

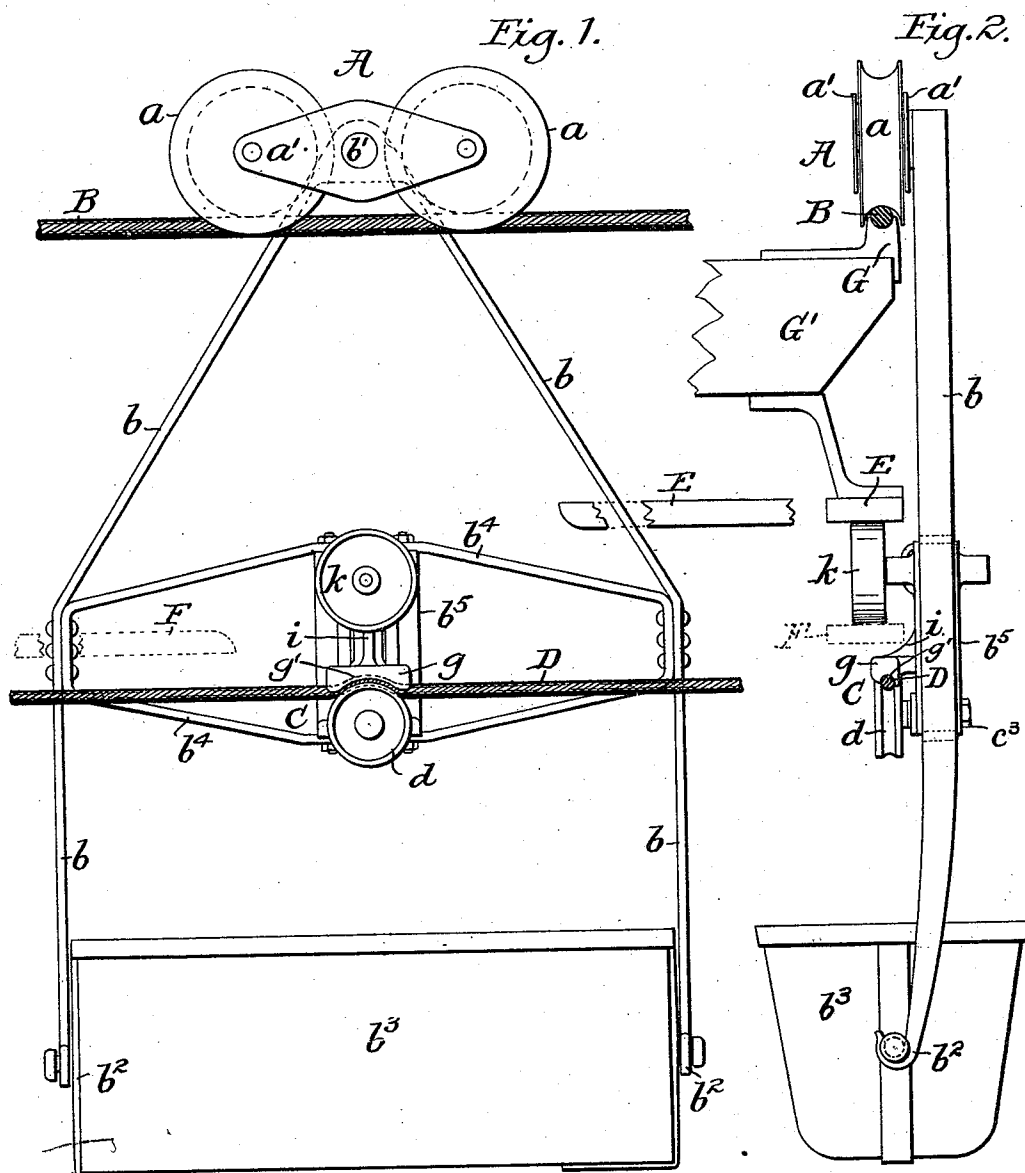
(No Model.)

2 Sheets—Sheet 1.

S. A. COONEY.
AERIAL ROPE TRAMWAY.

No. 534,316.

Patented Feb. 19, 1895.



WITNESSES:

H. Graham.
E. L. Todd.

INVENTOR

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Sherm A. Cooney,
BY
Trabana & Low
ATTORNEYS.

