(No Model.)

J. H. PENDLETON.

CABLE RAILWAY.

No. 317,008. Patented May 5, 1885.

Fig. 1.

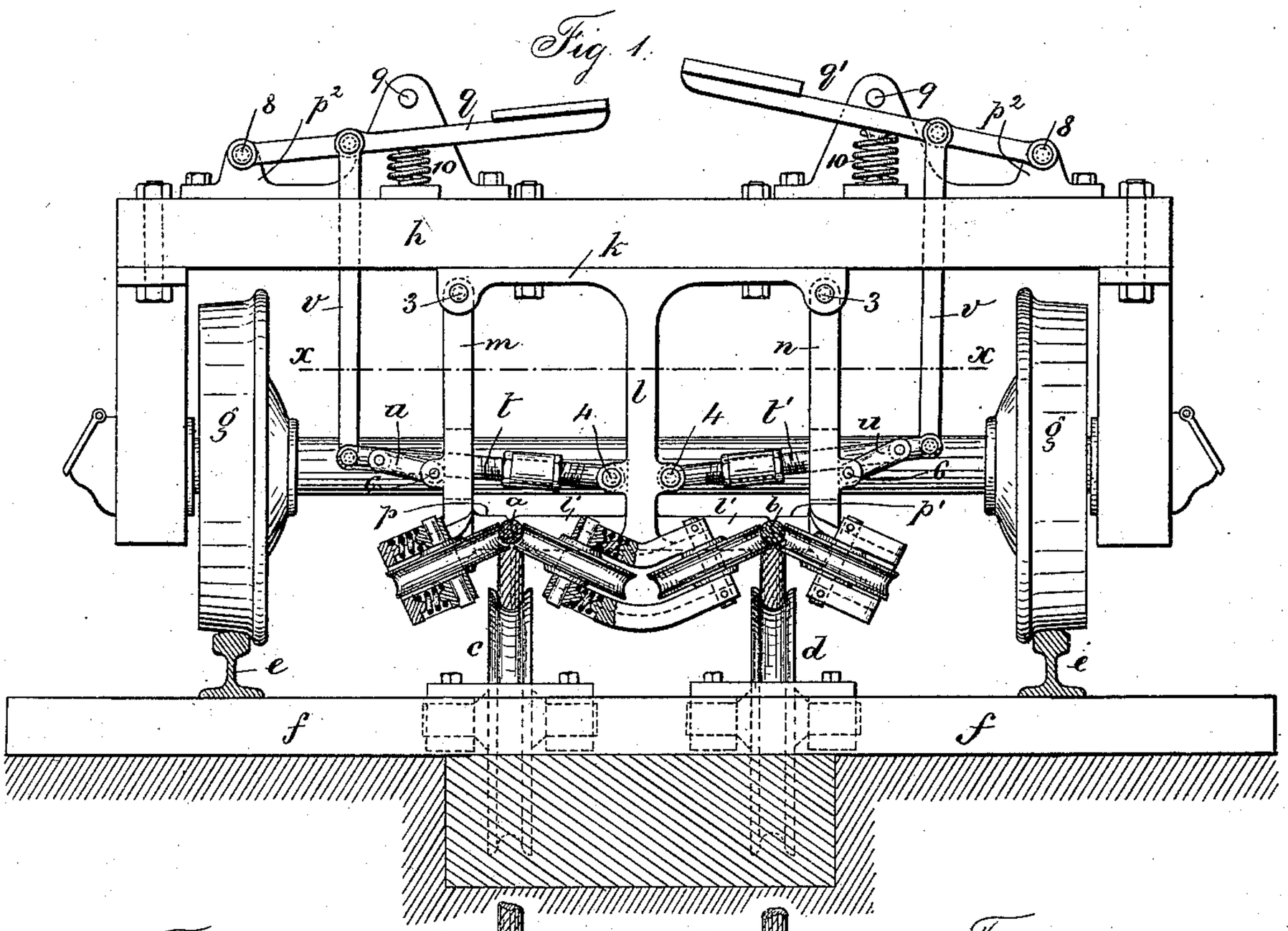


Fig. 5.

