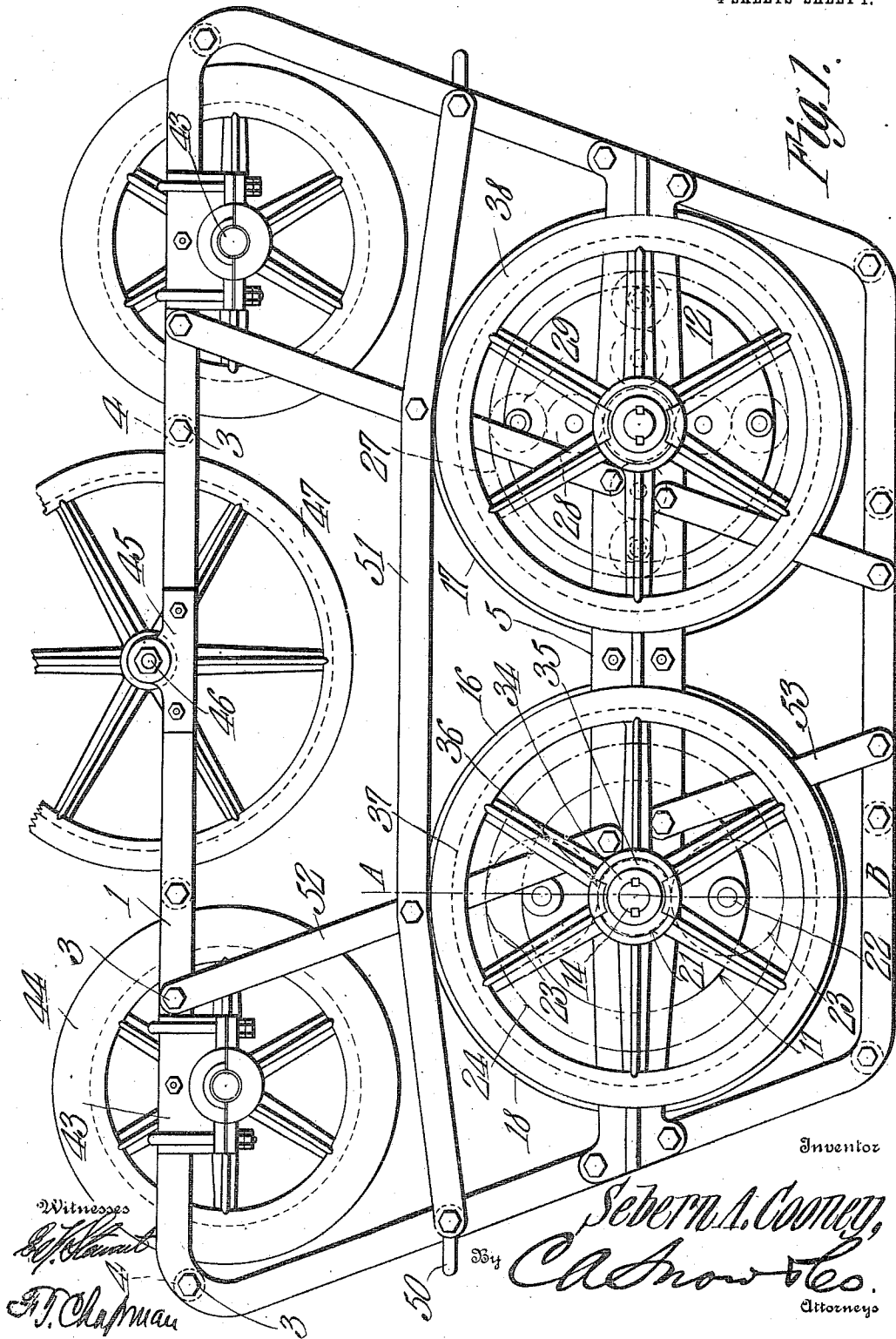


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APPLICATION FILED OCT. 16, 1909.

Patented Oct. 18, 1910.

