

MARIA L. GHIRARDINI.
 Rails for Street Railways.

No. 141,217.

Patented July 29, 1873.

Fig. 1.

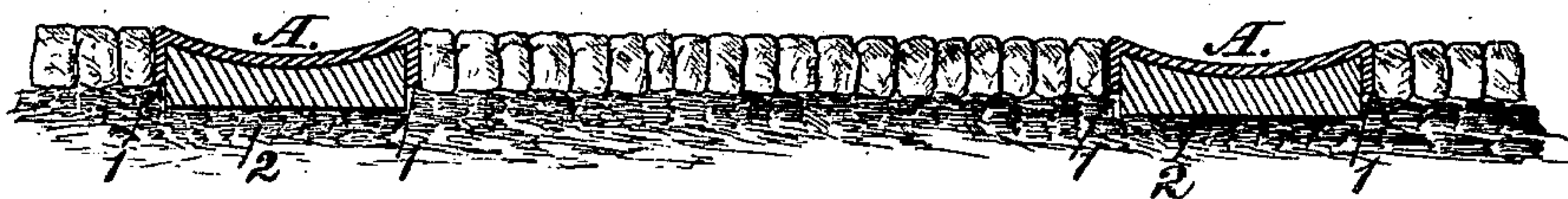


Fig. 2.

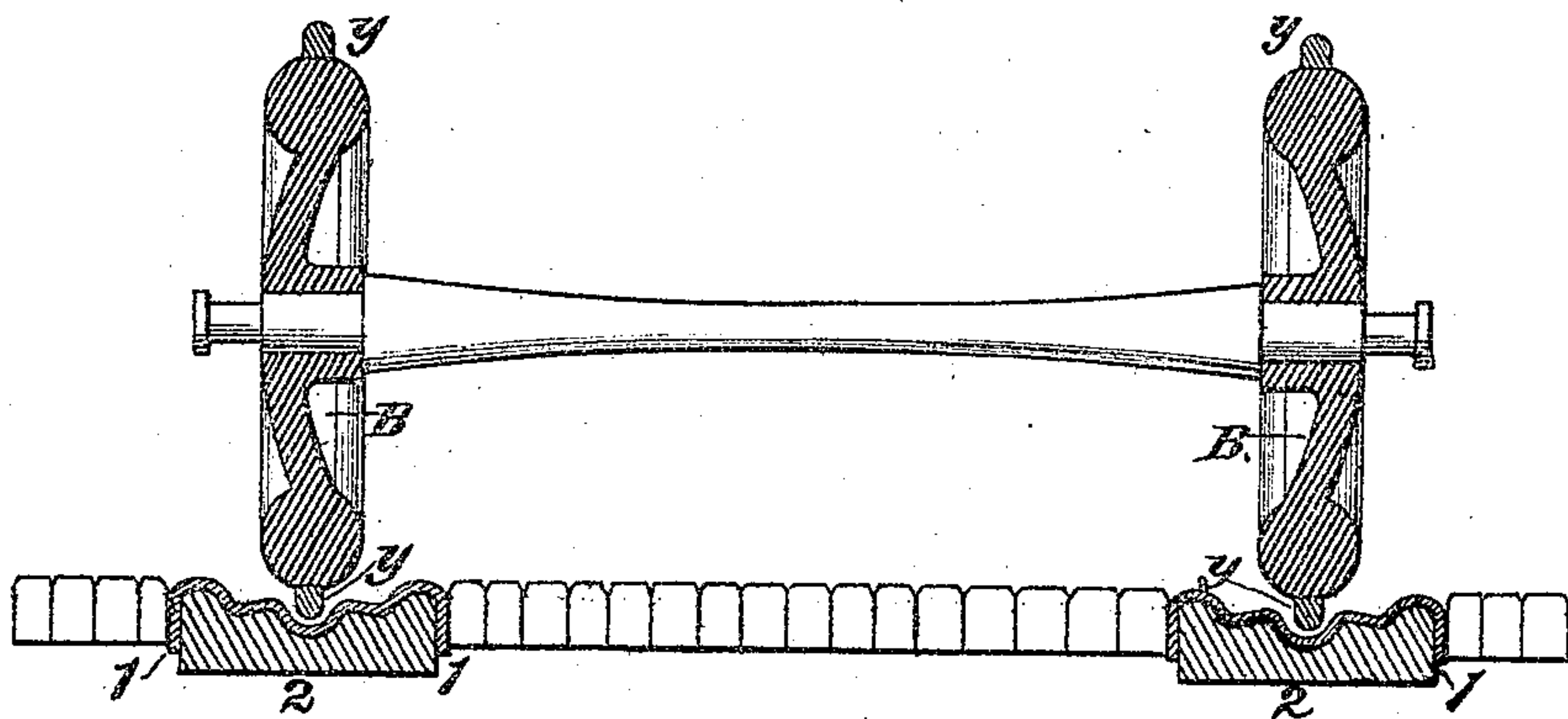


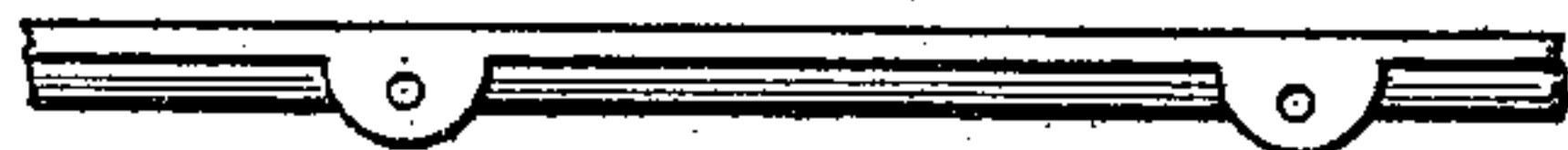
Fig. 3.



