

(No Model.)

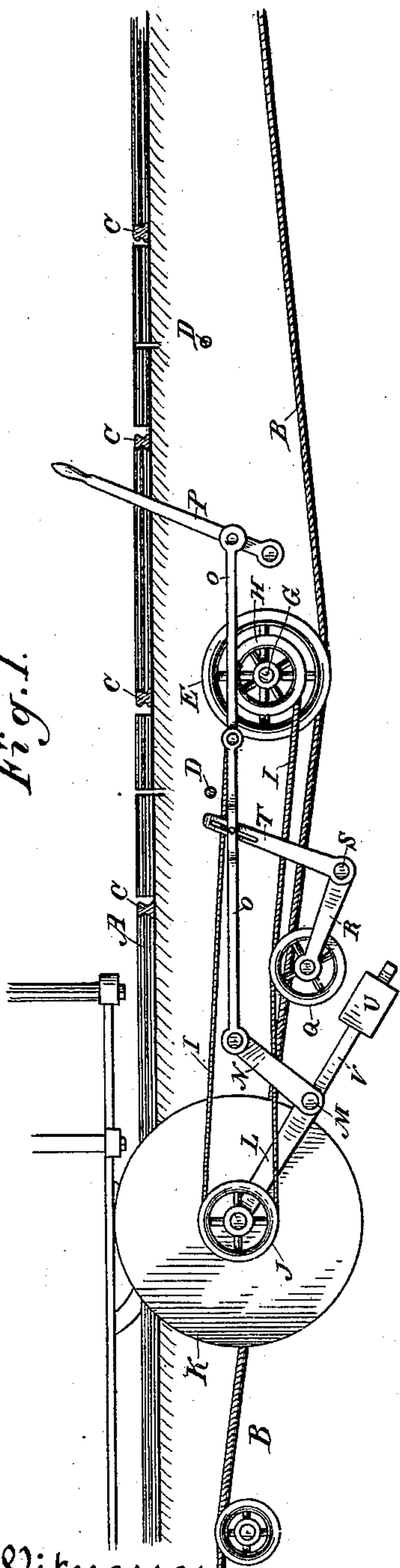
H. H. LYNCH.

CROSSING FOR CABLE RAILWAYS.

No. 359,396.

