No. 676,193. Patented June 11, 1901.

# W. M. LEASE.

## PLEASURE RAILWAY.

(Application filed Jan. 31, 1901.)

(No Model.) 2 Sheets—Sheet 1.

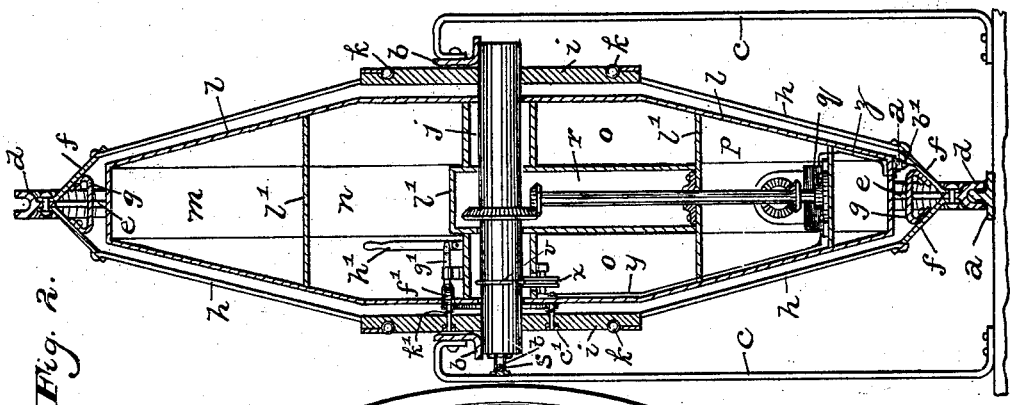

Fig. 2.