Fig. 4.



Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

MARIA L. GHIRARDINI, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN RAILS FOR STREET RAILWAYS.

Specification forming part of Letters Patent No. **141,217**, dated July 29, 1873; application filed May 17, 1873.

To all whom it may concern:

Be it known that I, MARIA L. GHIRARDINI, of Providence, in the State of Rhode Island, have invented Improvements in Rails for Street Railways and Car-Wheels adapted for the same, of which the following is a specification:

My invention relates to a novel construction of rails for street railways, adapted for many varieties of wheels, but more especially for a novel construction of wheel having an edge bearing only upon the track, and for which I am about to apply for independent Letters Patent, a type of such wheel being illustrated in Fig. 2.

I make my rail of steel or thin iron, so that it may have a yielding or elastic action under the pressure of the car and its load, and also give its upper face a simple or complex concave form in cross-section suited for a wheel made without side flanges, and thus, preferably, having but one bearing-surface on the rail, or the least possible contact, and that as nearly as possible in one direction only, thus reducing the friction to the minimum. The rail I lay so that its highest lines shall be about flush with the roadway, and its inner and outer edges of equal elevation, thus offering the least possible obstruction to the ordinary travel of carriages, cars, and other vehicles upon or across the roadway.

In the drawings, Figure 1 represents a cross-section of one style of track made in accordance with my invention; and Figs. 2, 3, and 4, other forms or modifications thereof; Fig. 2 also showing a pair of wheels adapted to run thereon.

The rail A, it will be seen, is not heavy and unyielding, as is ordinarily the case, but, instead, is cut or otherwise prepared from thin metal, preferably of steel, and has downward-projecting sides 1, which embrace the wooden or other bed-rail or sleeper 2, upon which it is sustained, and to which it is secured by nails, bolts, or any other appropriate means, the sleeper 2 having a concave on its upper face to receive the concave part of the rail.

Another peculiarity of my track is that I can make the turn-outs substantially the same as the other parts of the track, merely curving the track of the turn-out as desired, no switches

being required, each track running into the other continuously and without essential or abrupt break; and my wheel will readily run from one track into another without impediment, jar, or noise. The outer edge of the outer rail in the turn-outs may be laid higher or made higher than the inner, if required.

In the rail shown in Fig. 3 the same general principle prevails as in Fig. 1, the main difference being that I employ a series of parallel concaves, in any one of which the wheel may run; but, as before, having but one bearing-surface, or the least practicable contact. An advantage of this form of construction is that if the wheel should get forced out of one of the concaves or grooves of the track it will readily fall into the next, and then run on without obstruction. The facilities for getting back into the track, in case the car should by any accident run off, are the same in this case as in that of the track with the single concave, inasmuch as each side of the rail is of equal elevation and about flush with the roadway.

The grooves in this track need not be all alike; the center one may be the deepest, as in Fig. 2, those on each side of it less deep, and so on for any number of grooves in each rail, the essential condition required being simply that, when properly running, the wheel shall have but one bearing-surface in its contact with the rail. It is evident, also, that on each side of a central groove the rail may be nearly level instead of grooved, and then have another rise, and then similar level spaces. Such a construction is shown in Fig. 2, while in Fig. 3 the grooves or concaves are all of about equal depths, they may, however, be of unequal breadths; the broadest being either the center or not, as preferred.

Fig. 4 is an enlarged view of the track in cross-section, showing how the rail, of whichever described form, may rest in the sleeper or bed, and so as to allow a spring or yield due to the mode of laying it. In such case I should not fasten the rails to the bed or track by bolts through their upper surface, but, on the contrary, should drive them through their sides, as shown in said figure. Indeed, this mode of fastening may be applied to all my rails which turn down over the bed; and thus

may be avoided the possibility of the heads of the bolts or spikes rising above the rails and obstructing the free movement of the wheel—an inconvenience of daily occurrence with common rails as now laid.

Instead of such fastening by bolts or spikes, the rail, especially that shown in Fig. 4, may be secured to its bed by means of rods connecting the two opposite sides of the rail, which should be deep enough for that purpose, and having a nut on one end and a head on the other.

With these modes of fastening the rails may be provided with ears, as shown in Fig. 5, to receive the rods or spikes, and this will give a better hold, while less steel would be required to make the rail.

I do not claim elevated railways made of corrugated iron, nor wheels with a peripheral rib, the wheel bearing upon the rail on both sides of such rib; but

What I claim as my improvements in street railroads is—

A concave thin metal rail, substantially such as described and shown, provided with downward-projecting sides spanning a wooden bed, to which it is secured by means of bolts or spikes passing through such sides.

MARIA L. GHIRARDINI.

Witnesses:

ROYAL LEE,

CHAS. M. READ.