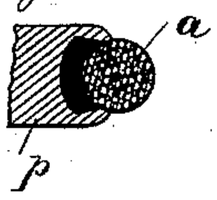


Fig. 2.

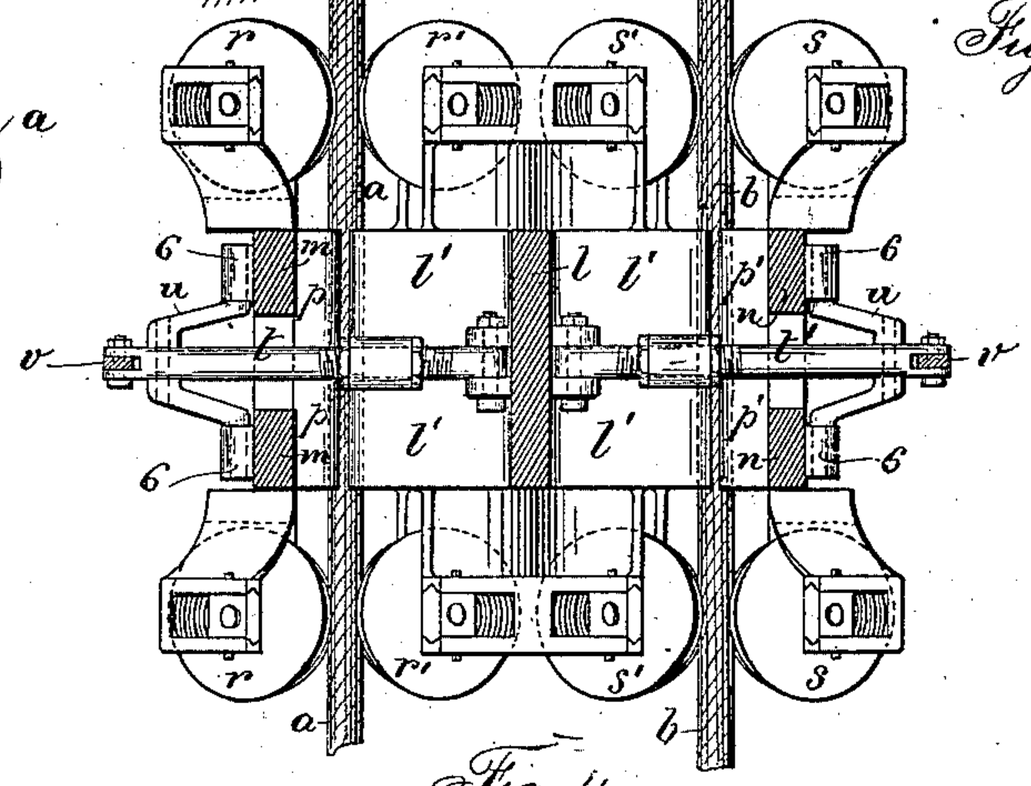


Fig. 4.

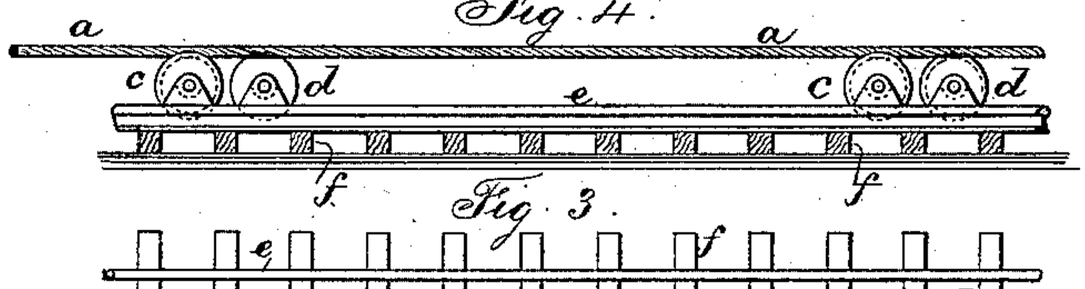
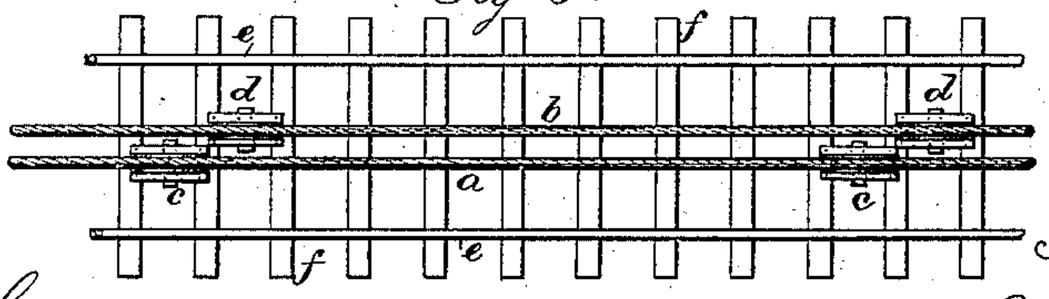