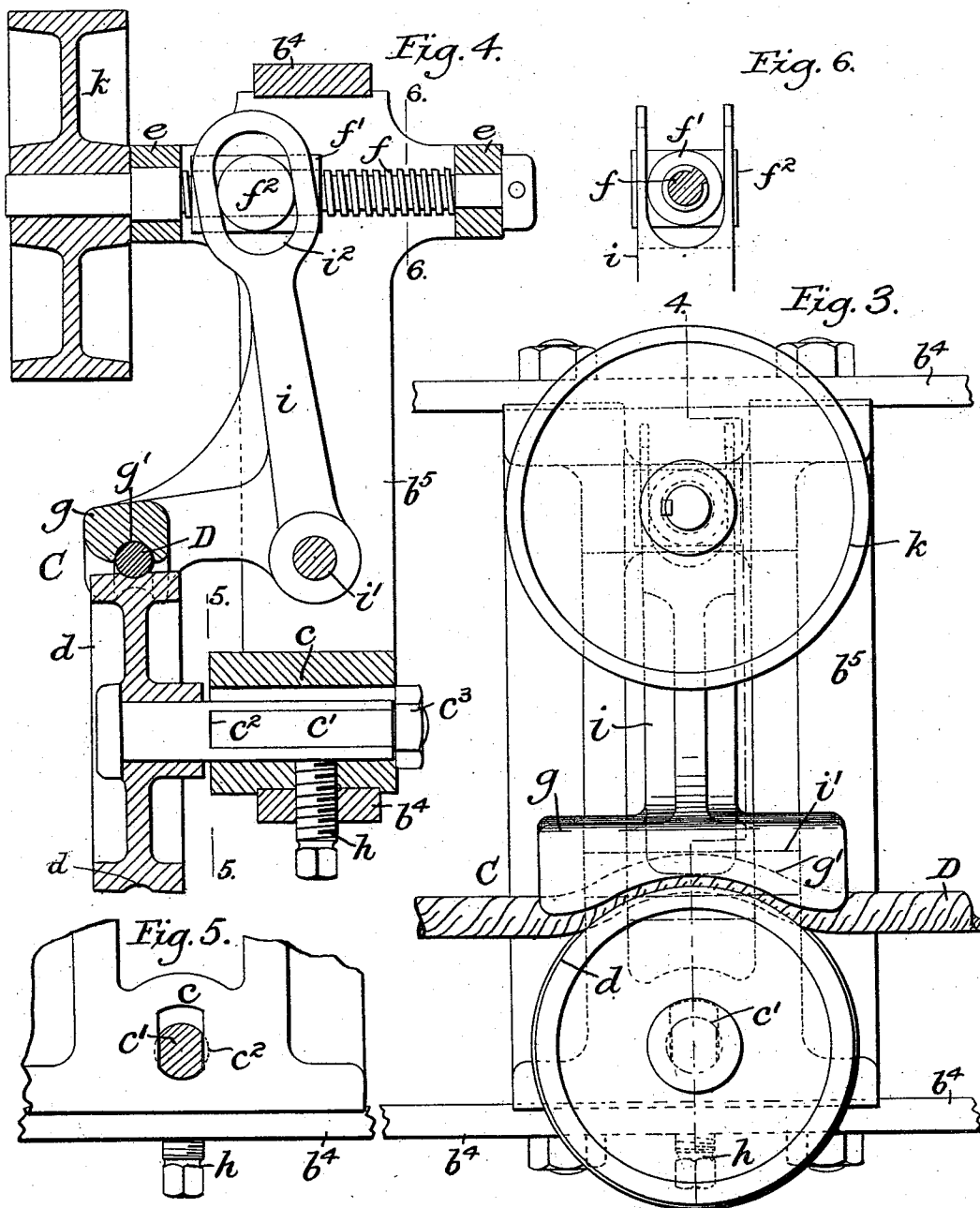
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UNITED STATES PATENT OFFICE.

SEBERN A. COONEY, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO THE
JOHN A. ROEBLING'S SONS COMPANY, OF TRENTON, NEW JERSEY.

AERIAL ROPE TRAMWAY.

SPECIFICATION forming part of Letters Patent No. 534,316, dated February 19, 1895.

Application filed August 9, 1894. Serial No. 519,899. (No model.)

To all whom it may concern:

Be it known that I, SEBERN A. COONEY, a citizen of the United States of America, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Aerial Rope Tramways, of which the following is a specification.

