(No Model.) 2 Sheets—Sheet 1.

A. M. LEINWATHER.

PORTABLE RAILWAY SYSTEM.

No. 375,422. Patented Dec. 27, 1887.

Fig. 1.

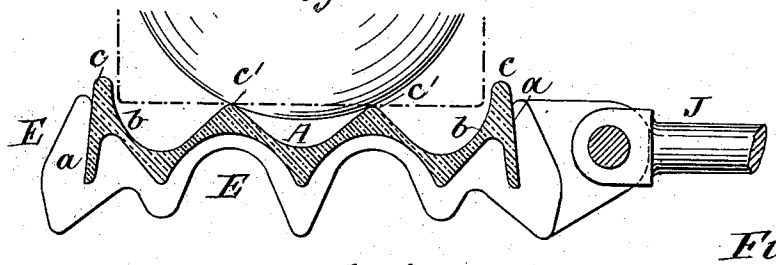


Fig. 2.

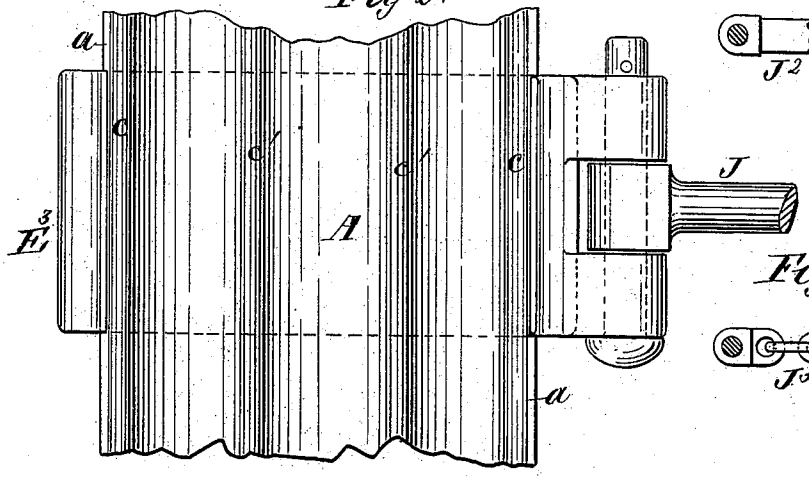


Fig. 3.

Fig. 4.

Fig. 5.

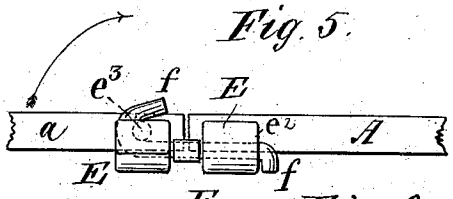


Fig. 6.

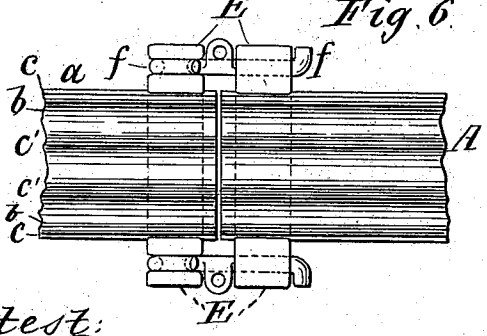


Fig. 7.

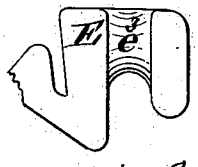
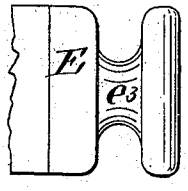


Fig. 8.



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(No Model.) 2 Sheets—Sheet 2.

A. M. LEINWATHER.

PORTABLE RAILWAY SYSTEM.

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Fig. 9.

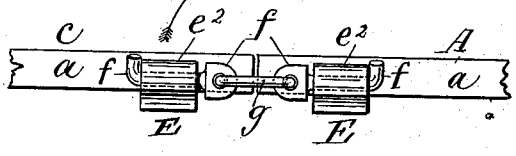


Fig. 11.