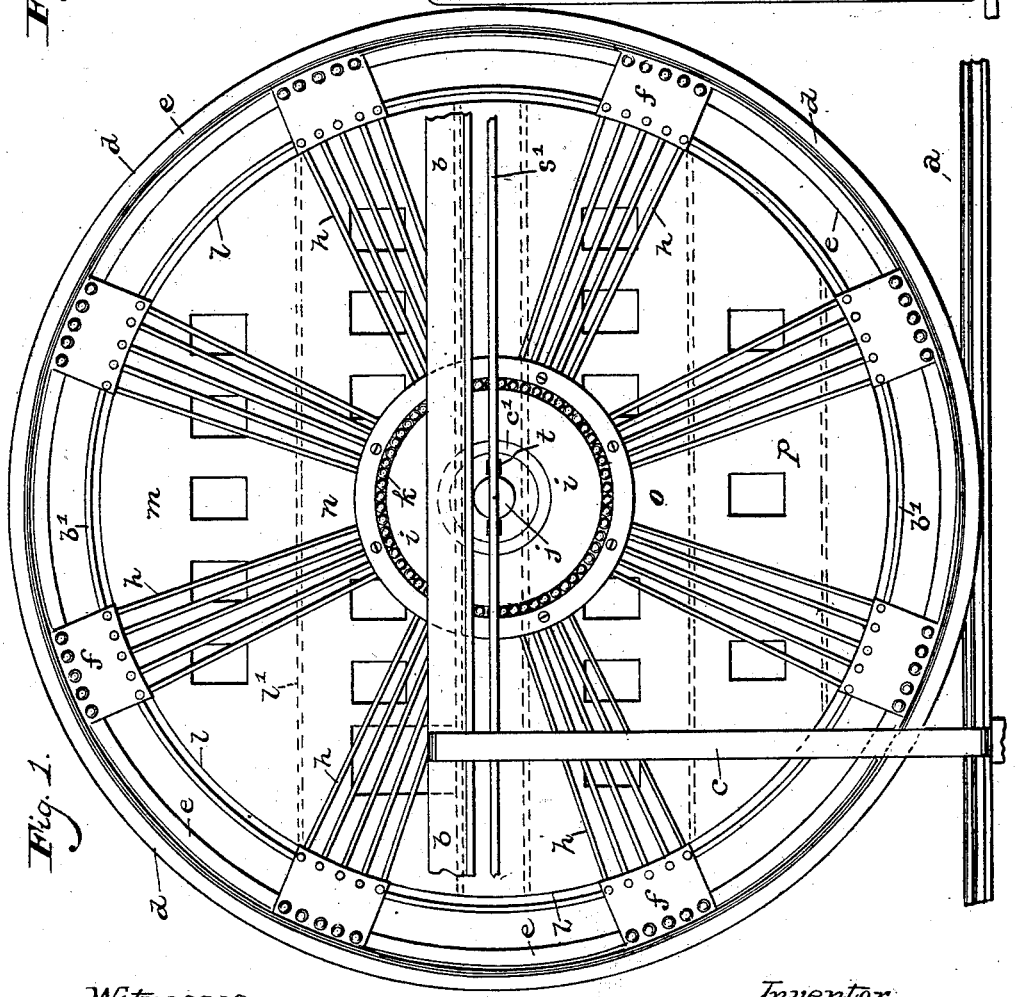

Fig. 1.

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Fig. 4.

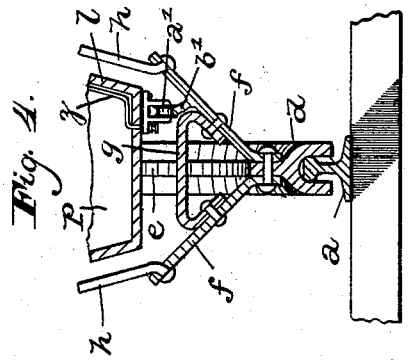


Fig. 5.

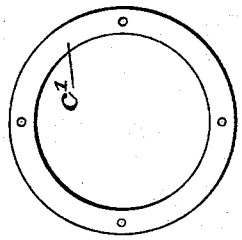


Fig. 6.

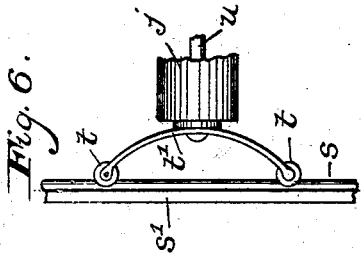
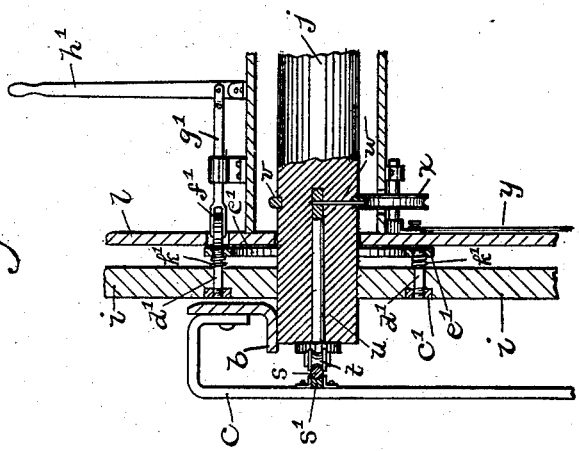


Fig. 3.



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# UNITED STATES PATENT OFFICE.

WILLIAM M. LEASE, OF BALTIMORE, MARYLAND.

## PLEASURE-RAILWAY.

SPECIFICATION forming part of Letters Patent No. 676,193, dated June 11, 1901.

Application filed January 31, 1901. Serial No. 45,430. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. LEASE, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification.

This invention relates to means for the transportation of freight or passengers from place to place; and its object is to provide a novel construction of monocycle car movable upon a single rail and comprising a suitably-large wheel within which is suspended the car-body and motor for driving the wheel.