4 SHEETS-SHEET 1.



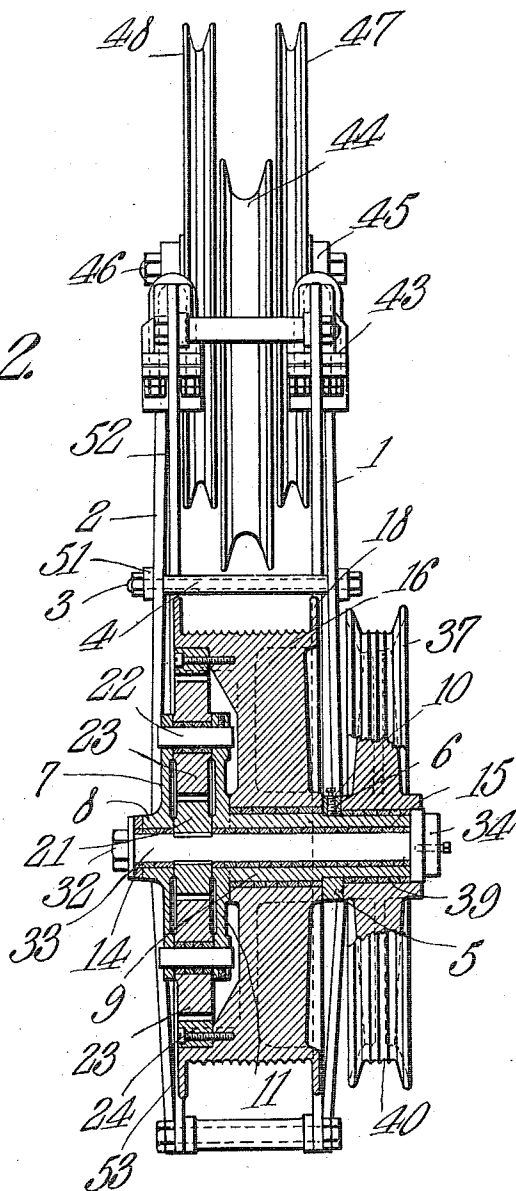
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4 SHEETS—SHEET 2.

Fig. 2.



