

T. E. ALLISON.  
Portable Railway.

No. 218,360.

Patented Aug. 12, 1879.

Fig. 1.

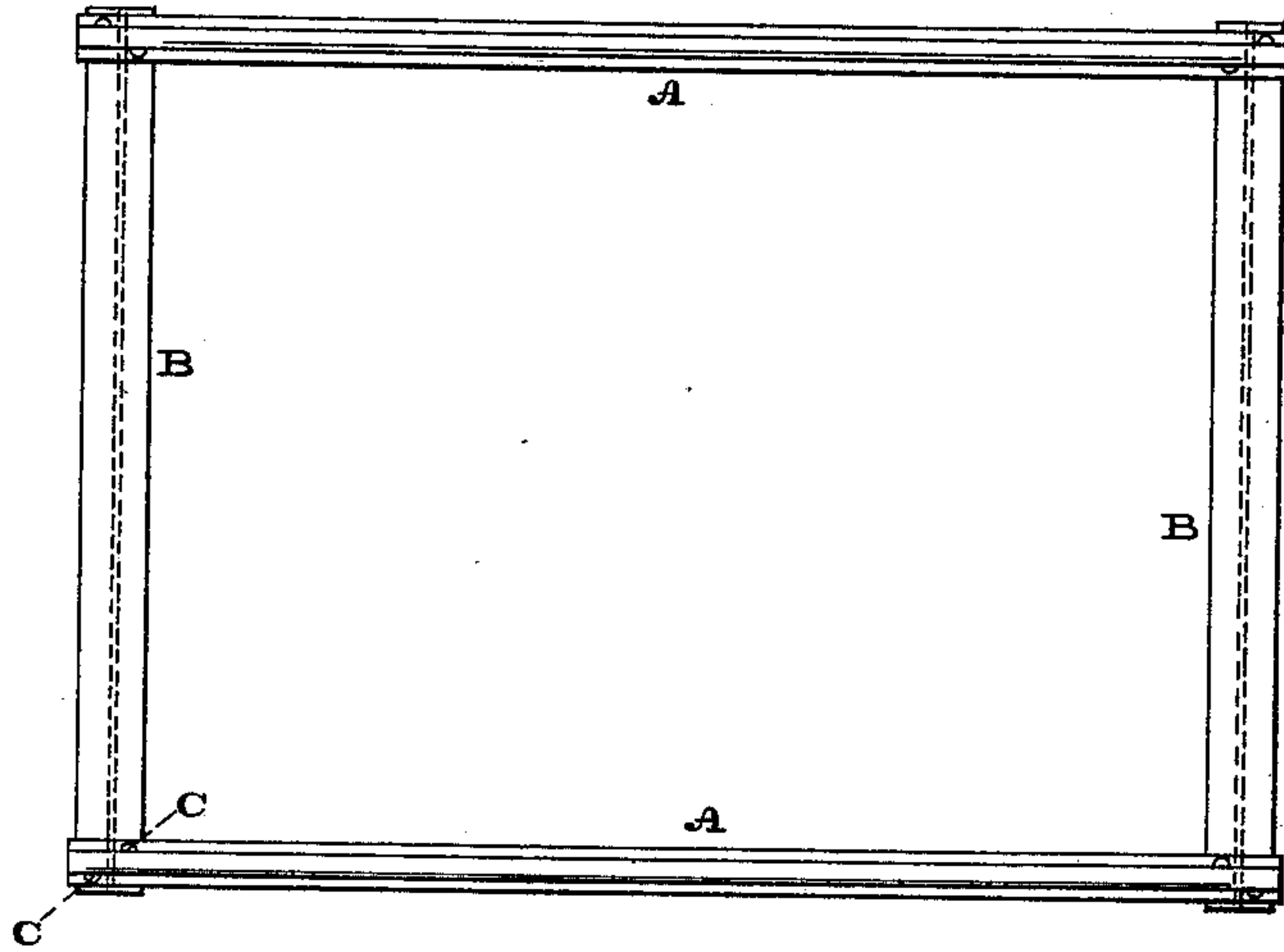


Fig. 2.

