

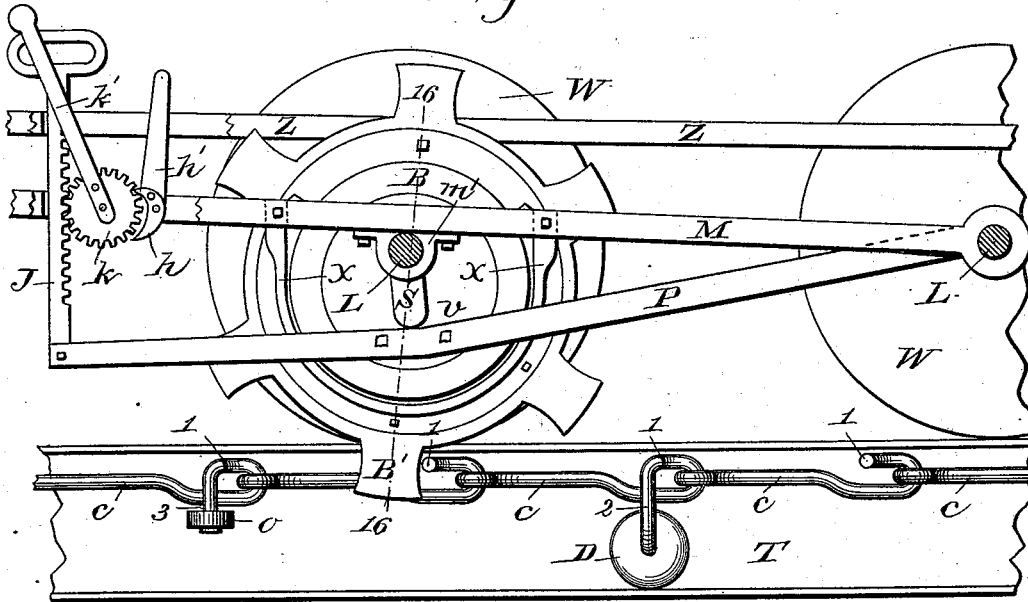
(No Model.)

LA FAYETTE PARKER.  
CABLE RAILWAY APPARATUS.

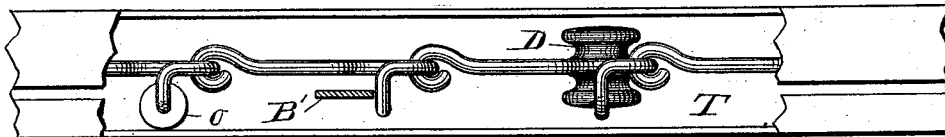
No. 423,440.

Patented Mar. 18, 1890.

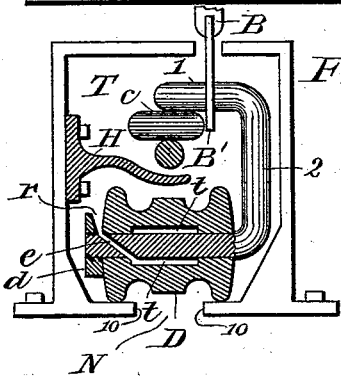
*Fig. 1.*



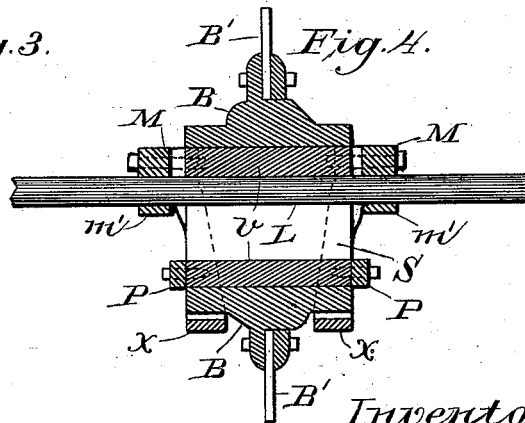
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses:  
Willie E. Sumner  
Joel M. Parker

Inventor:  
La Fayette Parker

# UNITED STATES PATENT OFFICE.

LA FAYETTE PARKER, OF DAVENPORT, IOWA.