The invention consists in certain constructions and arrangements of the parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the monocycle car and rail. Fig. 2 is a vertical cross-section thereof. Fig. 3 is an enlarged sectional view illustrating the means for introducing an electric current into the car for driving the same and also illustrating the brake mechanism. Fig. 4 is an enlarged sectional view illustrating the construction of the rim of the car-wheel. Fig. 5 is a detail face view of the brake-band. Fig. 6 is a detail plan view of the trolley-harp.

Broadly considered, my invention comprises a large wheel mounted to roll upon a single bearing-rail and between two guide-rails above and one on each side of said bearing-rail, a car-body suspended within said wheel on the axle thereof, so that the car will not turn with the wheel but will maintain its equilibrium as the wheel rolls along, and a motor device also within the wheel and arranged to drive the wheel along the bearing-rail.

The track for the improved car is preferably an elevated structure provided with a single horizontal bearing-rail *a*, on which the rim of the monocycle is mounted, and two horizontal guide-rails *b*, one at each side of the monocycle, as shown in cross-section in Fig. 2, supported a suitable distance above the bearing-rail by standards or braces *c*.

The wheel of the car is provided with a circular grooved rim *d*, which fits on the bearing-rail *a* and has an inwardly-extending flange *e*. Spoke-attaching plates *f* are riveted, preferably in pairs, to opposite sides of the said flange *e* and at intervals around the latter and from the flange extend outwardly in an oblique direction toward the hub *i* of the wheel, being strengthened by transverse braces *g*, and sets of spokes *h* have one end secured to said plates, with their other ends secured to the two circular hub-plates *i*.

Rigidly secured to the two hub-plates *i* of the wheel is the axle *j*, whose projecting ends are beneath the guide-rails *b*, whereby the wheel is prevented from jumping the track, and a circular row of antifriction-balls *k* is mounted in the outer face of each hub-plate, so that the balls will bear against the inner surface of the guide-rails to reduce the friction between the latter and the sides of the wheel and guide the wheel in a vertical position.

Loosely suspended on the axle *j* of the wheel, so as to always maintain its equilibrium or upright position, is the car-body structure *l*, which is divided by horizontal floors *l'* into several superposed rooms or compartments *m*, *n*, *o*, and *p*. The upper compartment *m* and two middle compartments *n* and *o* are intended for the reception of passengers or freight, and the lowermost compartment *p* is intended for the motor or other driving mechanism and ballast. In the present instance the lowermost compartment *p* contains an electric motor *q*, which is connected by bevel-gearing and the vertical shaft *r* with the axle *j*, so that the axle will be driven and turn the wheel when the motor is operated. To connect said motor with an electric current, I have provided a trolley-wire *s*, secured to a horizontal rigid support *s'*, which is sustained by the vertical braces *c* at one side of the wheel, as shown in Figs. 1 and 2. Bearing laterally against said trolley-wire *s* are two trolley-wheels *t*, mounted on a trolley-harp *t'*, of spring metal, and pivotally mounted on a metallic rod *u*, secured in one end of the axle *j*. A conducting-collar *v* is rigidly secured around said axle, as shown in Figs. 2 and 3, and is connected with said metallic rod *u* by means of a transverse wire *w*, inserted in said axle. A grooved wheel *x* is mounted in the ceiling of the middle compartment *o* of the car-body and is always in contact with the conducting-

collar $v$, and a wire $y$ leads from said wheel to one terminal of the motor. The other terminal of said motor has connected to it a wire $z$, which leads through the floor of the lowermost compartment $p$ and is connected to the bearings of a roller $a'$, secured to the outside of the said floor and mounted to roll on a circular rail $b'$, secured to the spoke-attaching plates $f$.

