fig. 8. Figs. 10 and 11 show further modifications. Fig. 12 is a top plan view of a blank for forming a locking jaw. Fig. 13 is a perspective view of the jaw formed therefrom. Fig. 14 is a plan view of another form of blank and Fig. 15 is a perspective view of a locking jaw or rail brace formed therefrom. Fig. 16 shows another way of bracing the rail. Fig. 17 is a top plan view of the blank from which the brace is formed, and Fig. 18 is a perspective view of the brace or jaw formed from the blank shown in Fig. 17. Fig. 19 shows another form of brace for the outer rail. In this case there is no metallic connection between the inner and the outer rail. Fig. 20 is a plan view of the blank from which the brace shown in Fig. 19 is formed and Fig. 21 is a perspective view of the brace. Fig. 22 shows a modification in which the joint instead of being sunken into the wooden tie or sleeper is arranged above the surface thereof.

The wooden ties or sleepers, A, and the track rails, B, B′, may be of usual construction and the rails may be attached thereto by means of spikes in the usual way. Experience has demonstrated that the spikes usually employed are insufficient to hold the rails in place when they are subjected to severe lateral strain and it has been found necessary to employ supplemental means for holding the rails in place, especially on curves where there is apt to be more lateral strain than at other portions of the track. Many of these devices have been complicated or expensive to manufacture and have not gone into extensive use.

According to my invention I provide efficient metallic ties which may be used in connection with the usual wooden ties or sleepers and which can be easily and cheaply manufactured by machinery and will thoroughly prevent displacement of the rails. As shown in Figs. 1 to 6 inclusive, the auxiliary tie is made in two pieces. One part, D, consists of a short metallic section having an up-turned or outer portion or jaw, d, adapted to engage the outer portion of the flange of the rail and to bear against the web thereof. The portion, d', extends beneath the rail and the inner end of this portion is formed with a downwardly projecting flange, d^2, which is adapted to interlock with the other part of the auxiliary tie. The plate is recessed or shouldered at d^3, to receive spikes which serve to hold the plate section firmly in

position. The part, E, of the tie, consists of a plate or bar having at one end a downwardly projecting U-shaped portion, e, with which the flange, d^2, is adapted to interlock, while the other end of the plate is adapted to extend under the opposite rail and is formed with an upwardly projecting portion or jaw, e', that embraces the outer base flange of the rail and rests against the web thereof. This portion of the tie is also recessed or shouldered at e^2, to accommodate spikes. A recess, F, is formed in the tie, A and in this recess is placed a metallic box, G, of the form shown in Fig. 6. This is to receive the interlocking ends of the tie sections.

In assembling the parts, a wooden tie or sleeper may be sunk or depressed slightly below the plane of the others, as indicated at X in Fig. 3. This need be only sufficient to allow of the parts of the tie being inserted laterally or sidewise over it. Inasmuch as the metallic tie sections need only be, say, one inch in thickness, it is obvious the sleeper need only be sunk to a slight extent to permit of the edgewise insertion of the auxiliary tie. The tie sections may be inserted endwise between the adjacent sleepers and then moved laterally or sidewise into place above the sunken sleeper, the tie section, D, being under one rail while the outer end of the tie section, E, is beneath the other rail. The jaw, d, will engage one rail in the manner illustrated in Fig. 1, while the upwardly projecting jaw, e', of the other section will engage the opposite rail. The joint of the two sections is received in the box, G, in the manner clearly indicated in Fig. 1. After the parts are thus placed, spikes, H, are driven in the recesses, d^3 and e^2, as indicated most clearly in Figs. 1 and 2. It will be observed that the heads of the spikes are driven against the bottom flanges of the rails and hold the rails down firmly upon the plates beneath them, while the spikes prevent any edgewise movement of the plates.

It is obvious that the parts of the auxiliary tie can be very easily manufactured by machinery and can be made tough and strong. They can be easily applied either to tracks when being originally laid or to tracks already constructed. In Fig. 7, I have shown the auxiliary tie as being formed in 3 parts. The part, D, is similiarly lettered in Figs. 1 to 5. The part, E, is interlocked with the part, D, in a similar manner, but at its opposite end it is interlocked at J with another jaw or bracing section, K, which is of slightly modified construction. This device is shown in perspective in Fig. 9. It consists of a flat central portion, k, that is arranged beneath the outer rail. An inwardly projecting portion, k', has a downwardly extending flange, k^2, which interlocks at J with the section, E. At its opposite or outer end, the plate, k, is formed with an upwardly and inwardly inclined portion, k^3, which is extended vertically at k^4, and lies against the outside of the web of the rail, B', to which it is bolted. Recesses or shoulders are formed at k^5, to receive spikes, L. Not only are the rails firmly tied together by these devices, but the outer rail is braced against tilting.