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN H. PENDLETON, OF BROOKLYN, NEW YORK.

CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 317,008, dated May 5, 1885.

Application filed April 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. PENDLETON, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Cable Railways, of which the following is a specification.

In cable railways great difficulty arises in regard to the speed of travel. The cable running at a uniform speed prevents any loss of time being made up. If there is any obstruction to a particular car or train, the cars or trains following behind come too close to such delayed car, and when the obstruction or cause of delay is removed the said train cannot be moved any faster to make up for loss of time and all the other cars or trains are delayed. It often happens that a number of vehicles that are moving along at the ordinary walking gait for a horse prevent the more rapid movement of the cars drawn by the cable. The consequence is that the grip has to be loosened, and there is considerable wear upon the clamps as the cable moves through between them. In elevated railways some trains make all the stops and others go through with greater rapidity without making as many stops.

Upon consideration of the before-named conditions, I have invented the present improvements, which relate to the combination, with two cables traveling at different speeds, of clamps or grips that can be caused to connect with either cable or relieved from them, so that the car can be stopped, or it can be moved at one speed or at another speed, and one cable can be connected and another disconnected while the car is in motion. By this improvement I am able to move the car along rapidly when the way is clear, or to keep it in motion at a slower speed when there are obstructions or crowded streets, or to run one set of cars at one speed and another train at a different speed.

My improvement is shown as adapted to an elevated railway; but the same may be used with a surface-railway, in which the cables are in a tube or tunnel below the street.

In the drawings, Figure 1 is an elevation, partially in section, of the clamps or grips. Fig. 2 is a plan view below the line *x x*. Fig. 3 is a plan of the track on a smaller scale. Fig. 4 is a side view of part of said track, and Fig. 5 shows a section of one of the clamps.

The cable *a* is supported on sheaves or wheels *c*, and the cable *b* is supported upon the wheels *d*. The two cables or wire ropes are to travel at different speeds. The cable *a* may be moved at the maximum rate of travel desired for the cars, and the cable *b* at the minimum rate of speed.

The track *e* is of any desired character. It is shown as laid upon the cross-ties *f*.

The apparatus for clamping either one of the cables is supported by the wheels *g* and truck frame *h*. It is preferable to support such truck-frame directly upon the axle-box without the intervention of springs, and the springs can be between the truck-frame and the car, or else the truck can be separate from the car, and preferably in front thereof, and made with a suitable platform upon which the attendant stands.

Beneath the truck-frame there is a plate, *k*, with a central hanger, *l*, and two hangers, *m n*, hinged at 3 to the said plate *k*.

At the bottom end of the hanger *l* there is a plate or T-head, *l'*, of a width corresponding to the distance between the cables, and the edges of this head *l'* are grooved to fit such cables and form the inner halves of the clamps or grips for the cables.

At the lower ends of the hangers *m* and *n* there are inwardly-projecting clamping-pieces *p p'*, grooved upon their faces, so as to form the other halves of the clamps or grips.

At the front and rear of the respective clamps there are sheaves or rollers *r r' s s'*. These are in pairs, and at an inclination so as to support the said cables. The journal-boxes of these rollers are in jaws that project at the ends of the respective clamps, and each box is allowed a small amount of yielding movement by a spring behind it and within the jaw, so that the rollers will support the respective cables, and such cables may be in more or less rapid motion and not wear upon the clamping-surfaces, because of being held by the said rollers from contact with such surfaces; but when pressure is applied to the clamps the sheaves and springs yield and allow the clamps to grip the cable.