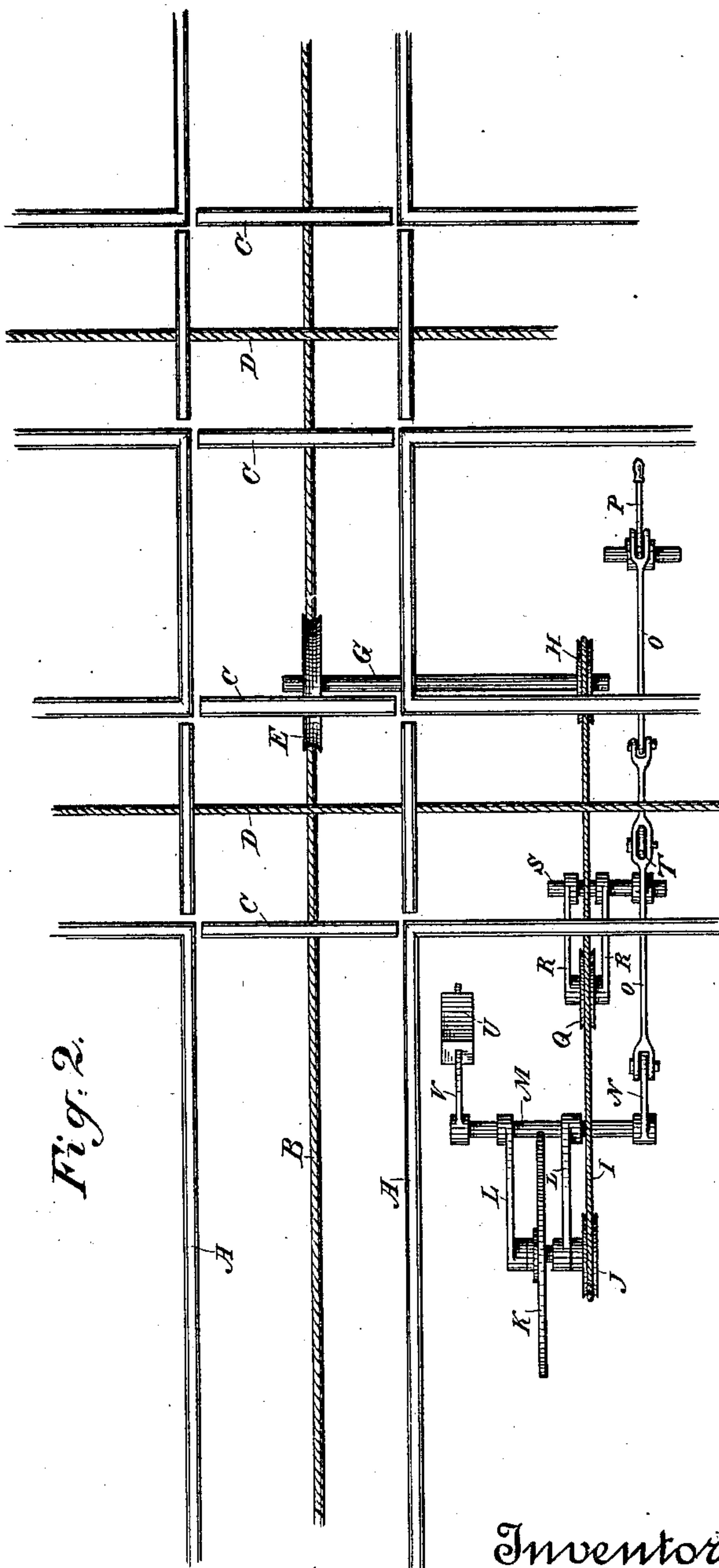
Patented Mar. 15, 1887.

Fig. 1.



Witnesses,
Geo H Strong
Jt Atty.

Fig. 2.



Inventor,
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UNITED STATES PATENT OFFICE.

HENRY H. LYNCH, OF SAN FRANCISCO, CALIFORNIA.

CROSSING FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 359,396, dated March 15, 1887.

Application filed November 23, 1886. Serial No. 219,724. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. LYNCH, of the city and county of San Francisco, State of California, have invented an Improvement in Crossings for Cable Railways; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved means for impelling the cars of one line of cable railway across another line which is running at an angle with the first, and in which case it is necessary for the car which crosses to temporarily let go its cable altogether.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation in section, showing the cable-crossing and the car-moving roller and the connected mechanism. Fig. 2 is a plan view showing the two lines of track crossing each other, and the mechanism for moving the car.

Where two lines of cable railway cross each other, it is necessary that one line of cable pass below the other crossing-line, and when the car upon that line reaches the crossing the grip must be disengaged from the cable temporarily, the cable being depressed below that of the transverse line, and the car must be carried over the intervening space occupied by the transverse tracks, either by a slight incline or by the momentum gathered before the grip is released from the cable. This cannot always be properly effected, as it sometimes happens that a team will cross in front of the car just at the time when it should have momentum sufficient to cross the transverse lines, and the car would have to be stopped at such a point that it would be necessary to push it across when it is again started.

My invention consists of a friction wheel or roller driven by the movement of the main cable, and a means for bringing this wheel into contact with the foot-board, or some other portion of the car, so that it will move the car across the required space by directly-applied power.

A represents a line of track, and B a cable corresponding with this track.

C are the transverse tracks, and D the cables of the line which is to be crossed.

E is a depression-pulley, preferably situated about midway between the lines of the trans-

verse tracks, and the cable passes beneath this pulley, which depresses it low enough to be entirely clear of the transverse cables.

The grooved pulley E is mounted upon a shaft, G, which is journaled in suitable bearings within the tube or tunnel of the cable B, so that as the cable passes beneath this pulley it causes it and its shaft to rotate. Upon the opposite end of the shaft G is another pulley, H, around which a belt, I, passes. This belt serves to drive the pulley J, which is mounted upon the same shaft with the friction-pulley K.

