O. TORSETH.

TRACTION SYSTEM.

APPLICATION FILED JULY 24, 1914.

1,121,779.

Patented Dec. 22, 1914.

4 SHEETS—SHEET 1.

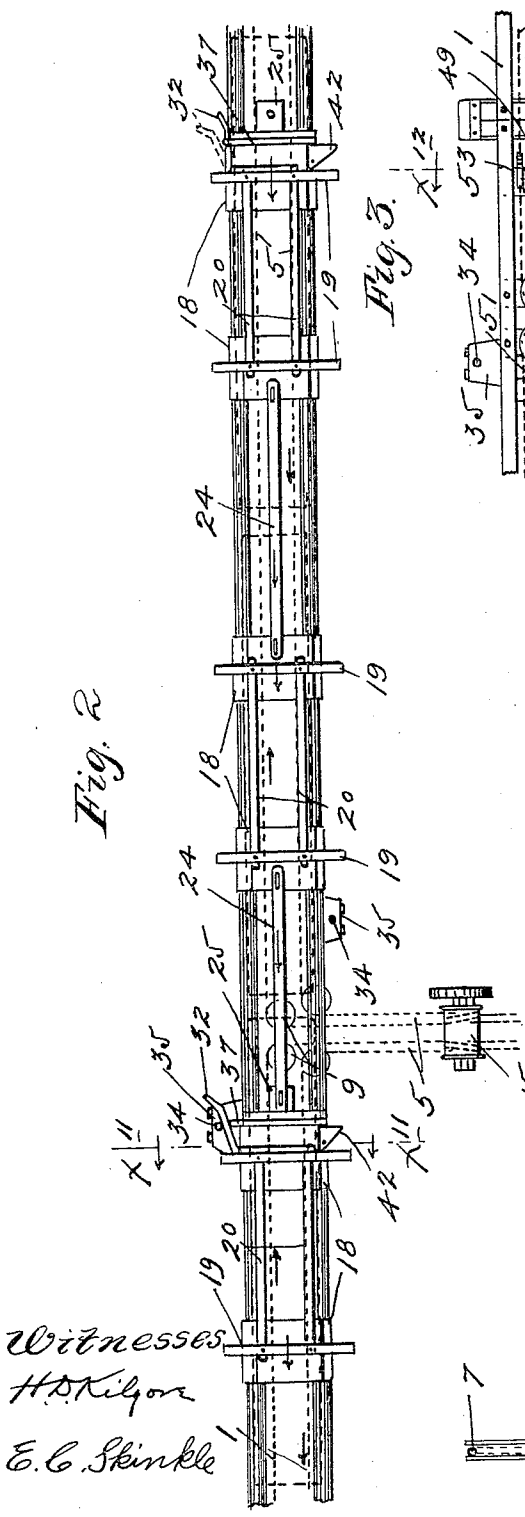


Fig. 2.

Fig. 3.

Fig. 1.

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4 SHEETS—SHEET 2.

Fig. 4.