Witnesses

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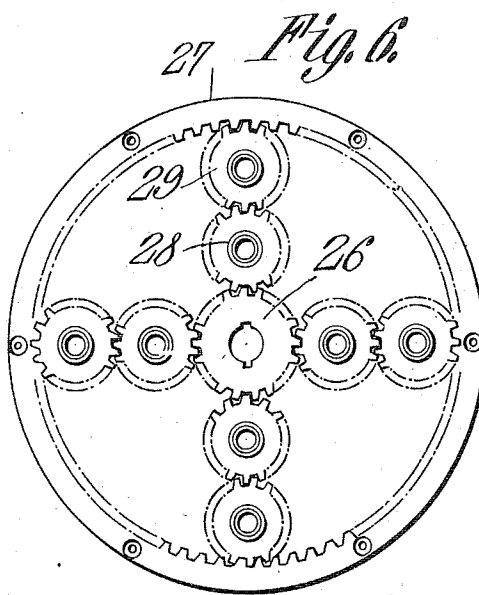
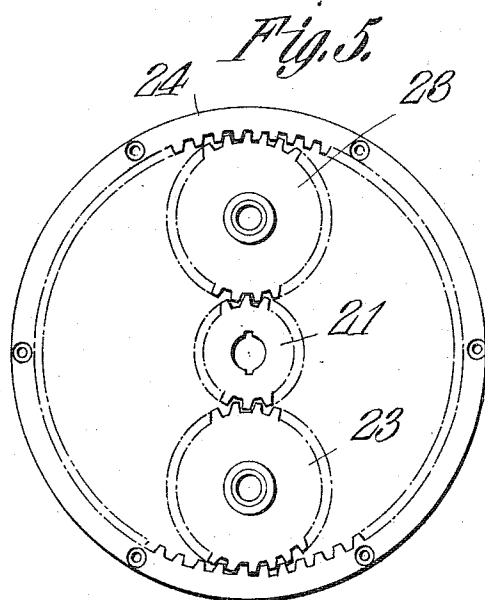
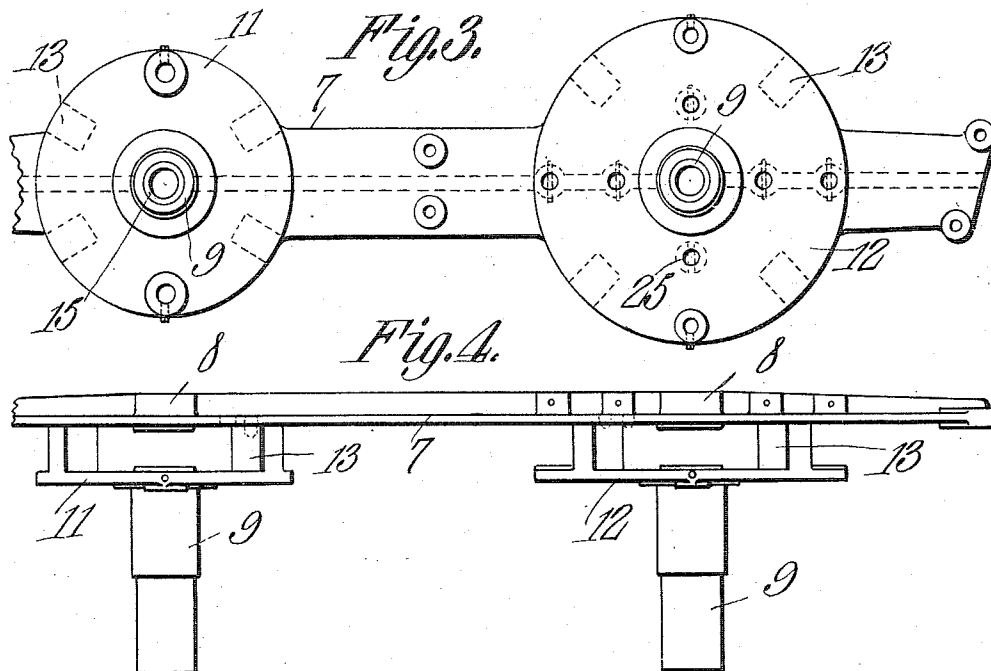
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4 SHEETS—SHEET 3.



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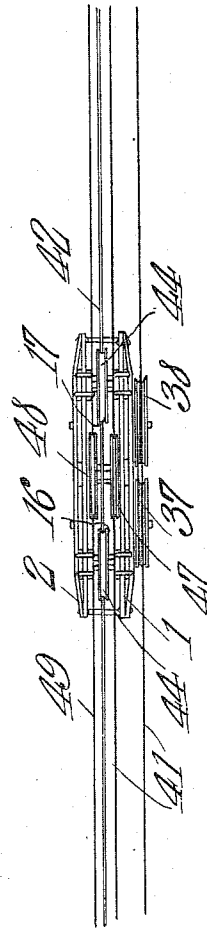
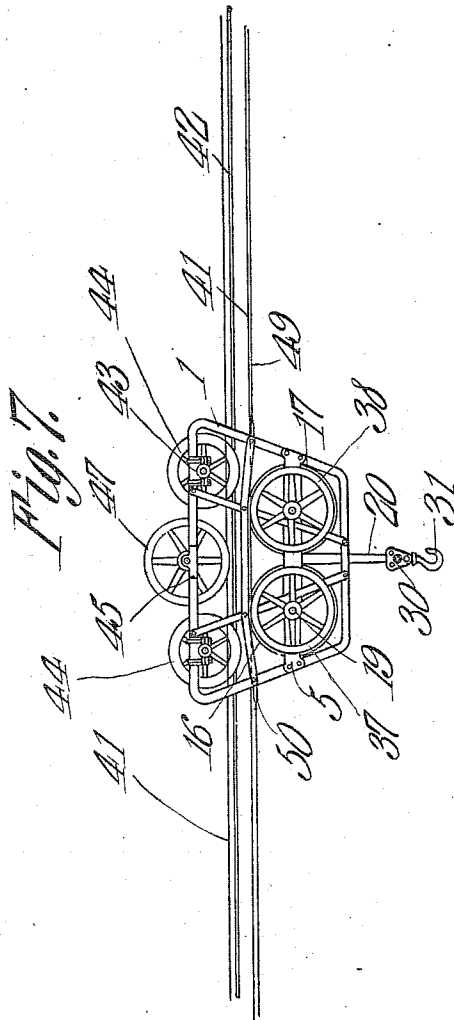
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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CABLEWAY-CARRIAGE.

