

(No Model.)

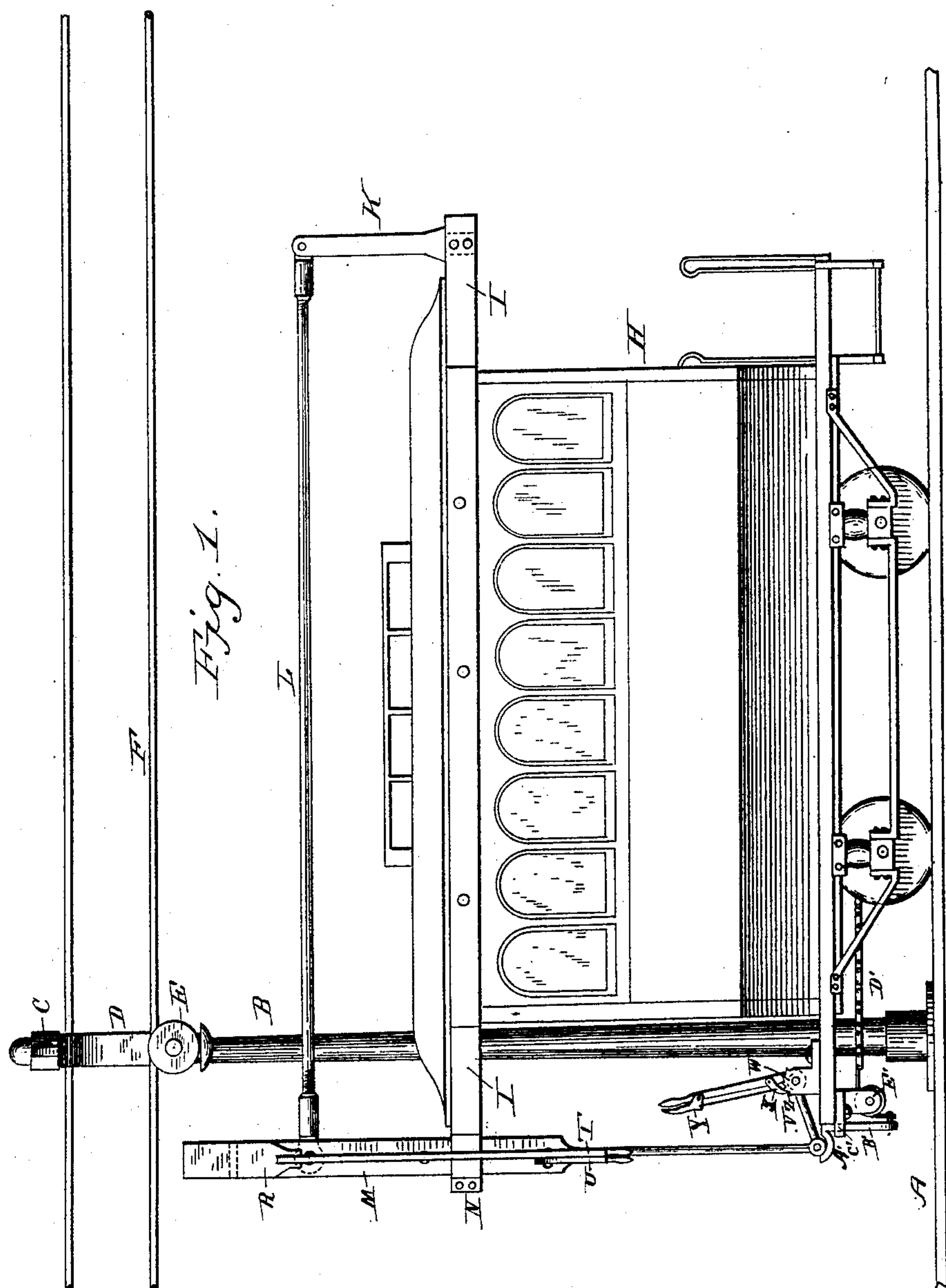
2 Sheets—Sheet 1.

G. WARBURTON.

CABLE RAILWAY.

No. 353,183.

Patented Nov. 23, 1886.



Witnesses

Charles H. Danner  
John S. Finch

Inventor

George Warburton  
By his Attorney  
C. H. Alexander

(No Model.)