This belt is sufficiently loose or slack, so that until it has been tightened by a suitable tightening pulley and mechanism it will remain stationary and will not cause the friction-pulley K to rotate. This pulley K is situated just beneath the surface of the ground and in line with the horizontal step, which is fixed to the outside edge of the car-frame and extends the whole length of the car, and the shaft of this pulley is journaled in the outer ends of hangers or arms L. The inner ends of these arms are fixed to a shaft, M, so that when this shaft is rotated in one direction it will depress the friction-roller K below the level of the street, and when rotated in the opposite direction it will raise this pulley through the slot corresponding with it until the edge of the pulley is brought into contact with the step or fender of the car, before described, and at the same time the rope or belt I will be tightened so as to cause the roller to turn, and rolling in contact with the step or fender it will propel the car across the transverse line of track. The mechanism for operating this consists of a crank-arm, N, keyed to the shaft M, a link, O, connecting it with the lever P, by which the device is operated.

Q is a tightening-pulley, the shaft of which is supported by arms R, and the opposite ends of these arms are keyed to a shaft, S, so that the pulley Q may be raised or depressed about this shaft as centers.

T is an arm or lever which connects the shaft S of the tightening-pulley with the connecting-rod O, so that the tightening-pulley is moved simultaneously with the roller K. When the latter is depressed, the tension-pulley is thrown down, and when the roller K is raised the tension-pulley is raised into contact with the rope

or belt I. This produces sufficient tension, so that this belt will drive the friction-roller K.

U is a counterbalance-weight fixed to the arm V, which projects backwardly from the shaft M, and this weight serves to counterbalance the roller K and its shaft, so that its movement by means of the lever P is rendered easy. This lever P will preferably be fulcrumed between the two lines of transverse track C, and when not in use will lie flat in a groove or channel made for it, the roller K being at the same time depressed below the level of the street, so as not to project or be in the way.

When the car arrives at a point close to the transverse tracks, the grip may be released from the cable and the car-conductor may step off, and by raising the lever P the mechanism will be acted upon, as before described, so as to raise the roller K into contact with the fender or step upon the side of the car, and the belt I being kept tight the movement of the main cable B will communicate motion to the roller K, which, rotating in contact with the car-step, will drive the car across the intervening space by positive motion. By this construction I am enabled to bring the car close to the transverse lines of track by means of the usual grip, and the car may be allowed to stop, and it can then be started and carried across the intervening space by the positive and direct action of the friction-roller.

It will not be necessary to make any change in the grade of the road, and it will not be necessary to start the car at some distance from the line of the transverse track in order to obtain momentum enough to carry it across this line when the grip is released.

It will be manifest that this mechanism here shown may be changed in relation of its parts without materially altering the character of the apparatus, the principal feature of the invention being the employment of the friction-roller driven by the main cable and suscepti-

ble of being brought into contact with some continuous portion of the car, so as to move the latter by its rotation.

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

1. A device for propelling cable-railway cars across a similar transverse and obstructing line below which the cable of the first line must pass, consisting of a friction wheel or roller driven by power derived from the main cable, and having a mechanism by which it may be raised in contact with the step, or a straight continuous portion of the car to be propelled, substantially as herein described.

2. The combination of the main cable traveling in the tunnel beneath the crossing-line of cables, a friction-roller having its shaft journaled in the ends of arms or levers, so that it may be raised or depressed, a belt or rope by which motion is communicated from the depression-pulley to the friction-roller, and a connecting-rod through which the friction-roller may be raised or depressed by the movement of the lever, substantially as herein described.

3. The combination of the friction-roller mounted upon a horizontal shaft which is journaled in the ends of lever-arms, a lever fixed to the fulcrum-shaft of these arms and connected by a link or pitman with a hand-lever, by which the fulcrum-shaft is rotated to raise or depress the friction-roller, belt-pulleys upon the shaft of the friction-roller and upon the shaft of the depression-pulley, around which a connecting rope or belt passes, and a tightening-pulley acting upon said belt, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

HENRY H. LYNCH.

Witnesses:

S. H. NOURSE,
H. C. LEE.