The brake mechanism for checking the speed or stopping the wheel is provided with a circular band $c'$, loosely seated in a recess in the outer face of one of the hub-plates $i$ and secured to horizontal pins $d'$, which are movable through said plate. A second circular band $e'$ is also secured on said pins at the inner face of said hub-plate. The two circular bands are thus movable by said pins sliding endwise. A brake-roller $f'$ is mounted on an arm $g'$, attached to the car and which is moved endwise by a lever $h'$, whereby to cause said roller to bear laterally against the said inner circular band $e'$, which will move the outer band $c'$ into frictional engagement with the stationary guide-rail $b$. Springs $k'$ encircle said pins $d'$ to return the brake to its normal or released position. I may employ two brake mechanisms—one on each side of the wheel—instead of the single one shown.

In practical operation the passengers or freight are intended to be received in the compartments $m$, $n$, and $o$, and the engineer or motorman is stationed in the lower compartment $p$. When the electric current is closed, the current from the trolley-wire $s$ will enter the motor through the wires $u$ and $w$, the wheel $x$, and wire $y$, and the motor by means of the bevel-gearing and vertical shaft $r$ will cause the car to move along the single rail $a$.

It is obvious that changes may be made in the details of construction and arrangement of the parts without departing from the scope of my invention as set forth in the appended claims.

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

1. A monocycle-railway, having in combination a single-track bearing-rail; two guide-rails above said track-rail; a wheel having a rim mounted to roll along said track-rail, and also provided with an axle; a car-body loosely suspended or balanced on said axle within the wheel; and a motor device on said car and gearing with said axle for moving said wheel along the track-rail, as set forth.

2. A monocycle-railway, having in combination a single-track bearing-rail; two guide-rails above said track-rail; a wheel between said guide-rails and having a rim mounted to roll on said track-rail, and also provided with an axle rigid with respect to the wheel and whose ends project underneath said guide-rails; a car-body loosely suspended or balanced on said axle within the wheel, whereby it will maintain its upright position as the said wheel moves along the rail; and a motor device in said car-body and connected with said axle to turn the latter and cause the wheel to revolve, as set forth.

3. A monocycle-railway, having in combination a single-track bearing-rail; two guide-rails above said track-rail; a wheel between said guide-rails and having a rim mounted to roll on said track-rail, and also provided with an axle rigid with respect to the wheel and whose ends project underneath said guide-rails; a car-body loosely suspended or balanced on said axle within the wheel, whereby it will maintain its upright position as the said wheel moves along the rail; a motor device in said car-body and connected with said axle to turn the latter and cause the wheel to revolve; and a brake device, operated from within the car-body and arranged for frictional contact with one or both of said guide-rails, as set forth.

4. In a railway, the combination of a single-track bearing-rail; two guide-rails above said track-rail; a wheel provided with a rim mounted on said track-rail, and also provided with hub-plates between said guide-rails, and an axle rigidly secured to said hub-plates with its ends underneath said guide-rails; rows of antifriction-balls mounted in said hub-plates and bearing against the sides of said guide-rails; and a car-body loosely suspended or balanced on said axle within said wheel, as set forth.

5. In a railway, the combination of a single-track bearing-rail; two guide-rails above said track-rail; a wheel provided with a rim mounted on said track-rail, and also provided with hub-plates between said guide-rails, and an axle underneath said guide-rails; a car-body loosely suspended or balanced on said axle within said wheel; an electric motor in said car-body; a trolley-wire; a trolley-harp pivotally secured to said axle and bearing on said trolley-wire; and a connection, through said axle, between the trolley-harp and the motor, as set forth.

6. In a railway, the combination of a single-track bearing-rail; two guide-rails above said track-rail; a wheel provided with a rim mounted on said track-rail, and also provided with hub-plates between said guide-rails, and an axle rigidly secured in said hub-plates, with its ends projecting underneath said guide-rails; a car-body loosely suspended on said axle within said wheel; a motor within said car-body and arranged to turn said axle to move said wheel; a brake-band connected to one of said hub-plates and adapted to be moved into frictional engagement with one of said guide-rails; and means within the car-body for actuating said brake-band, as set forth.

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

WILLIAM M. LEASE.

Witnesses:
F. S. STITT,
CHARLES L. VIETSCH.