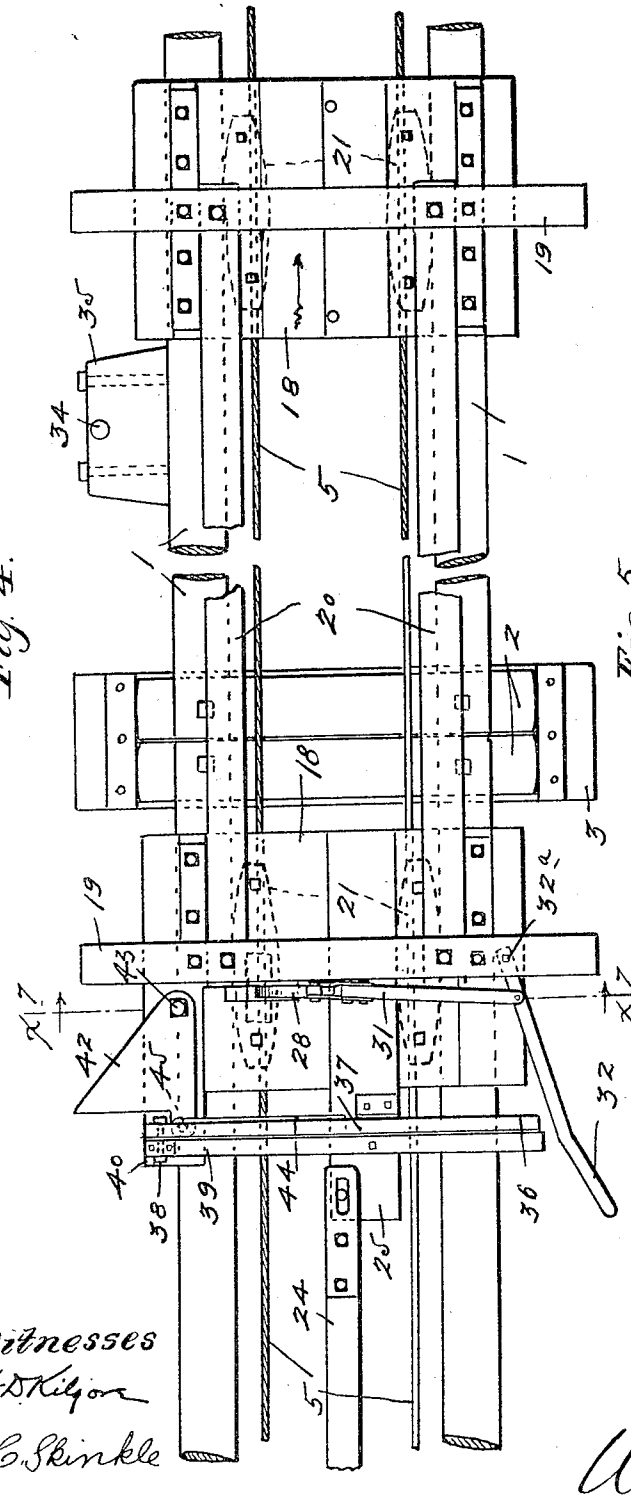
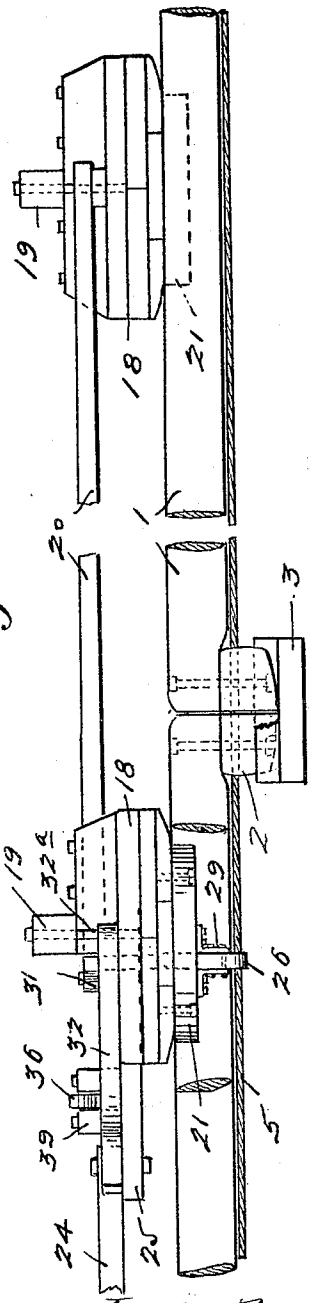


Fig. 5.



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4 SHEETS—SHEET 3.

Fig. 7.

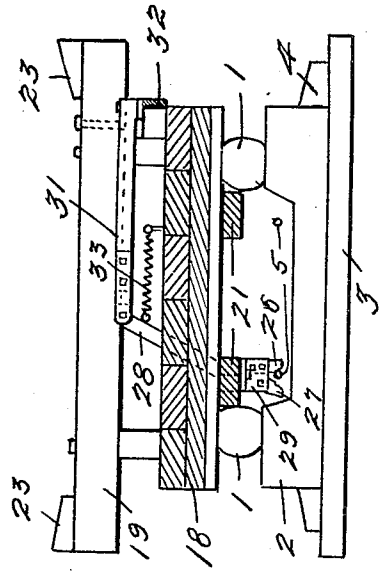


Fig. 9.

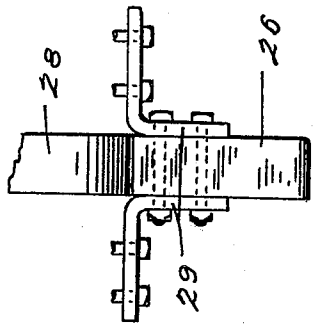


Fig. 6.