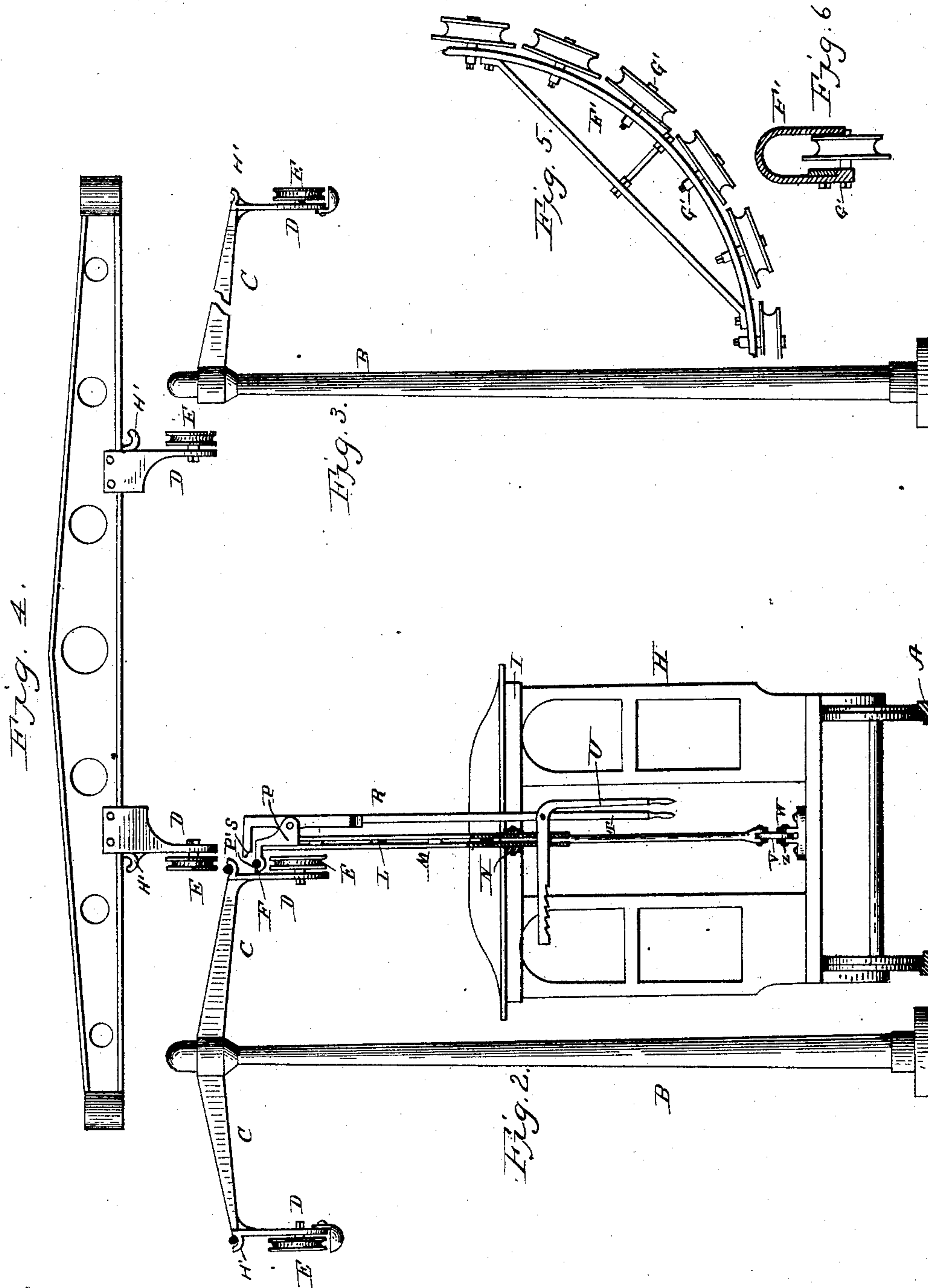
2 Sheets—Sheet 2.

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CABLE RAILWAY.

No. 353,183.

Patented Nov. 23, 1886.



Witnesses

Charles Davis,  
John S. Finch

Inventor

George Warburton

By his Attorney

W. H. Alexander



# UNITED STATES PATENT OFFICE.

GEORGE WARBURTON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF  
ONE HALF TO JAMES F. REDDY, OF SAME PLACE.

## CABLE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 353,183, dated November 23, 1886.

Application filed July 27, 1886. Serial No. 209,235. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WARBURTON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Cable Railways, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain improvements in elevated cable railways; and it has for its objects to provide improved means for applying the gripping device and for operating the brakes, as more fully hereinafter described.

15 The above-mentioned objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a cable-road, showing the car in position; Fig. 2, a transverse sectional view of the road, showing one end of the car and the gripping devices partly in section and partly in elevation. Fig. 3 shows a detached view of a modification of the cable-supporting standard and bracket; Fig. 4, a modification showing a cable-supporting girder. Fig. 5 represents a view showing the arrangement of the cable-supports at corners or turnings, and Fig. 6 represents a cross-section of such cable-support.