## CABLE-RAILWAY APPARATUS.

**SPECIFICATION** forming part of Letters Patent No. 423,440, dated March 18, 1890.

Original applications filed February 26, 1887, Serial No. 229,052, and February 23, 1888, Serial No. 265,087. Divided and this application filed April 17, 1888. Serial No. 270,953. (No model.)

*To all whom it may concern:*

Be it known that I, LA FAYETTE PARKER, of Davenport, in the county of Scott and State of Iowa, have invented new and useful Improvements in Cable-Railway Apparatus, which improvements are fully set forth in the following specification and accompanying drawings, which are a part thereof.

My present invention is more especially designed to improve upon the construction and manner of operating cable railways as invented by me, and for which Letters Patent were originally granted to me February 10, 1880, No. 224,347, to which reference is made, as well as to my applications now pending, one filed February 26, 1887, Serial No. 229,052, the other filed February 23, 1888, Serial No. 265,087, from which applications this is in part a division.

While adopting the general plan of my original invention in this, of connecting cars with a moving cable by means of a toothed wheel, it essentially differs from all previous methods and construction of mechanical devices to effect the objects attained, especially in the construction of the tube, the construction of the cable and its mounting, the construction of the sprocket-wheel and its mounting, as well as the means for its effective engagement and disengagement with the moving cable, and lifting it out of slotted tube when necessary. These various objects of invention I have accomplished by the construction of apparatus as hereinafter described, and illustrated in the drawings, and particularly defined in the claims at the end of this specification.

Figure 1 presents a side view of a cross-section of the car-axles L, with the wheels W on one end thereof, sprocket-wheel B and its teeth B', disk or sleeve v, surrounding the axle L, the slots in sleeve v, yoke-lever P, yoke-bar M, engaging-band x, lift-rack J, toothed wheel K and its arm K', pawl h, having arm h', also a section of slotted tube, with a section of its side removed to expose its contents, the rod-link cable composed of links c, having cross-bar 1, extension 2 to roller D, and extension 3 to traveler o. Fig. 2 is a top view of

the contents of the slotted tube. Fig. 3 is a cross-section of the slotted tube and its contents. Fig. 4 is a cross-section of Fig. 1 at 16.

The following is a description of the several parts, reference being had to the accompanying drawings, like letters referring to like parts.

Each link of the chain is composed of a single piece of rod iron or steel, bent into a section of a cable or link c, having the following necessary qualities: an eye at the front end and a hook at the rear end to engage with the eye of the next link, so that in duplicate they may be formed into an endless cable. It also has a cross-bar 1 for the purpose of engagement with the sprocket-wheel teeth B'. Some of the links are extended below the end of cross-bar 1, so as to become horizontal journals to roller D, serving by this means to support the cable. Other cross-bars 1 are extended down far enough to support traveler o, which prevent the swaying of the chain and changing its trend when necessary to travel around said curve. These links may be made of any size, of preferably round rods of iron or steel, suitable for the required duty, and may be about twelve inches in length, or such other length as will properly connect with the teeth of sprocket-wheel required. These links can be constructed from rods cut to suitable lengths, and without other labor than heating and bending to required shape be ready for use, those used for journals to roller D and traveler o only requiring to be properly fitted at the end.

The disk or sleeve v surrounds the car-axle, which passes through it in a nearly-vertical slot of sufficient length to permit the teeth B' of sprocket-wheel B, that surrounds it and has its bearing upon it when revolving, to be raised out of engagement with the cable and out of slotted tube L. This disk or sleeve v is adjustable up and down by means of yoke-lever P, that is attached to its ends below the slot. Yoke-lever P is connected with the rear axle, and dividing before it reaches the sprocket-wheel it passes on both sides of it and is bolted to both ends of the sleeve, then coming together below the front

platform, whose combined lift-bar and rack J, by which it is raised and lowered, is attached to it. Yoke *m* also has the connection with the rear axle and forms a yoke around the sprocket-wheel and sleeve, and again unites at its front end, where a slot is formed, in which are located rack J, gear *k* and its lever *k'*, and pawl *h* and its lever *h'*. This bar M, being connected as it is with both axles, is independent in its motions of the car-body. To the under side of bar M are bolted engaging-bands *x*, that so fit around a flange on the sprocket-wheel B at both ends as to prevent its revolving when it is pressed down against it by means of the lever P. When not so pressed against these bands *x*, the sprocket-wheel is free to revolve around axle L when the cable is in motion and the car stands still. To start the car it is only necessary to press down on lever P with sufficient force. When the sprocket-wheel ceases to revolve, the car will be carried forward at the same speed of the cable.