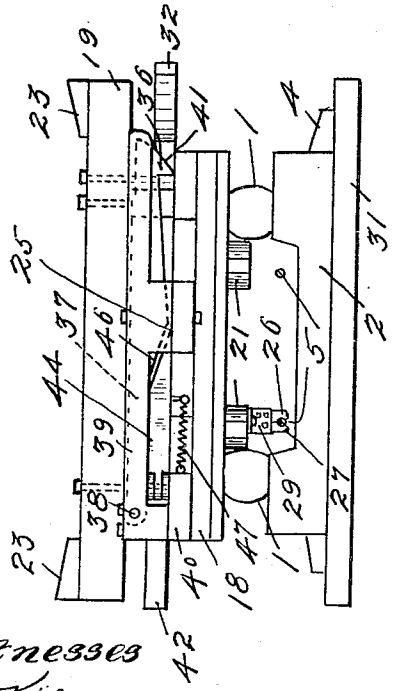
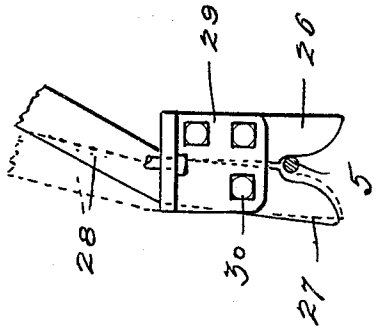


Fig. 8.



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4 SHEETS—SHEET 4.

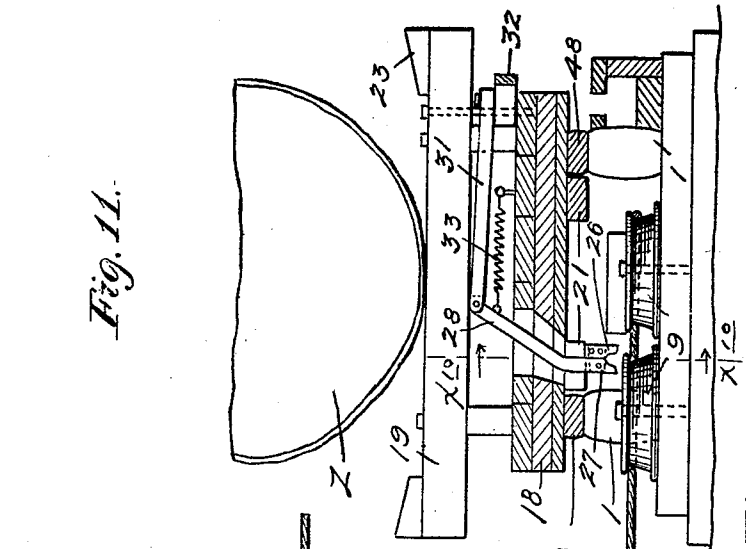


Fig. 11.

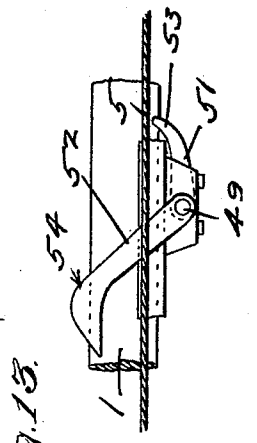


Fig. 13.

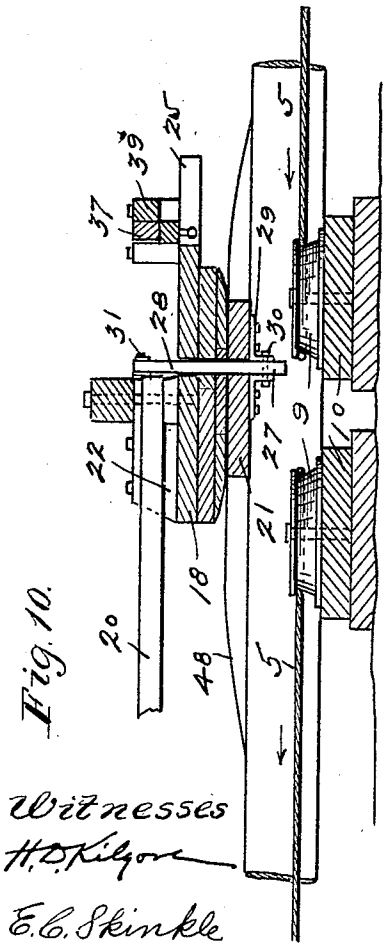


Fig. 10.