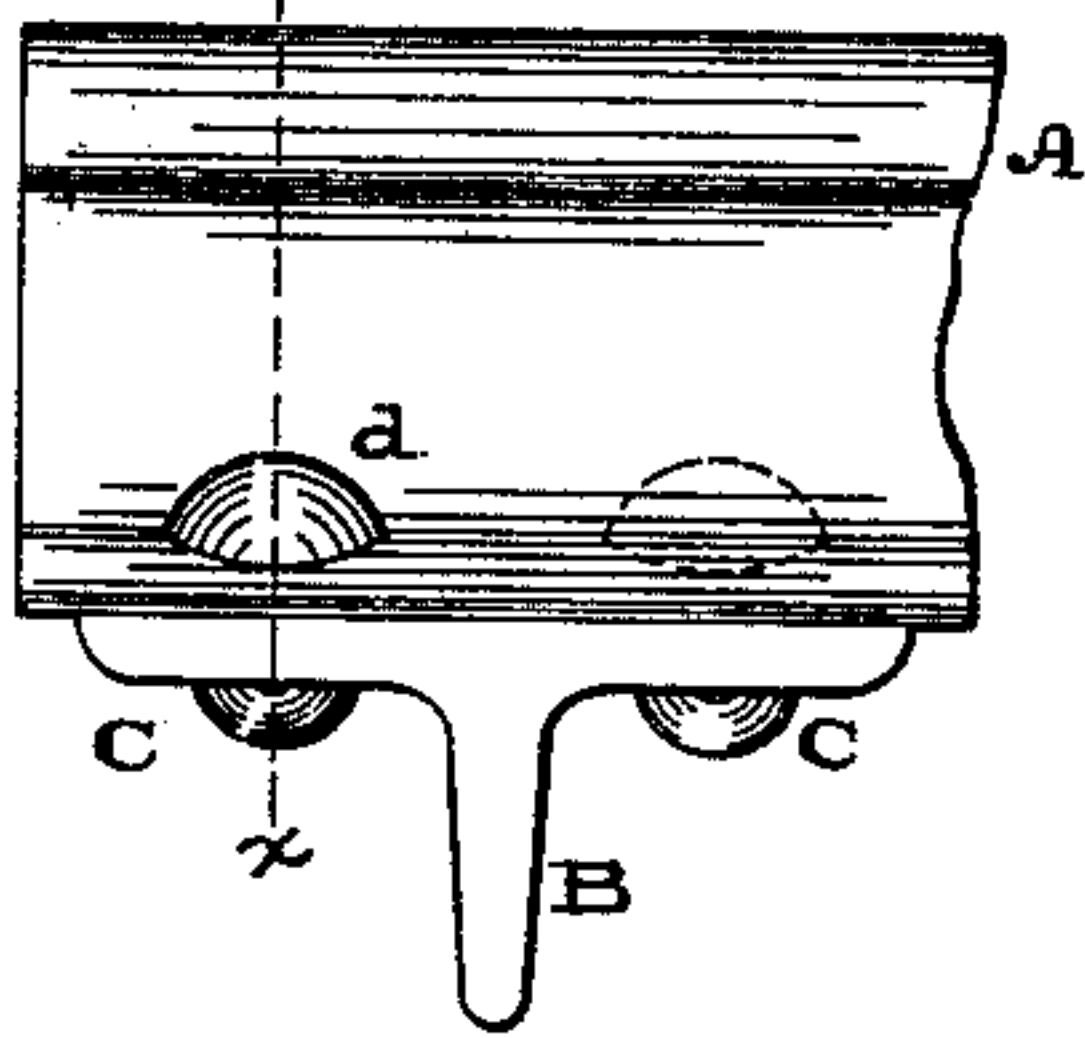


Fig. 3.