30 The letter A indicates an ordinary surface-track, and B a series of vertical standards located at suitable intervals along the track, either between the two tracks where the same are double or at one or both sides of the track, as may be convenient. In Fig. 2 the standards are represented as located between the tracks, and are provided with brackets or girders C at their upper ends, from the extremities of which brackets depend the hangers D, carrying the grooved pulleys E, which support the traveling cables F. Below the pulleys are arranged receptacles to collect the oil dripping from the pulleys.

45 The letter H indicates the car, which is provided with a metallic band, I, extending around its upper part, having its ends projecting to the front and rear, as shown. To the rear projecting portion of the band is

bolted a standard, K, to which is pivoted one end of a rod, L, extending centrally over the car to the front, where it is bolted to movable standard M, which is arranged to slide vertically in ways N in the forward projecting portion of the band, before mentioned. The upper portion of the standard is preferably constructed of two metallic bars bolted or clamped together, the lower portion consisting of a metallic rod having its upper end bolted or clamped between the lower ends of the said bars. Between the upper ends of said bars is bolted or otherwise secured a metallic bracket, P, having branches extending to opposite sides, the upper bracket extending under the cable and being provided with a grooved seat, P', to receive said cable.

To the lower branch of the bracket P is pivoted or fulcrumed an angle-lever, R, the upper end of which is provided with a curved groove, S, and is adapted to be clamped down upon the cable, so as to grip it and hold it to its seat P' and carry the car with the cable. The lever R is provided with a downwardly-extending handle, T, which hangs down within convenient reach of the driver of the car.

To the handle T is fulcrumed an angle-lever, U, having a horizontal ratcheted arm, which works through a slot in the standard M, to hold it in any desired position. The said lever U is also provided with a handle under control of the driver. The lower end of the movable standard M is pivoted to one arm of an angle-lever, V, which is fulcrumed to a bearing-block, W, fastened to the front platform of the car, the said lever being provided with a pawl, X, and supplementary handle Y, which serves to operate the pawl to throw it into a ratchet, Z, and thus lock the angle-lever V in any desired position. Below the forward end of the said angle-lever is located a stirrup, A', in which the said end of the lever rests, the stirrup being formed on or secured to the upper end of a plate, B', which slides in ways C' at the forward end of the cars, the lower end of said plate being connected to the brake-chain D', which passes over a pulley mounted in a hanger, E', and extends to the brake-levers of the car, for the purpose hereinafter explained.



In the modification shown in Fig. 3 of the drawings the supporting standard is arranged at one side of the track, and the cable-supporting bracket extends to one side only over the track. With the modification shown in Fig. 4 two standards are to be employed, one at each side of the track, the girder being supported at its ends above the track by means of the standards. When the course of the road is changed—such at corners or other turnings—a curved frame, F', is employed, supported upon suitable standards and having a series of pulleys mounted in suitable bearings, G', as indicated in Figs. 5 and 6 of the drawings. The cable in this instance passes over the series of pulleys, and is thus carried around the curve.

The operation of my invention is as follows: The cable being put in motion in the usual manner, to start the car the gripping devices are elevated by operating the angle-lever V so as to first elevate the standard M and throw the gripper into proper position. The angle-levers R U are then operated to grip the cable, the parts by their respective locking devices being securely fastened in position.

To stop the car, the operation of the parts is reversed, releasing the gripping devices and dropping the movable standard M, the weight of which depresses the stirrup and applies the brakes.

In order to provide against accidents, the supporting brackets are provided with seats H', for the reception of extra cables, to be used in case of injury or breakage of the moving cable.

Should the weight of the movable standard be insufficient to apply the brakes effectively, additional power may be had by pressing forward upon the lever V, as is evident.

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

1. The combination, with the car, of the metallic band attached thereto and having projecting ends at the front and rear, the standard secured to the rear and bar extending forward from the same, the movable standard carrying the gripping devices and secured to said rod, and the mechanism for operating said gripping devices, substantially as specified.

2. The combination, with the movable standard and the angle-lever, whereby it is elevated, of the bracket having a seat for the cable, the gripping angle lever and its handle, and the locking angle-lever having a ratcheted arm, the whole arranged to operate substantially as and for the purposes specified.

3. The combination, with the movable standard and its operating-lever, of the stirrup and sliding plate connected with the brake chain, whereby the brake is automatically applied, substantially as set forth.

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

GEORGE WARBURTON.

Witnesses:

C. M. ALEXANDER,  
CHAS. D. DAVIS.