In order to apply pressure to the clamps, I

make use of toggle-bars, consisting of the links *t*, pivoted at 4 to the center hanger, *l*, and having near their other ends the cranks or links *u*, that are pivoted at 6 upon the respective hangers *m n*. The links *t* are each preferably made in two parts, with right and left hand threads near their adjoining ends, and a turn-buckle for adjusting the length of the parts, so that when the outer end of the link is depressed the clamp will be closed to grasp the cable and the reverse. The concave surfaces of the clamps are recessed, so as to be filled with gutta-percha, to prevent injury to the clamp-faces or to the wire cable, as said gutta-percha is slightly adhesive and will not be cut by the cable, neither will it grind or cut the wire. A small proportion of india-rubber may be mixed with the gutta-percha, if desired. From the outer end of each link *t* there is a connecting-rod, *v*, to connect with the respective foot-levers *q* and *q'*, the latter being pivoted at 8 to the guide-blocks p^2 upon the platform or truck-frame. The pins or stops 9 limit the movement of the respective foot-levers *q q'* when lifted by the springs 10.

It will now be understood that when the levers are lifted by such springs the clamps or grips are released and the cables can run freely, being supported by the respective pairs of rollers or sheaves. When the lever is depressed, as at *q*, the clamp is caused to grip the cable and propel the car. It is preferable to liberate the grip automatically by the action of the spring, so that only the lever that is held down by the foot will apply the grip, and both grips are not liable to be put on at the same time accidentally.

By withdrawing the pins 9, or either of them, the foot-lever can be raised and the grip opened sufficiently for dropping or for receiving the cable.

In starting cars, especially on elevated railways, this improvement is very useful, because the car can be started by the slower cable, and then the momentum accelerated by gripping the faster cable, thus lessening the wear or concussion due to gripping a rapidly-moving cable. If one of the cables break or is stopped, the cars can be drawn by the other cable.

This construction of clamps and foot-lever may be used with a single cable.

I do not herein lay claim to the jaws, springs, and rollers or sheaves for supporting the cable, as the same is set forth in an application heretofore made by me, dated April 12, 1884, filed April 19, 1884, Serial No. 128,476.

I am aware that two cables have been used in one tunnel, and that the clamps have been adapted to connect with either one or the other; but the cables run in opposite directions. I am also aware that two cables traveling at the same speed have been used with clamps that connect with both cables, and also that the clamps have been made so as to disconnect either cable that is out of repair. The grip which I employ is adapted to allow one cable to run at a different speed, while the other is clamped, as aforesaid.

I do not claim the combination, with a car, of adjacent parallel cables driven at different rates of speed, together with independently-operating gripping and releasing devices connected to the car; nor the combination of a fast and slow moving cable with a car running upon a track and independent gripping devices for connecting the car with either cable; neither do I claim propelling cars by first connecting a car by a gripping device with a slow-moving cable to start the car, and afterward releasing the gripper from the slow-moving cable and then gripping the fast-moving cable.

I claim as my invention—

1. The combination, with the clamp *l'*, of the swinging hanger *m*, the clamp *p* at its lower end, and the connecting toggle-link and crank-arms, substantially as set forth.

2. The toggle-links *t t'*, pivoted at 4, and provided with adjusting turn-buckles, in combination with the cranks or links *u*, the clamps *p*, *p'*, and *l'*, the connecting-rods *v*, the pivoted foot-levers *q q'*, and springs 10, substantially as set forth.

3. The foot-lever *q* or *q'*, the spring to lift the same, and the guide-block p^2, in combination with the connecting-rod *v*, the toggle-link *t* or *t'*, the hanger *m* or *n*, the clamps *p* and *l'*, and the rollers at the respective ends of the clamps, substantially as set forth.

4. The clamps having recessed faces filled with gutta-percha or similar material, substantially as set forth.

Signed by me this 12th day of April, A. D. 1884.

J. H. PENDLETON.

Witnesses:
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WILLIAM G. MOTT.