972,825

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed October 15, 1909. Serial No. 522,772.

To all whom it may concern:

Be it known that I, SEBERN A. COONEY, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented a new and useful Cableway-Carriage, of which the following is a specification.

This invention has reference to improvements in carriages for cableways designed for the transportation of material from place to place within the range of the cableway, and the object of the present invention is to provide a carriage wherein the operating cable or rope for the fall may be maintained at all times in such taut condition that the necessity of carriers for the fall operating rope or cable is avoided.

In accordance with the present invention there is provided an aerial cable track suitably supported at the ends as is customary in structures of this type and on this cableway there is mounted a carriage on which are winding drums and to the latter the fall rope is attached. These winding drums are driven by an endless cable extending between the terminals of the cable track and is at one terminal passed a sufficient number of times around an actuating drum. The carriage is caused to move from place to place on the cableway by means of a traction rope which may have one end attached to the carriage and from thence the traction rope may extend to one terminal and be there passed around an idler pulley or sheave and returned to the other terminal and be there wound about driving drums, from whence the traction rope is continued to the other side of the carriage.

By a suitable manipulation of the driving mechanism the traction rope and the fall operating cable may be caused to move at the same speed until the carriage is located at the point where it is desirable to operate the fall. Now by locking the traction rope against movement the fall operating cable may be caused to move in the proper direction to drop or lift the fall block as may be desired. Under all these working conditions the traction rope and the fall operating cable may be maintained under taut conditions so that the necessity of rope carriers for either is obviated.

The invention will be best understood from a consideration of the following detail description taken in connection with the ac-

companying drawings forming a part of this specification, in which drawings,

Figure 1 is a side elevation of the improved cableway carriage. Fig. 2 is an end elevation of the structure of Fig. 1 with a portion in section on the line A—B of Fig. 1. Fig. 3 is an elevation of a portion of the carriage frame. Fig. 4 is a plan view of the structure of Fig. 3. Fig. 5 is a view illustrating the transmission gear of one of the fall operating drums. Fig. 6 is a similar view of the other fall operating drum. Fig. 7 is a diagrammatic representation of a cableway system embodying the present invention. Fig. 8 is a plan view of a portion of the same.

Referring first to Figs. 1 to 6, which figures show the carriage independent of the supporting and operating cables, there are shown two side frames 1—2 secured together in parallel spaced relation by bolts 3 upon which between the frames are sleeves 4. Extending longitudinally of the frame 1 near the lower end thereof is a casting 5 having bearings 6 formed therein for a purpose which will presently appear. Secured to the frame 2 near the lower end thereof is another casting 7 provided at appropriate points with bearings 8 for a purpose that will presently appear and in spaced alinement with these bearings are other bearings in the form of sleeves 9 adapted to extend through the bearings 6 of the casting 5 in which they are secured by suitable set screws 10.

The sleeves 9 extend from respective disks 11 and 12 fast on the casting 7 in spaced relation thereto, being joined to the casting 7 by connections 13. Of course these several parts may be separately formed and joined by any suitable devices.

Mounted in each bearing 8 and in the sleeve 9 in alinement therewith is a shaft 14 between which and the inner walls of the bearing there are bushings or sleeves 15 of suitable material.