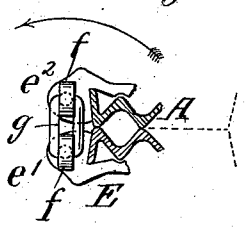


Fig. 10.

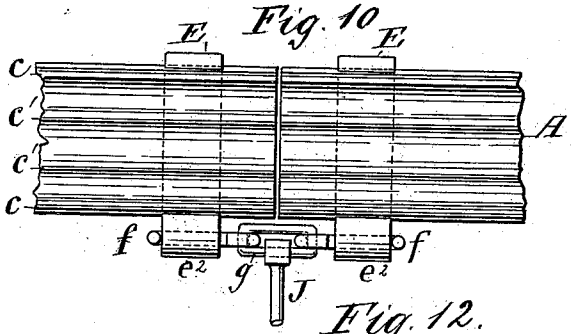


Fig. 12.

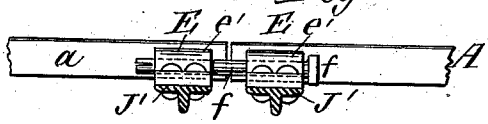


Fig. 14.

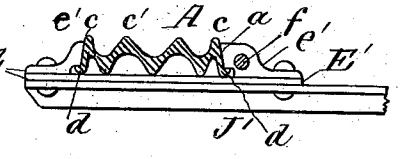


Fig. 13.

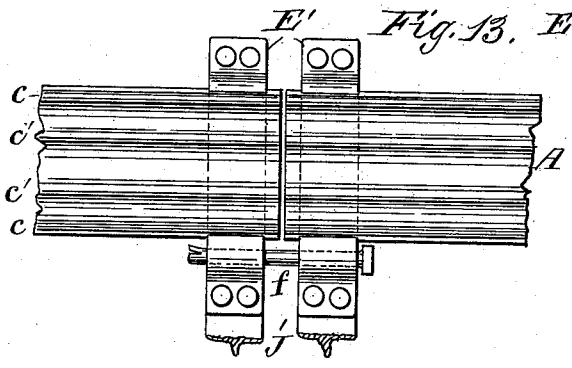


Fig. 15.

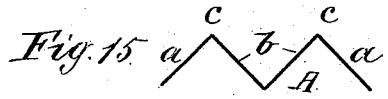


Fig. 16.

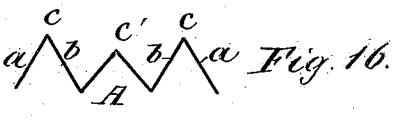


Fig. 17.

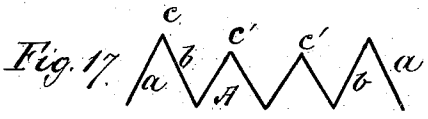


Fig. 18.

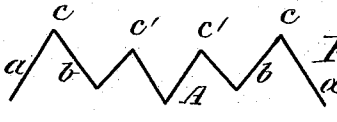


Fig. 19.

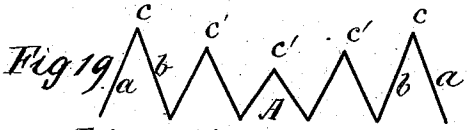
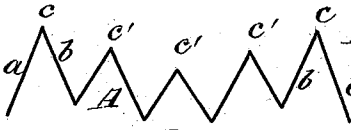


Fig. 20.



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UNITED STATES PATENT OFFICE.

ALOŸS MARY LEINWATHER, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR OF ONE-HALF TO HEINRICH GLASER, OF SAME PLACE.

PORTABLE RAILWAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 375,422, dated December 27, 1887.

Application filed August 6, 1887. Serial No. 246,323. (No model.) Patented in Belgium July 30, 1887, No. 78,264, and in France September 26, 1887, No. 183,171.