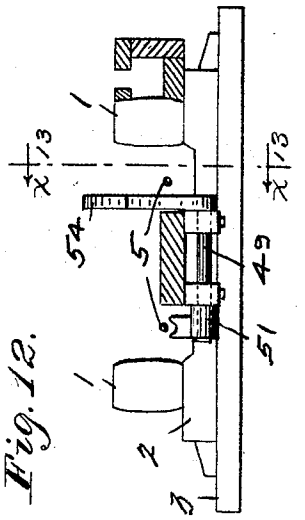


Fig. 12.

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UNITED STATES PATENT OFFICE.

OSCAR TORSETH, OF EAU CLAIRE, WISCONSIN.

TRACTION SYSTEM.

1,121,779. Specification of Letters Patent. Patented Dec. 22, 1914.

Original application filed January 26, 1914, Serial No. 814,361. Divided and this application filed July 24, 1914. Serial No. 852,956.

To all whom it may concern:

Be it known that I, OSCAR TORSETH, a citizen of the United States, residing at Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented certain new and useful Improvements in Traction Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in traction systems and is in the nature of a division of my co-pending application entitled "Log conveying systems," filed January 26, 1914, under Serial Number 814,361.

To the above end, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a diagrammatic view of the improved system; Fig. 2 is a plan view of a train, made up of several log cars, on a section of the track of the improved system; Fig. 3 is a plan view of a section of the track, one of the cable lifting devices, and the abutments at the side of the track; Fig. 4 is a plan view of one of the log cars and a section of the track, on an enlarged scale, some parts being broken away; Fig. 5 is a side elevation of the parts shown in Fig. 4; Fig. 6 is a left end elevation of the parts shown in Figs. 4 and 5; Fig. 7 is a view partly in end elevation and partly in transverse vertical section, taken on the line x^7—x^7 of Fig. 4; Fig. 8 is a detail view in side elevation of one of the cable grips; Fig. 9 is an edge elevation of the parts shown in Fig. 8; Fig. 10 is a view principally in longitudinal vertical section, taken on the line x^{10}—x^{10} of Fig. 11; Fig. 11 is a view partly in end elevation and partly in transverse vertical section, taken substantially on the line x^{11}—x^{11} of Fig. 2, on an enlarged scale; Fig. 12 is a view, partly in end elevation and partly in transverse vertical section, taken on the line x^{12}—x^{12}, of Fig. 3, on an enlarged scale; and Fig. 13 is a detail view, in side elevation, in the vicinity of the line x^{13}—x^{13} of Fig. 12.

Of the parts of the track which is made the subject matter of an application entitled "Tracks," filed July 24, 1914, under Serial No. 852,957, it is only necessary to note the rails 1, ties 2, and sleepers 3.

A plurality of endless car-pulling cables 5 extend one ahead of the other the full length of the track and travel between the rails 1 within cut-out portions of the ties 2. The entire system is divided into blocks and there are two pulling cables for each block. As shown, I preferably employ a single explosive engine, indicated as an entirety by the numeral 6 for driving the two cables of each block. It is, of course, understood that any other suitable means may be employed for driving the cables 5. The outer looped portions of each pair of cables 5 extend in opposite directions down the track, say, one-eighth of a mile each way, and run over guide sheaves 7 secured to transverse timbers 8, bolted to the under side of the rails 1. At their abutting or inner looped portions the cables 5 run over pairs of guide sheaves 9, bolted to timbers 10, as best shown in Figs. 10 and 11. From the guide sheaves 9, the cables 5 extend at right angles, to one side of the track, and over drums 15, driven by the engines 6. In actual usage, suitable slack take-up devices will be provided for the cables 5, preferably as described in my co-pending application, S. N. 814,361.

In Fig. 2 is shown a train made up of three log cars, each of the end cars being equipped with cable-gripping devices which will presently be described. Each log car, as shown, comprises a pair of shoes 18, bolsters 19, and a pair of reach rods 20. Flange blocks 21 are bolted to the bottoms of the shoes 18, between the rails 1, to prevent endwise sliding movement of the shoes on the rails 1. Beveled stop blocks 23 are spiked to the outer ends of the bolsters 19 to prevent the log or logs Z on the cars from rolling off. The cable-grip mechanism of each grip car comprises a relatively fixed jaw 26 and a relatively movable jaw 27, having a lever extension 28, as best shown in Figs. 2 and 4. The jaw 26 is rigidly bolted to a bracket 29, which, in turn, is bolted to one of the flange blocks 21 of the rear shoe

