

(No Model.)

J. KREYCZIK.
HAND PROPELLED TRAM CAR.

No. 440,230.

Patented Nov. 11, 1890.

Fig. 1.

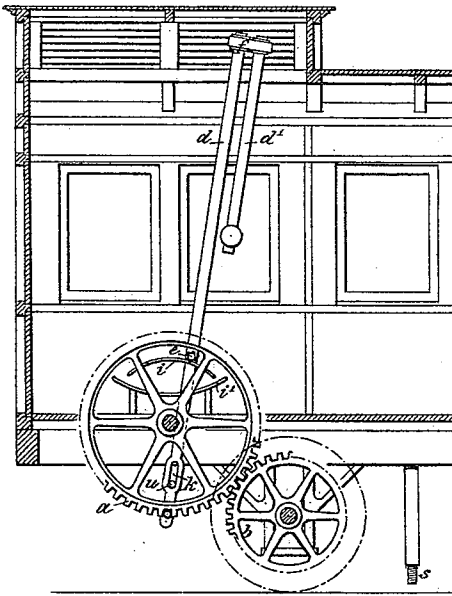


Fig. 3.

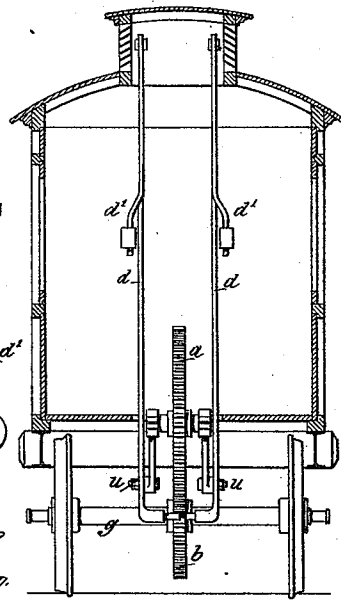


Fig. 5.

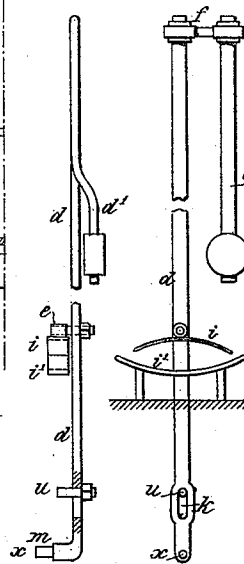


Fig. 2.

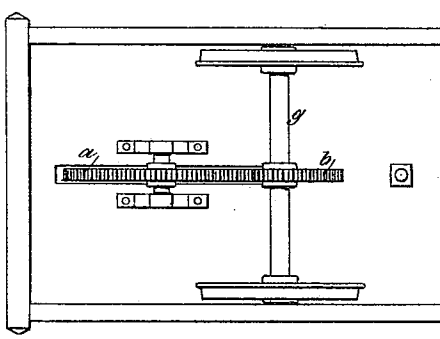


Fig. 4.

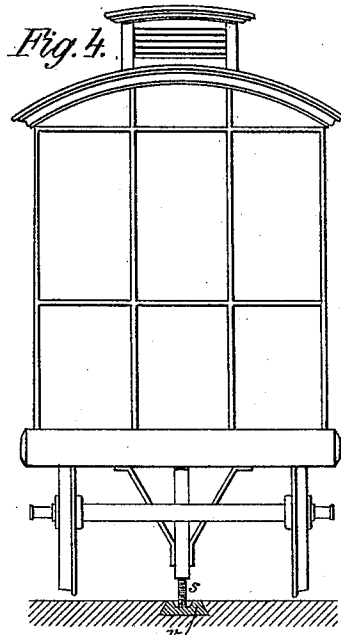
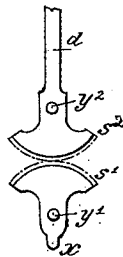


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHANN KREYCZIK, OF HERNALS, NEAR VIENNA, AUSTRIA-HUNGARY.

HAND-PROPELLED TRAM-CAR.

SPECIFICATION forming part of Letters Patent No. 440,230, dated November 11, 1890.

Application filed June 5, 1890. Serial No. 354,322. (No model.)

To all whom it may concern:

Be it known that I, JOHANN KREYCZIK, a subject of the Emperor of Austria-Hungary, of the town of Hernald, near Vienna, Austria-Hungary, have invented certain new and useful Improvements in the Manufacture and Working of Hand-Cars, of which the following is a specification.

My invention relates to improvements in the construction, starting, and operation of tramways.

The tram-car represented in the accompanying drawings is divided by a central passage into two parts. In the foremost compartment is the impelling device and a lever of the brake, which operates on all the wheels.