To all whom it may concern:

Be it known that I, ALOŸS M. LEINWATHER, engineer, subject of Austria, residing at Vienna, in the Province of Lower Austria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Portable Railway Systems, (for which Letters Patent have been obtained in France, No. 183,171, dated September 26, 1887, and in Belgium, No. 78,264, dated July 30, 1887;) 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Referring to the drawings, Figure 1 is a vertical transverse section of a portable railway or tramway rail constructed according to my invention. Fig. 2 is a top plan view of a portion of such a rail. Figs. 3 and 4 show portions of the connections between two rails. Fig. 5 is a side elevation of portions of two adjacent rail-sections, illustrating our mode of coupling the same together. Fig. 6 is a plan view of Fig. 5. Figs. 7 and 8 show inside elevation and top plan view, respectively, of the coupling end of one of the coupling devices. Figs. 9 and 10 are a side elevation and top plan view illustrating another form of coupling devices. Fig. 11 is a broken cross-sectional view of a portion of two adjacent rail-sections folded together with their coupling device, showing the latter in full lines. Figs. 12 and 13 are a side elevation and top plan view, respectively, of portions of two rail-sections, showing the coupling devices rigidly connected with the cross-ties. Fig. 14 is a cross-sectional view of the same. Figs. 15 to 20 are diagrams of cross-sections illustrating various constructions of the rails.

The invention relates to portable railway or tramway tracks, and has for its object to provide a light yet strong and durable track readily laid and dismembered or folded and capable of supporting comparatively heavy loads and adapted for wheeled vehicles or vehicles having spherical or rolling bearings or supports.

The invention consists in the peculiar construction of the rail itself and in the means for coupling the rail-sections together and for coupling or tying the two rails of the track, substantially as hereinafter fully described, and as set forth in the claims.

A indicates the rails, which are constructed with a series of diagonal or inclined braces, *a b*, forming a series of alternate longitudinal ribs and grooves or depressions upon the upper and lower sides of the rails. The number of the braces in the construction of the rails may vary; but each rail will have at least two edge braces, *a*, and two intermediate braces, *b*, as shown in Fig. 15. Between the ribs *c c*, formed by the diagonal or oblique braces *a a* and *b b*, any desired number of ribs may be formed.

In Fig. 16 I have shown one intermediate rib, *c'*, of less height than the ribs *c c*, which latter in this case form guide-flanges to guide the wheels or spheres of the vehicles that are to travel on the rails.

In Figs. 17 and 18 I have shown two intermediate ribs, *c'*, also of less height than the ribs *a a*, the intermediate ribs shown in Fig. 17 having the lower apices of the angles in the same plane, while the apices of the like angles of the intermediate ribs, Fig. 18, are alternately in different planes.

The same relative arrangement of the ribs *c'* described in reference to Figs. 17 and 18 is also shown in Figs. 19 and 20, the rail being composed in this instance of two outer ribs, *c*, and three intermediate ribs, *c'*.

In practice—that is to say, in the rolling of the rails—those portions thereof that sustain the greatest strain are suitably re-enforced, the rail A having in cross-section substantially the form shown in Fig. 1, and the edge braces, *a a*, may, if desired, be provided with foot-flanges *d*, as shown in Fig. 14, so as to give them a greater rigidity and solidity and a better bearing on their chairs.

The end or cross connection or coupling of the rail-sections may be effected in any desired manner and in many different ways. I have, however, provided couplings for these purposes that will be found very efficient.

The coupling for coupling the ends of two rail-sections consists of a chair, E, for each rail