Mounted on the sleeves 9 between the respective disks 11 or 12 and the inner face of the casting 5 are two drums 16 and 17, each formed at the outer faces with radial flanges 18 while the rim of the drum has a helical groove formed therein for the reception of a fall rope or cable shown at 20 in Fig. 7. One side of each drum 16, 17, overhangs and houses the respective disk 11

or 12. The shaft 14 extending through the disk 11 carries between said disk and the adjacent wall of the casting 7 a gear wheel 21 keyed to said shaft 14. Extending between diametrically opposite points of the disk 11 near the periphery thereof and corresponding portions of the casting 7, which at this point is widened for the purpose, there are pins 22 on each of which there is mounted a gear 23 in mesh with the gear 21. Secured in a suitable seat formed on the corresponding face of the drum 16 is an annular internal gear 24 with which the gears 23 are in mesh at diametrically opposite points. For the purposes of repair the gears 24 and the gear wheels 21 and 23 are made removable so that worn or damaged parts may be readily replaced. The drum 17 is similarly equipped except that the disk 12 and the corresponding part of the casting 7 are provided with two diametric rows of holes 25 with one row at right angles to the other row and these rows are designed to receive pins like the pins 22 carrying the pinions 23. The shaft 14 extending through the disk 12 has keyed thereto a gear wheel 26 and the drum 17 carries an annular internal gear 27 like the gear 24 of the drum 16.

Extending from the gear 26 to the gear 27 are two circular series of gear wheels 28, 29. If now the gear wheels 21 and 26 be rotated in the same direction the additional series of gear wheels in the drum 17 will cause the latter to rotate in the opposite direction to the rotation of the drum 16. If the fall rope 20 be made fast at each end to a respective drum 16 and 17, then when the gear wheels 21 and 26 are rotated in one direction the drums will rotate oppositely in directions to cause the winding of both ends of the fall rope simultaneously upon the drums and a fall block 30 carried by the fall rope will be elevated. It is customary to provide the fall block with a hook 31 or other suitable means for the attachment to the block of the load to be carried and when the block is elevated a load attached thereto will also be elevated. When the gear wheels 21 and 26 are rotated in the same direction but in a direction opposite to that first considered then the drums 16 and 17 will be simultaneously rotated in opposite directions but so as to unwind the fall rope 20 simultaneously from both drums and the block 30 whether carrying a load or not will be lowered.

One end of each shaft 14 extends through the bearing 8 and upon the outer end thereof receives a nut 32 between which latter and the corresponding end of the bearing there is lodged a washer 33. The other end of the shaft extends beyond the corresponding end of the sleeve 9 and there has secured to it a block 34 provided with diametrically opposite projections 35 lodged between lugs

36 on the corresponding end of the hub of a wheel 37 or 38 as the case may be, the wheel 37 being mounted to turn on the end of the sleeve 9 carrying the drum 16 and the wheel 38 being mounted to turn on the end of the sleeve 9 carrying the drum 17. Each wheel 37 or 38 is thus secured to the respective shaft 14 so that the latter will turn with the wheel and since the gear wheels 21 and 26 are keyed to the respective shafts 14, rotative movement of the wheels 37 and 38 will impart rotative movement to the drums 16 and 17. Each wheel 37 and 38 has interposed between the interior of its hub and the supporting sleeve 9 a bushing 39 of suitable material tending to reduce the friction, and the periphery of each wheel 37 and 38 is formed with a circumferential groove in the bottom of which there are formed grooves 40 in parallel relation one with the other and concentric with the axis of rotation of the respective wheels.

Extending between the terminal supports of the system is an endless cable 41 carried back and forth a number of times about the wheels 37 and 38 so as to have a large frictional contact with these wheels. If now the carriage be considered as standing still in space and longitudinal movement be imparted to the cable 41, then the two wheels 37 and 38 will be rotated in the same direction at a speed depending upon the linear speed of the cable 41, but because of the transmission gearing in the drums 16 and 17 the latter will be rotated in opposite directions, either winding the fall rope on the drums or unwinding it therefrom in accordance with the direction of rotation of the wheels 37 and 38.