18, and the jaw 27 is pivoted at 30 to said bracket for movement toward and from said fixed jaw. A link 31 connects the upper or free end of the lever extension 28, which works through a slot in the rear shoe 18, to the intermediate portion of a horizontally extended grip lever 32, having its short ends pivoted at 32ª between the rear shoe 18 and its bolster. The movable grip jaw 27 is normally and yieldingly held away from the fixed jaw 26 by a coiled spring 33, anchored to the lever extension 28 and the rear shoe 18, as best shown in Figs. 7 and 11. The grip lever 32 extends rearward from the right hand side of the log car, and is normally and yieldingly held outward, as best shown in Fig. 4, by the spring 33.

At certain predetermined intervals along the track are located, on each side thereof, a plurality of vertically projecting pins 34, the lower ends of which are anchored in blocks 35, bolted to the outer faces of the rails 1. These pins 34, the exact location of which will presently be described, serve a double purpose in setting and releasing the cable grip mechanism. When the grip jaws 26—27 are open and one of the grip cars passes one of the pins 34, on the side of the track on which the grip lever 32 is located, said lever is pressed inward thereby. This movement of the lever 32, through its several connections to the jaw 27, moves said jaw toward the coöperating jaw 26, thereby clamping the cable 5 therebetween.

Before the grip lever 32 passes entirely out of contact with the engaged pin 34, the same is secured against return movement under the action of the spring 33, by a hook 36 on the free end of the long lever 37, pivoted at 38 to a horizontally extended bar 39. This bar 39 extends transversely under the log car parallel with the lever 37 and is rigidly bolted to the rear shoe extension 24 and to a second extension 40 on said shoe. As the grip lever 32 is moved inward by the engaged pin 34, the same first engages a cam nose 41 on the hook 36 and thereby lifts the lever 37 a distance sufficient to permit said grip lever to pass under the hook 36. After the grip lever 32 passes under the hook 36, said hook drops under the action of gravity, engages the grip lever 32, and holds the same against return movement. By reference to Fig. 6 it will be noted that when the lever 32 is held by the lever 37, the free end of the lever 32 extends under the adjacent end of the bar 39 and is held thereby against lifting movement.

For releasing the grip from the cable 5, a cam trip block 42 is pivoted at 43 to the opposite side of the rear shoe 18 from the grip lever 32. The cam surface of this tripping block 42, normally extends rearwardly and outwardly from the log car. One end of the sliding wedge block 44 is pivoted at 45 to the rear inner edge portion of the cam block 42. This wedge block 44 works under the lever 37 and rests directly on the rear shoe extensions 24 and 40, as best shown in Figs. 4 and 6. Formed on the under side of the lever 37 is a cam surface 46, with which the wedge block 44 coöperates to lift the hook 36 out of engagement with the grip lever 32. A coiled spring 47, anchored to the rear shoe extension 40 and to the wedge block 44, normally holds said wedge block retracted and the cam block 42 in a position to be engaged by one of the pins 34. When the cam block 42 engages one of the pins 34, the same is swung inward on its pivot 43, thereby forcing the wedge block 44 under the cam surface 45 on the lever 37, thereby lifting the hook 39 out of engagement with the grip lever 32, and releasing the same. At the time the grip lever 32 is released, the spring 33 moves the pivoted jaw 27 away from the fixed jaw 26, thereby releasing the cable 5.

As one of the grip cars is passing over either of the sheaves 7 or 9, or, in other words, from one cable section to another, the movable jaw 27 of its grip mechanism is first automatically opened to release the held cable section and then automatically closed on the adjacent cable section as previously described. In each train of log cars it is necessary to have two grip cars in order that the rear grip car may push the front car from one cable section to the other at the time its grip mechanism is released from said cables and for the front car to pull the rear car from one cable section to the other at the time its grip mechanism is released from the cables. In some instances, it might be desirable to equip a single car with two of these grip mechanisms. At the time the log cars are passing over either of the guide sheaves 7 or 9, it is necessary to elevate the cars a distance sufficient to permit the grip jaws 26—27 to pass over said sheaves. This elevating of the cars is, as shown, preferably accomplished by rigidly securing heavy planks 48 on the upper surfaces of the rails 1, adjacent to the sheaves 7—9, as best shown in Figs. 10 and 11. The ends of these planks 48 are beveled to sharp edges where they leave the rails 1 in order to permit the shoes 18 to smoothly pass thereover. To grip one of the cable sections 5 with the jaws 26—27, after one of the grip cars has passed over either of the sheaves 7 or 9, it is necessary to raise the underlying section of said cable so as to come between said jaws. To accomplish this result, I place transversely of the track, between the rails 1, a plurality of rock shafts 49, journaled in bearings 50. On one end of each rock shaft 49 is secured an arm 51 and on the other end thereof is secured an arm 52. These arms