end, which chair, as shown in Fig. 1, may have the form of the rail in cross-section, so that said rail will be firmly seated therein and held against lateral motion or displacement by the edge ribs of such chair. The ends of two rail-sections may also be rigidly connected to the chairs, and said chairs need not necessarily have the form of the rails in cross-section, as shown in Figs. 12, 13, and 14, in which I have shown a chair, E, consisting simply of a plate, E′, to which are bolted locking-dogs e', that clamp the foot-flanges d of the opposite lateral ribs a of the rail A. The chairs E at the end of two adjacent rail-sections may be rigidly connected, as shown in said Figs. 12, 13, and 14, in which case the locking-dog e' of each chair is provided with a bolt-hole for the passage of a bolt, f, one end of which may be bent over after being passed through the holes of the dogs, or said end may be split and spread when said bolts are passed through the dogs. On the other hand, the chairs E may be so connected together as to adapt two rail-sections to be folded one onto the other, so that a number of such sections properly folded may be loaded upon a vehicle and laid as the said vehicle is traveling along the track. This may be effected as shown in Figs. 9, 10, and 11, eyebolts f being employed, that pass through perforated bosses or ears e^2, formed on the chairs E, or through the perforations of the dogs e', hereinabove referred to, so that the heads of the bolts will face each other for connection by means of a chain-link, g. This may also be accomplished by the construction shown in Figs. 5, 6, 7, and 8, in which the coupling is a hinged one and so constructed as to adapt the rail-sections to be readily uncoupled. In this construction one of the chairs E is provided with a T-head, e^3, (shown in detail, Figs. 7 and 8,) and the other with a perforated boss or ear, e^2, the coupling-bolt f being bent around the throat of said T-head to form a pivot or hinge joint.

Two parallel rail-sections may be connected by means of ties J′, T-shaped in cross-section, to which the chairs E are bolted, as shown in Figs. 12, 13, and 14; or said sections may be coupled together by means of tie-rods J, pivoted to the chain-links g, as shown in Fig. 10, or flat tie-bars J^2, set upon edge, may be used for this purpose, as shown in Fig. 3, or a chain, J^3, as shown in Fig. 4. Finally, the rail-sections may be supported from any desired number of intermediate chairs, E, and the parallel sections connected together by any of the means heretofore described.

In Figs. 1 and 2 I have shown such intermediate chairs, which are provided with perforated ears for connecting two proximate chairs of parallel rail-sections. In said Fig. 1 I have shown in dotted lines a portion of the tire of a vehicle-wheel traveling on my improved portable track, and in full lines a portion of a spherical propeller for such vehicle. It will be seen that in either case the vehicle is held against derailment under all ordinary conditions and speed of travel, and that the construction of the rail is such as to enable it to resist comparatively great strains from heavy loads.

Having described my invention, what I claim is—

1. The herein-described rail having in cross-section two lateral ribs, c, and intermediate ribs, c', the latter being of different elevations to adapt the same to form successive points of contact with and to conform to the spherical surface of a body traveling over said rail.

2. The herein-described rail, having in cross-section two lateral ribs, c, and one or more like intermediate ribs, c', said lateral ribs being provided with a foot-flange, substantially as and for the purposes specified.

3. In a portable railway or tramway, the combination, with the rail A, of a chair constructed to conform to and fit beneath the under face of the rail and having in cross-section approximately the form of the rail, as described.

4. In a portable railway or tramway, the combination, with the rail A, of a chair constructed to conform to the under face of the rail and provided with end flanges projecting over the outer faces of the lateral ribs c of the rail, substantially as and for the purpose specified.

5. In a portable railway or tramway, the combination, with the rail A, of a chair, E, constructed to conform to the under face of the rail and encompass a portion of the outer face of the lateral ribs c thereof, and a coupling for coupling two such chairs together to connect the ends of two rail-sections, substantially as and for the purpose specified.

6. In a portable railway or tramway, the combination, with the rail A, of a chair, E, constructed to conform to the under face of the rail and encompass a portion of the outer face of the lateral ribs c thereof, and a hinged or pivoted coupling for coupling two chairs together to connect the ends of two rail-sections and adapt said sections to be folded together, substantially as and for the purpose specified.

7. In a portable railway or tramway, the combination, with the rail A, of a chair, E, constructed to conform to the under face of the rail and encompass a portion of the outer face of the lateral ribs c thereof, a coupling for coupling two chairs together to connect the ends of two rails, and a tie connected to said coupling to tie two parallel rail-sections together, substantially as and for the purpose specified.

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

ALOŸS MARY LEINWATHER.

Witnesses:
ROBT. M. HOOPER,
JOS. B. BOURNE.