Roller D, on which the chain is mounted, may be used on every sixth link of chain, or as often as it is necessary to support the chain and keep it in position to engage with the teeth of the sprocket-wheel. This roller has a narrow oval bearing on its periphery at its ends where it comes in contact with the flat ledge or track on which it travels to secure the minimum of friction. It may be made of metal in a single piece, or it may be part metal and part material to deaden sound. The plate H is only used in depressed places where otherwise the cable would press against the top of slotted tube. It is then indispensable to prevent friction.

Travelers *o* are used at a considerable distance apart to come in contact with sides of tube and prevent friction, and assist in the rounding of curves by changing the track to the side of the tube.

The nut *d* at the end of roller D serves the purpose of keeping the roller in place, and also by means of an opening or cup *r* at its upper side it serves as a receiver for lubricating-oil, which passes from it through the passage *e* in the shaft to the chamber *t* in roller D, from which it distributes itself to lubricate the shaft. This roller D travels on a continuous narrow ledge at each side of opening N. From this ledge the sides of tube rise with a slightly outward slope to prevent lateral movement and friction as well. This opening N in the bottom of the tube T may be continuous for the discharge of dirt; or openings may be made at convenient distances, where connection with sewers or dirt-holes is located, and into which a brush or scraper attached to the chain will carry it. The slotted tube may be formed of two or more pieces of iron or of parallel wooden beams resting on the ties, with the track and its side slope and caps of iron.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is as follows:

1. The combination, with sprocket-wheel propelling apparatus upon the car, of a rod cable having each section of a suitable length to engage the sprocket-teeth used, and bent into a link having the following necessary features: a hook at one end ending in a cross-bar suitable to engage with the teeth of a sprocket-wheel and an eye at the other suitable to engage with said hook, substantially as shown and described.

2. The combination, with a cable composed of a series of rod links that have at suitable distance supporting-rollers traveling on a track at the bottom of a slotted tube, of an arm that extends down from said cable to form a journal at its end for said rollers.

3. The combination, with a cable for operating street-cars, of rods depending from it at suitable distances that are continuations of the link, and its cross-bars composing said cable, said rods having rollers on their ends that travel on the bottom of the slotted tube to support the cable, substantially as shown.

4. The combination, with a traction-cable supported on rollers that travel with it in a slotted tube, that are located at equal and suitable distances, of traveler *o*, to prevent its coming in contact with the sides of the slotted tube, and to change its trend when necessary, substantially as shown and described.

5. The combination, with a sprocket-wheel cable railway, of a rod cable composed of the required number of links, all formed alike, except as extended at the end for journals of roller D or traveler *o*, and each of a single piece of metal rod bent into a link that has an eye at one end and a hook suitable to engage with said eye, and a cross-bar suitable to engage with a sprocket-wheel at the other.

6. The combination, with a slotted tube of a traction-railway, of a rider H, attached to the side of tube at depressed places in the roadway, to prevent the cable from pressing against the top of the tube.

7. A sprocket-wheel supported upon a disk or wheel which is upon or incloses the car-axle and is adjustable up and down thereon.

8. A sprocket-wheel supported upon a disk or wheel which is upon or incloses a car-axle, combined with mechanism, as described, for adjusting said disk and sprocket-wheel up and down to disengage it from the cable, and when necessary from the slot in the tube.

9. The combination of a sprocket-wheel mounted so as to be adjustable up and down, in order to engage and disengage with a traction-cable, and a stationary engaging-band *x*, substantially as shown and described.

LA FAYETTE PARKER.

Witnesses:

N. C. HITCHCOCK,  
M. E. PARKER.