The present improvements relate generally to cable tramways, but more particularly to aerial rope ways wherein the trolley with its suspended bucket or load is supported by and travels along a ropeway stretched between distant points, and is propelled along such ropeway by a motor cable having some attachment to the trolley or its frame.

The invention has for its object to provide exceedingly simple and effective means for gripping the motor cable to the trolley or car and also to provide in connection therewith means for causing the automatic gripping and releasing of the motor cable.

With these ends in view the improvements consist in the novel structure, arrangement and combinations of parts hereinafter fully set forth.

To aid a more ready understanding of the invention a detailed description of a practical embodiment thereof will now be given in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of a portion of an aerial tramway and a trolley and its suspended bucket and the motor cable with full and dotted lines indicating the positions of the automatic grip operating devices relative to the grip on the trolley or its framing. Fig. 2 is an end elevation thereof, the rope of the tramway and the motor cable being in section, and one of the rigid supports for the ropeway usually located at the termini; the automatic grip operating devices being indicated by full and dotted lines. Fig. 3 is an enlarged front elevation of a motor cable grip or gripping device with the contiguous portion of the trolley frame. Fig. 4 is a vertical transverse section taken on the line 4, 4, of Fig. 3. Fig. 5 is a sectional detail on the line 5, 5, of Fig. 4; and Fig. 6 is a like detail on the line 6, 6, of Fig. 4.

The invention now to be particularly described while particularly applicable to an

aerial rope tramway and is illustrated and will be described in connection therewith, may obviously be applied to and employed in other forms of tram or railways, and with cars, trucks or trolleys other than those especially adapted for aerial ways, and hence it is to be understood is not necessarily limited in its useful applications to the precise structures herein shown and described.

As shown, the trolley A, *per se*, consists of the usual pair of grooved truck-wheels *a*, supported and connected together by a pair of side plates *a'*, which wheels are arranged to travel along a track in this instance provided by a properly stretched ropeway B supported a distance above the ground in any of the well known modes not necessary to mention here. The bucket or other carrying frame *b* is of A-shape of flat bar iron pivoted at its upper end on a pivot *b'* fixed to the trolley side frames *a'* and at its lower ends is formed with hooks *b²* which carry the bucket *b³* suspended between them. Intermediate of its upper and lower ends the frame *b* is provided with an open cross frame *b⁴* of flat bar iron riveted to the opposite vertical legs of the frame, such cross frame approaching diamond form with flattened corners; and vertically and midway of the cross frame is riveted or otherwise secured a grip carrying plate *b⁵*.

The carrying plate *b⁵*, see Fig. 4, is provided with a bearing *c* for the horizontal spindle *c'* of a grip wheel *d* forming one member of the gripping device C, and with a pair of bearings *e* for a transverse screw shaft *f* having connection with the grip shoe *g* forming the other member of the gripping device C, said grip members being adapted to coact to grip a motor cable D.

The bearing *c* for the spindle *c'* is slightly elongated, see Fig. 5, so that the spindle with the grip wheel *d* may be adjusted vertically by a set screw *h*; and the spindle is flattened on its opposite sides to fit said bearing without turning and so as to form a shoulder *c²* for contact with one side of the bearing; the opposite end of the spindle having a nut *c³* to secure the spindle in place after each vertical adjustment. The spindle projects outward from the bearing to the front of the carrying plate *b⁵* and forms a support for

the grip wheel *d* while his loosely journaled thereon and is confined between the bearing *c* and a head on the spindle *c'*.

The grip wheel *d* is arranged to underlie the motor cable *D* to take its weight and to oppose and counteract the thrust of the grip shoe *g* when gripping the cable and also when the grip is open to rotate loosely against the underside of the motor cable. Said wheel in the main is formed with a straight slightly conical circumferential flange with a shallow central recess *d'* for the cable, as is seen in Fig. 4.

The grip shoe *g* is formed by a longitudinal horizontally arranged block having in its under surface a gripping recess or groove *g'* to take over the motor cable and curved to correspond with an arc of a circle concentric with the grip wheel *d* so that in gripping the cable, the latter will be bent over the top surface of the grip wheel *d* and thus the gripping surface and power of the grip are materially increased, as is indicated in Figs. 1 and 3. The grip-shoe or block *g* is arranged to be adjusted toward and from the grip wheel *d*, and for this purpose is carried or formed integral with the short arm of a bell crank *i* that is mounted in a vertical recess in the carrying plate *b* on a cross stud or rod *i'*. The upper end of the long arm of the bell crank *i*, is bifurcated, see Fig. 6, to receive a nut *f'* traveling on the screw rod *f*, and the opposite limbs of the bifurcation are provided with the slot *i²* to engage studs or projections *f²* extending from the opposite sides of the nut so that the movement of the nut is communicated to the bell crank and causes it to rock on its pivot to move the grip shoe into or from gripping action.