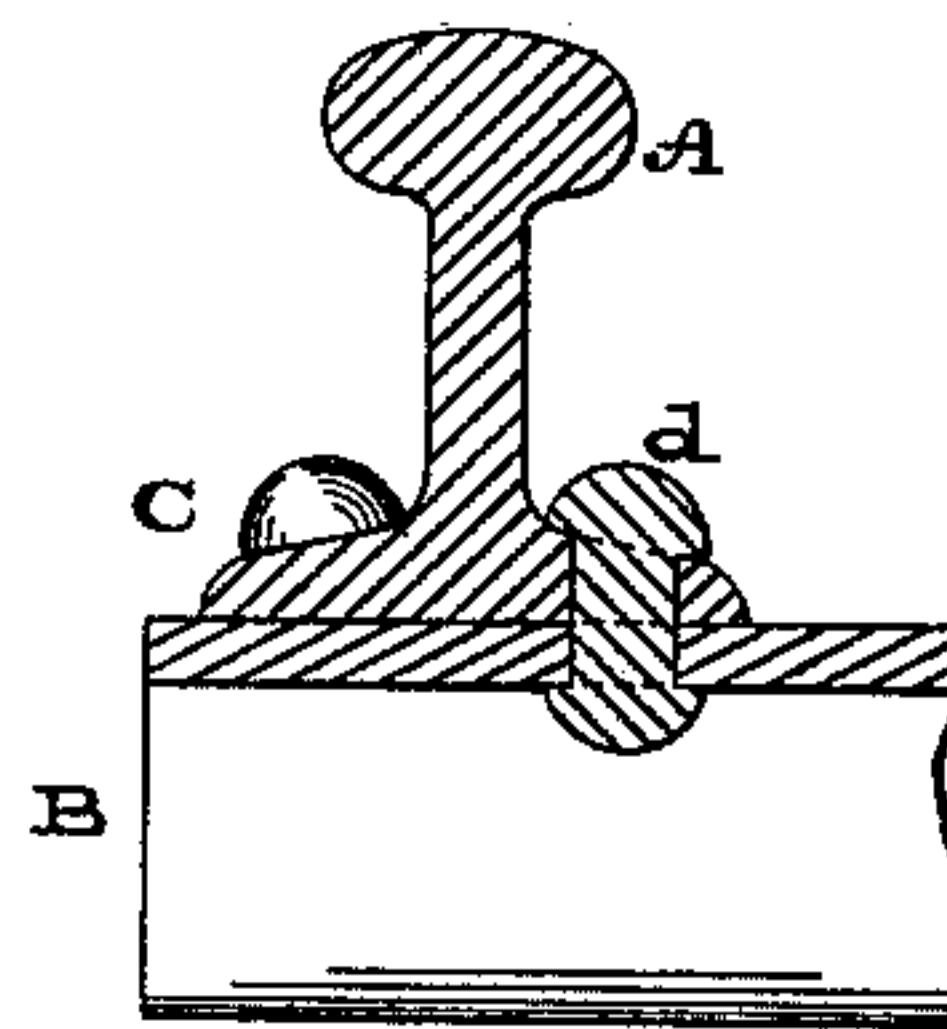


Fig. 5.

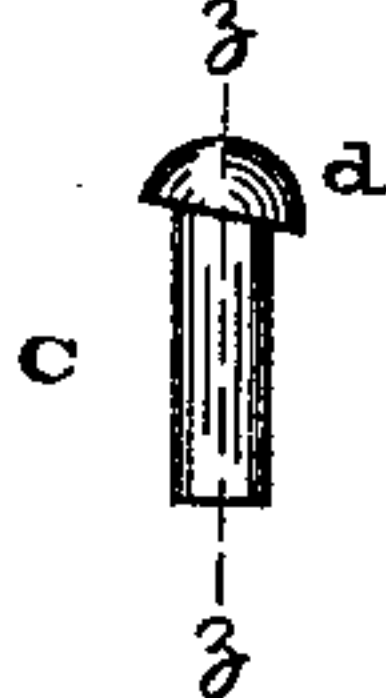


Fig. 7.