51—52 extend upwardly and outwardly in opposite directions, and they are provided, at their free ends, respectively, with a fork 53 and a cam head 54, as shown in Fig. 3. There is one of these cable lifting devices on each side of the sheaves 7—9 and the arms 51—52 are alternately secured to the rock shafts 49 so as to lift the cables in either direction of travel of the log cars. The shoes 18 of the log cars, in passing over the cam heads 54, depress the same, thereby rock the shaft 49 and elevate the forks 53. These forks 53 directly underlie the cables 5 and, when raised, lift the underlying sections of said cables into positions where they may be engaged by the grip jaws 26—27.

From the foregoing description it is evident that the cars will be successively moved from one cable section to the other and automatically transferred over the intervening spaces between adjacent cable sections. To reverse the direction of travel of the cars, it is necessary to turn the same around. This may be done either by picking the same up manually, or otherwise. This turning of the cars is necessary in order that the grip jaws 26—27 may engage the return portions of the cable sections 5. To start the cars back on a return trip, it is necessary to set the lever 32 by hand. To permit two or more trains to run in opposite directions on a single track, I provide a car offsetting device of novel construction, fully described and claimed in my said co-pending application, S. N. 814,361.

What I claim is:

1. The combination with a track, of a series of endless cables, arranged one ahead of the other along between the rails of said track, each of said cables having one of its looped portions extended laterally to one side of said track, and means for driving said endless cables at their laterally extended looped portions.

2. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a pair of cable grips spaced one in advance of the other, and automatic means for successively rendering said grips operative and inoperative, while said car is passing from one of said cable sections to the other.

3. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a pair of cable grips spaced one in advance of the other, cable grip setting and releasing devices on said car, and abutments along said track for actuating said cable grip setting and releasing devices at predetermined intervals.

4. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a pair of cable grips spaced one in advance of the other, grip setting levers mounted on said car, latches operative on said levers for holding said grips closed, and abutments along said track for alternately actuating said levers and latches.

5. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a pair of cable grips, spaced one in advance of the other, grip setting levers mounted on said car and set oblique with respect to the direction of travel thereof, latches operative on said levers for holding said grips closed, cam blocks for releasing said latches, and abutments along said track for alternately actuating said levers and cam blocks.

6. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a pair of cable grips spaced one in advance of the other, grip setting levers mounted on said car and set oblique in respect to the direction of travel thereof, latches operative on said levers for holding said grips closed, wedges for releasing said latches, cam blocks for actuating said wedges, and abutments along said track for alternately actuating said levers and cam blocks.

7. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a pair of spring-released cable grips, spaced one in advance of the other, grip levers mounted on said car and set oblique in respect to the direction of travel thereof, latches operative on said levers for holding said grips closed, said levers arranged to operate said latches to be engaged thereby, wedges for releasing said latches from said levers, cam blocks for actuating said wedges, and abutments along said track for alternately actuating said levers and cam blocks.

8. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a pair of cable grips spaced one in advance of the other, automatic means for successively rendering said grips operative and inoperative, while said car is passing from one of said cable sections to the other, and cable-lifting devices arranged to be actuated by a passing car, for holding said cables in a position to be engaged by said cable grips.

9. The combination with a track, of a series of driven endless cables, arranged one ahead of the other along said track, a car, arranged to run on said track and having a

pair of cable grips spaced one in advance of the other, automatic means for successively rendering said grips operative and inoperative, while said car is passing from one of said cable sections to the other, and means for elevating said car while passing from one of said cable sections to the other.

10. The combination with a track, of a pair of endless cables, arranged one ahead of the other, with the opposite runs of each cable laterally offset between the rails of said track, said cables having their adjacent looped portions extended laterally to one side of said track, and common means for driving the laterally extended looped portions of said cables.

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

OSCAR TORSETH.

Witnesses:
EMILY MAY KING,
HARRY D. KILGORE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."