The screw shaft *f* may be rotated in any suitable manner either by hand or power or automatically by the travel of the car or trolley with which the gripping device is used. In the present embodiment of the invention, the screw shaft *f* has secured to it a plain flanged wheel or pulley *k*, through which the screw shaft may be rotated.

The means for automatically opening and closing the grip members in the present case are arranged parallel with the line of movement of the trolley along the rope tramway so that the grip is operated in the travel or movement of the trolley. Thus at or near one end of the tramway there is properly supported a longitudinally arranged bar, beam or timber *E* adapted to be borne upon along its under side by the wheel *k* of the gripping device *C* in the movement of the trolley so that such wheel shall be rotated to rock the bell-crank *i* and close the grip-shoe *g* in firm gripping contact with the cable on the grip wheel *d*. At or near the other end of the tramway another longitudinally arranged bar, beam or timber *F* is supported that is adapted to be borne upon along its upper surface by said wheel *k* in the travel of the trolley whereby

said wheel is rotated to rock the bell crank *i* and remove the grip shoe *g* from gripping contact with the cable.

The surface of the operating wheel *k* or the surfaces of the closing and releasing bars *E*, *F*, may be faced with some friction-increasing material; such as soft rubber or the like, to better insure the wheel *k* being rotated when traveling in contact with said bars.

In Fig. 2 is shown a rigid supporting shoe *G* firmly bolted to a beam *G'*, such shoe serving as a support for the rope forming the ropeway to hold it rigid at the termini of the way, as is usual in such structures.

What is claimed is—

1. In a gripping device, the combination of a revoluble grip-wheel member, a coacting grip-shoe member, a screw and connections for moving the grip shoe to and from gripping position, as set forth.

2. In a gripping device, the combination of a revoluble grip-wheel member, a coacting grip-shoe member, a screw and connections for moving the grip-shoe to and from gripping position, an operating wheel fast to said screw and automatic means for rotating said wheel, as set forth.

3. In a gripping device, the combination of a grip-wheel member, a coacting grip-shoe member, a bell crank carrying the shoe and a screw and nut for rocking the bell crank, as set forth.

4. In a gripping device, the combination of the two members of the grip a bell-crank carrying one grip member, a screw and nut for rocking the bell crank, and a pulley adapted to be rotated by the movement of the gripping device and connected with said screw and nut as set forth.

5. In a cable grip, the combination of the two members of the grip, a bell-crank carrying one grip member, a screw and nut for rocking the bell crank, a wheel fast to said screw and automatic means for rotating the wheel and screw, as set forth.

6. In a cable grip, the combination of the revoluble grip-wheel member, a coacting grip-shoe member, a bell crank one arm of which carries said shoe, a screw shaft, a nut traveling on said shaft engaging the other arm of said bell-crank and a wheel for rotating the screw shaft, as set forth.

7. The combination with the trolley or car frame, a cable grip-wheel member mounted on a horizontal axis and forming a support for the motor cable, a coacting grip-shoe member, a screw shaft and connections for moving the grip-shoe to and from gripping contact with the cable and an operating wheel secured to said screw shaft, as set forth.

8. In a cable grip, the combination of the two members of the grip, a bell crank carrying one grip member, an adjusting screw for setting the other grip member vertically with respect to the coacting member a screw shaft for rocking the bell crank, and a pulley

adapted to be rotated by the movement of the gripping device and connected with said shaft as set forth.

9. In a trolley cable-grip, the combination
5 of two grip members, means for actuating one of said members toward and from the other, and a rotary device such as a pulley connected
10 immediately, as by a lever, with said actuating means and situated in planes parallel with the movement of the trolley and with the

planes of actuation of said grip-member and adapted to be turned by a stationary track or stop, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two witnesses.

SEBERN A. COONEY.

Witnesses:

GEO. H. GRAHAM,
W. H. GRAHAM.