Fig. 6.

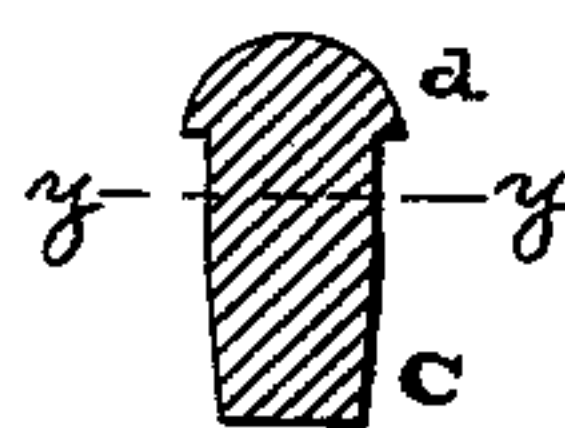
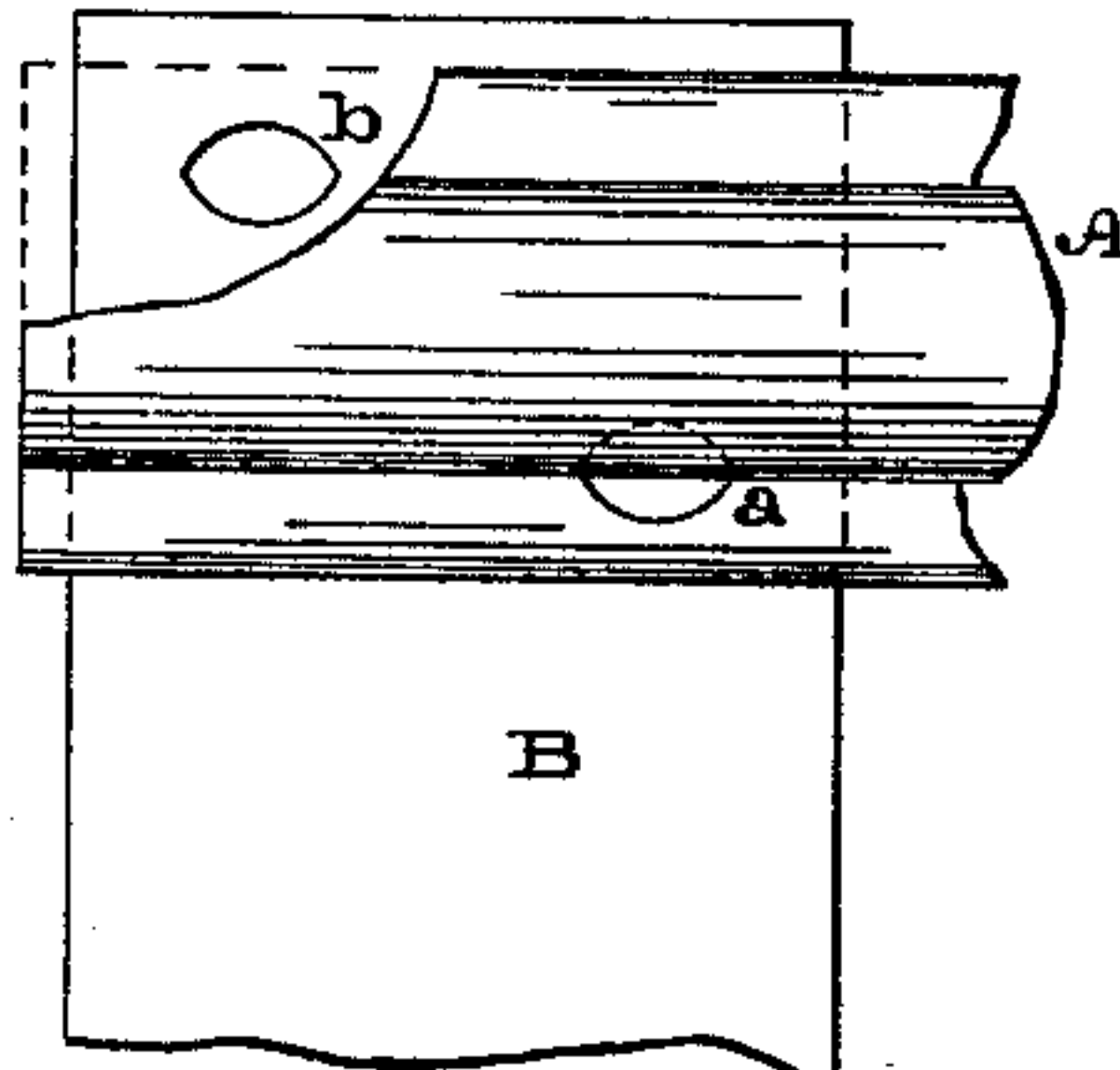


