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PATENTED OCT. 23, 1906.

J. THOMPSON.  
GRAVITATION RAILROAD.  
APPLICATION FILED APR. 2, 1906.

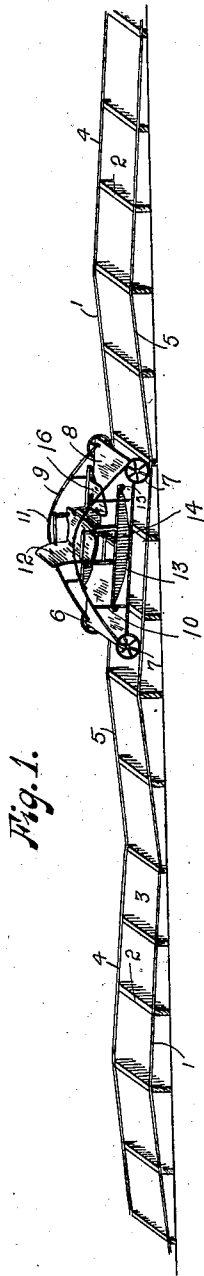


Fig. 1.

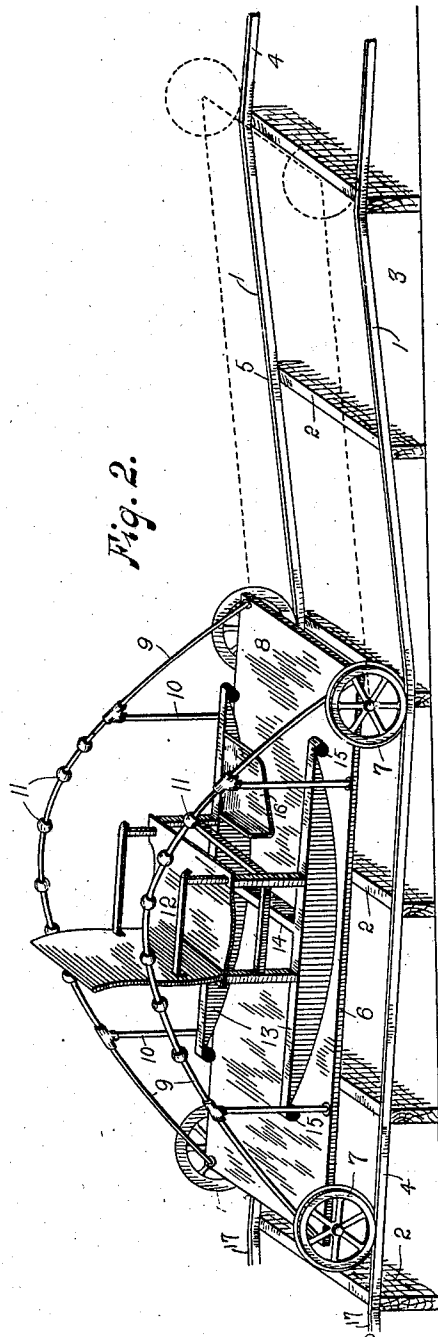


Fig. 2.

Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOSEPH THOMPSON, OF OAKLAND, CALIFORNIA.

## GRAVITATION-RAILROAD.

No. 833,762.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed April 2, 1906. Serial No. 309,558.

*To all whom it may concern:*

Be it known that I, JOSEPH THOMPSON, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Gravitation-Railroads, of which the following is a specification.

This invention relates to a gravitation-railroad, the object of the invention being to provide a railroad so constructed that a suitable car can be propelled along said railroad with very slight exertion.

The railroad may be made in a circular or other closed-curve form to provide amusement, or it may be used as a convenient means of communication between distant points.

In the accompanying drawings, Figure 1 is a perspective view of the railroad and a car used in connection therewith. Fig. 2 is an enlarged view similar to Fig. 1, but showing a smaller part of the railroad, together with the car.