In said drawings, Figures 1, 2, and 3 are respectively side, bottom, and front views of an improved impelling device embodying my invention. Fig. 4 represents the screw for raising the car. Figs. 5 and 6 are detail views.

The impelling or starting device consists of a toothed wheel *a*, which gears into another toothed wheel *b*, keyed to the axle *g* of the car. On both sides of the first-named wheel *a*, I preferably arrange two levers *d*, which swing pendulum like on a suitable bolt *u*. Steel pegs *x* are attached to the lower ends of the connecting-rods, on which anti-friction rollers *m* are arranged, which gear into the tothing of the driving-wheel *a*. Above the bolt *u* are the rollers *e*, which run on originally-formed guides *i* and *i'*. The guides consist each of a steel spring *i*, bent convex, corresponding to the radius of the toothed wheels *a*, and above which the roller *e* runs. When the lever *d* is pushed back, the roller *e* falls onto the lower concave part of the guide *i'*. If the carriage is to be set in motion, the attendant operates the lever *d'*. The roller will consequently run over the upper part of the guide *i*, whereby the lever-rod is raised, said lever having at *k*, Figs. 1 and 5, a guide-slot for the bolt *u* at such height that the steel peg or pin *x* and roller *m* gear into the tothing of the driving-wheel *a* and rotate the same, said movement being transmitted to the car. As soon as the lever *d*, with its roller *e*, reaches the space between the two guides *i* and *i'*, the same, with the roller *e*, will fall by its own weight onto the lower part *i'* of the guide,

so that the small roller *m* comes out of gear with the wheel *a* and the levers are moved back until the roller *e* reaches the point where the two guides approach each other. In consequence of the pressure exerted the spring-guide *i* allows the roller *e* to pass and immediately springs back, so that the roller *e* comes onto the upper spring and the roller *m* again gears into the tothing of the wheel *a*. This construction has the advantage that the lever is not continuously in operation, but is released when the car is running.

As the two levers are very long and the lower lever-arms very short, the upper end of these said levers would have to describe a large circle. Now, in order to have a long lever and render the movement easy a suitable weight *f* is arranged at the upper end of the lever, the object of which is to arrange the auxiliary lever-rod *d'* so that it can be moved and the handle arranged in a position suited to the attendant; or a mechanism can be employed, Fig. 6, for exercising an indirect lever action on the driving-wheel.

Instead of the lower arm *x* of the lever *d* acting direct on the tothing of the wheel *a*, the same is made in the form of a toothed sector *s*², turning on the fulcrum *y*², and gears into the tothing of a sector *s'*, arranged on the fulcrum *y'*, the lower end *x* of which said sector gears into the tothing of the wheel *a*. It is also the duty of the attendant in driving up steep inclines to operate the second lever, and thus assist the progress of the car. The driving or starting wheel *a* is inclosed by a suitable casing. The starting mechanism, being located in the front part of the car, would not permit driving the same backward. Now, in order to avoid the use of turn-tables or other expensive devices, the following simple device is applied to each car:

Immediately in the center of gravity of the car or carriage is arranged a screw *s*, covered by a suitable lid. At the end of each line and in the center of the track one or more iron plates *v*, Fig. 4, are embedded and fixed in the pavement. These iron plates *v* are provided with a suitable conical recess, in which the tip of the screw *s* gears in turning the car. If, now, the car has arrived at the end of the track, the same remains standing in such po-

sition that the screw *s* will fit into the recess in the plate *v*. The screw *s* is now screwed down so deep that the wheels are lifted out of the rails and the carriage then turned
 5 around on the screw *s*. As soon as the car has thus been turned, the screw is turned back, the wheels are lowered into the rails, and the return journey can be commenced.

Having now particularly described and as-
 10 certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim, and desire to secure by Letters Patent, is—

1. In a hand-car, the combination, with
 15 toothed wheel *b*, mounted on the axle, and toothed wheel *a*, gearing therewith, of lever *d*, whereby movement may be imparted through said toothed wheels to the car, substantially as set forth.

2. In combination with the levers *d*, the ap- 20
 plication and arrangement of rollers *e*, which glide over convex and concave guides *i i'* in such manner that when the rollers *e* are on the upper guide *i* the peg or pin *x* of the levers or the parts of the same will gear into the 25
 driving-wheels *a*, but at the end of the stroke will fall onto the lower guide *i'*, and thus bring the levers out of gear with the driving-wheels, substantially in the manner as set forth in the foregoing specification and illustrated in 30
 the accompanying drawings.

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

JOHANN KREYCZIK.

Witnesses:

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