Fig. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PORTABLE RAILWAYS.

Specification forming part of Letters Patent No. **218,360**, dated August 12, 1879; application filed June 28, 1879.

*To all whom it may concern:*

Be it known that I, T. ELLWOOD ALLISON, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Portable Railways, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a top or plan view of a section of a portable railway embodying my invention. Fig. 2 is a side view of a portion thereof. Fig. 3 is a vertical section in line *x x*, Fig. 2. Fig. 4 is a plan view of a portion thereof. Fig. 5 is a side elevation of one of the rivets employed. Fig. 6 is a vertical section thereof in line *z z*, Fig. 5. Fig. 7 is a horizontal section in line *y y*, Fig. 6.

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

My invention consists in uniting the rails and cross-ties by means of rivets which are elliptical in cross-section, whereby the rivets are prevented from turning, angles are avoided thereon and in the openings therefor in the rails and cross-ties, and they possess the greatest metal in the direction of the strain and jars, thus producing great strength in the connection of the rails and cross-ties.

It also consists in the combination, with the rails and cross-ties, of rivets which are elliptical in cross-section, and have the under side of their heads inclined so as to accord with the shape of the upper face of the base of the rail, so that no space exists between the heads and base, whereby when the rivets are headed they firmly clamp the parts, and permit no play between them, and the durability and service of the rivets are increased.

Referring to the drawings, A represents the rails, and B the cross-ties, which are riveted together, and form sections of a portable railway, the ties being formed of inverted T-iron, so that the ribs or vertical limbs rest on or in the earth.

C represents the rivets employed for connecting the rails and ties, and they are passed through openings *a* in the base of the rails and openings *b* in the cross-ties, and "headed," so as to firmly unite the parts.

The rivets in cross-section and the openings *a b* are elliptical, whereby the greatest amount of metal is in the direction of the thrust, strain, or longitudinal jars of the rails, the rivets are prevented from turning, and the rivets and the openings present no angles which may be cut by the tendency of angular rivets to turn, by which means the rivets possess great strength, the bases of the rails and cross-ties are not materially weakened, and the connection of parts is firm and reliable.

The under side of the head *d* of each rivet is set at an angle, so as to accord with the angle of the upper face of the base of the rail, (see more particularly Fig. 3,) whereby when the rivet is inserted in position its inclined head rests flat against the base, and when the rivet is headed there is no space left for play between head and base due to the wear of the parts, and thus the latter remain firmly connected, and the durability and service of the rivets are increased. Furthermore, the head of the rivet projects from or overhangs the shank on all sides, and thus has a bearing on the base entirely around the wall of the opening in the base, thus also increasing the service of the rivet.

It will be found that the sections of the railway are strong, stiff, and durable.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The rails A, having elliptical openings *a*, and the cross-ties B, having elliptical openings *b*, in combination with the rivets C, elliptical in cross-section, substantially as and for the purpose set forth.

2. The rails A and ties B, in combination with the rivets C, elliptical in cross-section, and having heads *d*, inclined on their under sides, forming together an improvement in portable railways, all as set forth.

T. E. ALLISON.

Witnesses:

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