In Figs. 10 and 11, the construction is practically the same as that shown in Fig. 7, except that the portion, k^3, of the section, K, instead of being bent into engagement with the outer flange of the base of the rail is made to extend diagonally upward to the top of the web, where it is bolted. In this way the part, k^3, is made to resist more directly any tendency of the rail to tilt. In this case, also, it will be observed that the section, D, instead of being recessed in the manner shown in Fig. 4, at its outer end, is formed with a hole, h, which, when the blank is bent into the form shown in Fig. 13, provides a recess to receive a spike. In Figs. 14 and 15, a similar construction is shown, that is to say, the outer recesses, k^5, shown in Fig. 9, are replaced by holes, h', which produce recesses to receive spikes in the manner indicated. h^2 indicate holes to receive the bolts, h^3, for securing the part, K, to the web of the rail.

In Figs. 16, 17 and 18, I have shown a slightly modified way of bracing the outer rail. The construction is quite similar to that shown in Figs. 9 and 10, but in this case I have shown an additional spike, M, driven into the wooden tie and bearing against the outer edge of the brace. This affords additional security.

While I prefer to connect the jaws in the manner specified, in some cases, especially where the electric signaling devices include one or more of the rails in circuit, and where it is necessary to insulate the rails from each other, a direct metallic connection between the rails cannot be made, in which case I may employ the devices shown in Figs. 19, 20 and 21. The bracing jaw may be made from the blank, N, shown in Fig. 20 and as shown in Fig. 21 this blank comprises a central portion, n, having an inwardly projecting portion, n', formed with a downwardly projecting flange, n^2, which is adapted to enter a recess in the sleeper in the manner shown in Fig. 19. The portion, n', is perforated at n^3, to receive a lag screw or spike. At its opposite end, the part, n, is formed with an outwardly projecting portion, n^4, from which extends upwardly and inwardly a bracing portion, n^5, having a vertically arranged end, n^6, which is bolted to the web of the rail in the manner indicated in Fig. 19. Recesses providing shoulders at n^7, are formed to receive spikes, O, and an additional spike, P, may be driven in the manner indicated in Fig. 19. While I prefer to sink the joint of the tie sections into a recess in the sleeper in

the manner before described, the joint may be produced in the manner shown in Fig. 22 and disposed above the top of the sleeper.

In every instance, I have shown devices for bracing and connecting rails that are easy to manufacture by machinery and which may be made strong and durable and furthermore, any of these devices may be very easily applied. I have sought, also, while not omitting to provide the necessary strength, to avoid the use of unnecessary metal which would not only largely increase the expense, but which would be difficult to handle.

I claim as my invention:—

1. An auxiliary metallic tie for preventing rails from spreading, provided with jaws engaging the outsides of opposite rails and made in parts having an interlocking edgewise sliding connection.

2. A metallic tie for preventing rails from spreading, provided with jaws engaging the outsides of opposite rails and made in parts having an interlocking connection and which are formed near the jaws with recesses or shoulders to receive spikes for holding them in place.

3. The combination with a wooden tie or sleeper of an auxiliary metallic tie for preventing rails from spreading, provided with jaws for engaging the outsides of opposite rails and made in parts having an interlocking connection and provided with recesses forming shoulders and spikes driven into the sleeper at the shouldered portions of the jaws and the heads of which engage the flanges of the rails.

4. The combination of a wooden tie or sleeper having a recess in its upper surface and a metallic tie resting on the sleeper provided with jaws engaging the outsides of opposite rails and made in parts having an interlocking joint which is arranged in the recess of the sleeeper.

5. The combination of a wooden tie or sleeper having a recess in its upper surface, a metallic box in said recess, a tie section having a jaw engaging the outside of one rail, another tie section having a jaw engaging the outside of the opposite rail and an interlocking joint between the two sections arranged in said box.

6. The combination of a wooden tie or sleeper, a rail having a locking and a bracing jaw formed with a central portion arranged beneath the rail, an outer portion engaging the web of the rail, an inner portion provided with a downwardly projecting flange and formed also with recesses producing shoulders for spikes which are employed to secure the jaw to the sleeper.

In testimony whereof I have hereunto subscribed my name.

DANIEL P. McQUEEN.

Witnesses:
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JNO. L. HENNING, Jr.