H. T. McNEALE.

Tramway-Rail Fastening.

No. 218,550. **Patented Aug. 12, 1879.**

FIG:1.

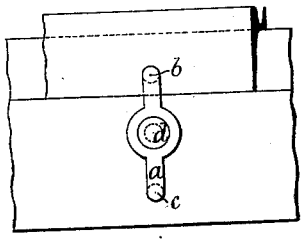


FIG:2.

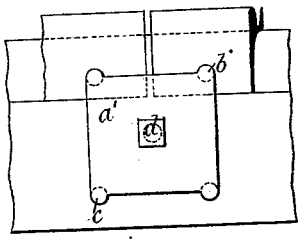


FIG:3.

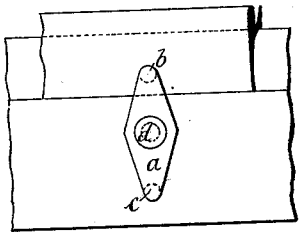


FIG:4.

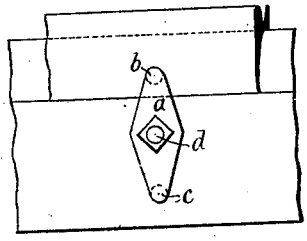


FIG:5.

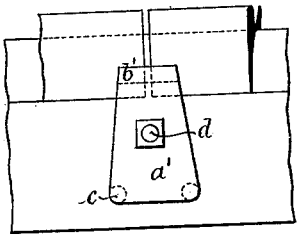


FIG:6.

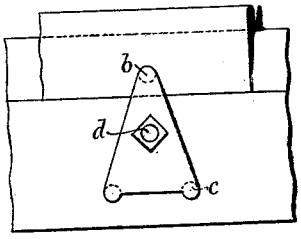


FIG:7.

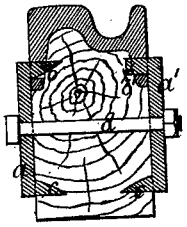


FIG:8.

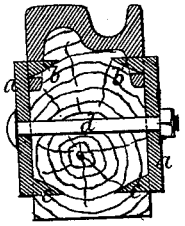


FIG:9.

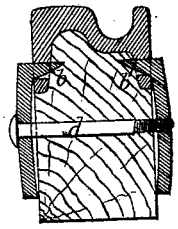


FIG:10.

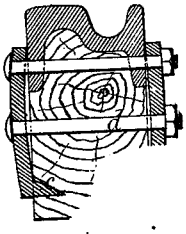


FIG:11

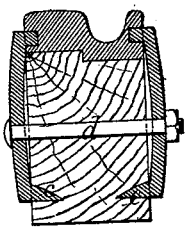
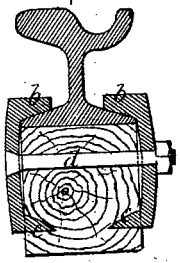


FIG:12



Witnesses
D. Howl
L. Bacon

Inventor.
Henry Thomas McNeale
by John J. Halsted
his attorney

UNITED STATES PATENT OFFICE.

HENRY T. McNEALE, OF LONDON, ENGLAND.

IMPROVEMENT IN TRAMWAY-RAIL FASTENINGS.

Specification forming part of Letters Patent No. **218,550**, dated August 12, 1879; application filed April 21, 1879; patented in England, November 20, 1878.

To all whom it may concern:

Be it known that I, HENRY THOMAS McNEALE, of London, England, temporarily residing in Paris, France, have invented certain new and useful Improvements in Means for Fastening Tramway-Rails to the Longitudinal Sleepers, and for connecting the separate rails together; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of this invention is to fix the rails firmly to the longitudinal sleepers on which they rest, and also to unite the ends of the separate rails with one another.

In order to more clearly indicate the nature of my invention, I will describe it in conjunction with the twelve figures of the accompanying drawings, in which—

Figures 1, 3, 4, and 6 represent longitudinal elevations of sections of rails and sleepers connected together by the new fastenings. Figs. 2 and 5 show the mode of connecting the ends of two rails with one another and with the sleeper. Figs. 7 and 8 are cross-sections of Figs. 4 and 3, respectively; and Figs. 9, 10, 11, and 12 are cross-sections, representing several modifications.

Similar letters of reference indicate corresponding parts in all the figures.

Referring to Figs. 1, 3, 4, 6, 7, and 8, *a* are the fastening-plates, arranged in pairs, one plate opposite the other, these pairs being placed at intervals along the rails. The connection of the parts is effected by projections *b*, extending inward from the upper part of the plates and penetrating into holes provided in the sides of the rails, as shown, and by claws *c*, which project from the lower part of the plates *a*, and are driven into the wood of the sleepers by pressure or by blows from a hammer. If desired, holes may previously be drilled into the sleepers at the proper places to admit these claws *c*.

Each pair of plates *a* is held firmly together and the connection rendered permanent by a bolt, *d*, which passes through both plates *a* and the wooden sleeper. The bolt *d* may be made either with a square, round, or countersunk head, and, if necessary, can be formed pear-shaped near the head, the plate having a corresponding hole, to prevent the turning of the bolt while the nut is being screwed up.

The projections *b* or the claws *c*, or both, are made tapering or inclined, as shown, whereby they may aid to draw the rail firmly down upon the sleeper, and in this manner produce a solid contact.

The plates *a* may be either flat, as shown in Figs. 7 and 8, or slightly curved, as is represented in the remaining cross-sections; or they may even be curved in the other direction, so that the concave side applies on the faces of the sleepers.

Fig. 9 shows plates *a*, in which the claws *c* are suppressed; and in Fig. 10 the projections *b* are replaced by a second bolt, which passes clear through from one plate to the other.

As will be seen by comparing Figs. 10, 11, and 12, these fastenings can be employed on any kind of tramway-rail—in the last example, Fig. 12, the projections *b* being made to lap over the lower flanges of the rail.

In Figs. 2 and 5, and at the right-hand side of Fig. 7, are represented joint-plates *a'*, acting as fish-plates to connect the ends of two rails together and also to hold them firmly upon the sleeper. The upper part of the plate shown in Fig. 2 is provided with two projections, *b*, which take hold of the ends of the two rails by penetrating into holes formed therein, similar to the above-described devices. The lower part of the plate carries two claws, *c*, penetrating into the sleeper. The plate *a'* (shown in Figs. 5 and 7) is formed at its upper end with a long projection, *b'*, which engages with slots formed in the ends of the rails, as shown. These joint-plates are also employed pairwise, and connected by a bolt passing through them, as described with reference to the plates *a*.

Other modifications may be made without departing from the principle of the invention.

The bolt which connects the plates *a* or *a'* may be screwed directly into one of the plates instead of employing a nut, as shown in Fig. 9.

The plates *a* may be formed with two or more projections, *b*, and claws *c*, &c.

I claim as my invention—

1. The combination, with the plates having short inclined projections or claws, of bolts extending through the sleeper and the plates, the combination serving, when the bolts are tightened to place, to draw the rail firmly down upon the sleeper, all substantially as shown and described.

2. The device described for connecting the ends of two rails to each other and to the sleeper, the same consisting of the plates *a'*, provided with the projections *b* or *b'* and claws *c c*, in combination with the cross-bolt *d* and its fastening device.

In witness whereof I have hereunto set my hand this 20th day of March, 1879, in the presence of two subscribing witnesses.

H. T. McNEALE.

Witnesses:

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