Referring to the drawings, 1 represents rails parallel with each other to form a track. These rails are supported by ties 2 upon a roadbed 3, and instead of being laid on said roadbed level, or as near so as the nature of the ground permits, they are arranged to provide a succession of upward and downward inclines. Of these the downward inclines 4 are slightly longer than the upward inclines 5. Upon said rails is mounted a car 6, the wheels 7 of which are preferably flanged to run more securely upon the rails. This car comprises a base or floor 8, connecting the axles of the wheels, and curved bars 9, extending above the base and connected with the ends thereof and also connected with the base by the ties 10. These bars are provided at suitable intervals with rings 11, secured thereon, for the purpose hereinafter specified.

Upon the base of the car is a rocking-chair 12, having the rockers 13 connected centrally by the beam 14. The ends of the rockers are provided with rubber bosses 15 to form stops for said rockers. To the inner side of one of the rockers is secured a foot-rest 16.

At the commencement of the track the rails may be made level for a short distance, as shown at 17, to enable the car to acquire a sufficient momentum.

The operation of the apparatus is as follows: The rider having seated himself in the chair at a point where the front wheels are

lower than the rear wheels, the car descends, gaining momentum, until the front wheels arrive at the upward incline while the rear wheels are still upon the downward incline. On arriving at this point the rider rocks the chair backward, and thus throws as much of his weight as possible on the rear wheels, causing the downward acceleration of the rear end to overcome the retardation of the front end. He remains in this position until the front wheels arrive at and pass over the top of the upward incline, and it will be observed that the length of the car is such that it will pass over this point before the rear wheels have begun to travel up the upwardly-inclined rails. The rider now throws his weight forward on the front wheels as much as necessary, removing it from the rear wheels, and this, together with the momentum already acquired, is sufficient to carry him over the top of the incline to the next descent.

It is well known that but for friction the momentum acquired by a downwardly-moving body is sufficient to carry it upward again to a height equal to that from which it fell. Hence the only exertion the rider has to make is that necessary to overcome the friction at different points, and as this is very slight a small exertion upon the part of the rider properly timed will enable him to overcome this friction, so as to bring the car to the top of each incline and to the same height from which it descended. It will be understood that the dimensions will be such that the time occupied in the natural swing of the rocker corresponds with that required to pass from the top of the incline to the next.

The foot-rest 16 facilitates the rocking of the chair, as the rider can thereby press on the foot which is on the base of the car to rock backward and then on the foot which is on the foot-rest 16 to rock forward. The hand-rail 9 may also be used to facilitate the rocking.

It will be understood that variations in form and arrangement may be made in this apparatus without departing from the spirit of my invention. Thus the car may be used to seat several persons instead of one or the support for the rider may be suspended from the car and hang below the rail instead of being above the same.

It will be observed that the construction is such that the car can be restarted at whatever part of the track it has stopped, as should

it stop in the position shown in dotted lines of Fig. 2 the front wheels will be over the highest point, so that by imparting momentum to the car by rocking forward the car can be started from that point.

I claim—

1. In combination with a railroad having a succession of alternately upwardly and downwardly inclined portions, the upwardly-inclined portions, being shorter than the downwardly-inclined, a car on said railroad, and means for assisting a person carried by said car to oscillate in the direction of the railroad, substantially as described.

2. In combination with a railroad having a succession of alternately upwardly and downwardly inclined portions, the upwardly-inclined portions, being shorter than the downwardly inclined, a car on said railroad, the distance between the front and rear axles being greater than one of the upwardly-inclined portions of the railroad, and means for assisting a person carried by said car to oscillate in the direction of the railroad, substantially as described.

3. In combination with a railroad having a succession of alternately upwardly and downwardly inclined portions, the upwardly-

inclined portions, of uniform length, being shorter than the downwardly inclined, also of uniform length, a car on said railroad, and means for assisting a person carried by said car to oscillate in the direction of the railroad, substantially as described.

4. In combination with a railroad having a succession of alternately upwardly and downwardly inclined portions, the upwardly-inclined portions, being shorter than the downwardly inclined, a car on said railroad, and a rocking chair on said car, substantially as described.

5. In combination with a railroad having a succession of alternately upwardly and downwardly inclined portions, the upwardly-inclined portions, being shorter than the downwardly inclined, a car on said railroad, a rocking-chair on said car, and means for assisting a person seated in said chair to rock the chair, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOS. THOMPSON

Witnesses:

BESSIE GORFINKEL,  
F. M. WRIGHT.