In practice the carriage travels upon a cable track 42. In order that the carriage may be caused to travel from point to point along the track 42 with facility the frames 1 and 2 have near their upper corners, journal bearings 43 for the journals of grooved wheels 44, these wheels being in alinement one with the other in the direction of the length of the carriage and so located as to run upon the cable track 42 with the latter traversing the carriage in the central longitudinal plane thereof. On the top members of the frames 1 and 2 midway of their length are other bearings 45 for the ends of an arbor 46 on which are mounted in spaced relation two sheaves 47, 48. The return run of the rope or cable 41 underrides one of these sheaves and the other sheave is underridden by a traction rope 49 extending to the terminal supports of the cable track and around suitable sheaves there located and at one terminal support passing around a power drum, the ends of the rope 49 being connected at the respective ends of the carriage to clevises 50.

The frames 1 and 2 are stiffened by longitudinal straps 51 in line with the clevises 50 and these straps as well as the top and bottom members of the frame are braced by other straps 52, 53, so that the carriage is rigid in all directions.

The cable 41 and traction rope or cable 49 are endless or practically endless, the contiguity of the cable 49 being broken to include the carriage and consequently these cables may be maintained taut at all times, the said cables being carried around actuating drums at one terminal of the system, which drums are driven by any suitable source of power.

If in the operation of the system it be desirable to move the carriage from point to point upon the cable track without lifting or lowering the fall block 30, then the cables 41 and 49 are caused to move at the same speed in the same direction. If now it be desirable to operate the fall actuating rope without moving the carriage along the supporting track, then the rope 49 is held against longitudinal movement thus anchoring the carriage at the desired point. In order to cause the rise or fall of the block 30 the cable 41 is caused to travel while the rope 49 is held against movement. Under these circumstances the rope 20 will be unwound from the two drums 16 and 17 simultaneously or will be wound thereon in accordance with the direction of movement of the cable 41. By making the grooves 19 on the drums 16 and 17 in helical arrangement but so that the rope 20 will unwind or wind thereon from opposite ends of the two drums the block 30 may be maintained directly below the cable track 42 so that the carriage at all times remains in balance. The cable track 42 traverses the carriage above the longitudinal center line thereof so that the carriage when unloaded will not tend to overturn, this being further prevented by the attachment of the traction rope 49 to the carriage at points below the part of the carriage traversed by the cable track 42. This arrangement also counteracts any tendency of the cable 41 when in operation to cause the rotation of the drums 16 and 17, to tilt the carriage when no load is present on the rope or cable 20.

Because of the independence of the operating cable 41 from the fall rope or cable 20, the cable 41 may be maintained at all times in such a taut condition as to avoid the use of rope or cable carriers along the track 42.

What is claimed is:—

1. In a cableway carriage, a pair of oppositely rotating winding drums, and driving wheels one for each winding drum, said driving wheels both being rotatable in the same direction one as the other.

2. In a cableway carriage, a pair of rota-

table winding drums, driving wheels, one for each winding drum, and oppositely acting transmission gearings between the driving wheels and respective winding drums.

3. In a cableway carriage, a pair of rotatable winding drums, rotatable driving wheels, one for each winding drum, connections between one driving wheel and the corresponding winding drum for causing the rotation of the latter in the same direction as the driving wheel, and connections between the other driving wheel and its winding drum for causing the winding drum to rotate in the opposite direction to that of the corresponding driving wheel.

4. In a cableway system, a carriage provided with a pair of oppositely rotatable winding drums, driving wheels, one for each winding drum and rotatable in the same direction, and a power cable for the driving wheels interwound about said wheels.

5. In a cableway system, a carriage, a pair of oppositely rotating winding drums mounted thereon, driving wheels, one for each winding drum, mounted on said carriage, and an actuating cable for the driving wheels interwound about the latter.

6. In a cableway carriage, a pair of oppositely rotatable winding drums, a fall rope or cable having its ends attached to the winding drums at opposite ends of the latter, and means for rotating the winding drums simultaneously in opposite directions.

7. In a cableway carriage, a pair of oppositely rotatable winding drums, a fall rope or cable secured at the ends to the respective drums to wind thereon from opposite ends of the drums, driving wheels for the winding drums, said driving wheels being rotatable simultaneously in the same direction, and a power cable for actuating the driving wheels and taking about said wheels in alternation.

8. In a cableway carriage, a pair of oppositely rotatable winding drums, driving wheels one for each winding drum, and transmission gearings between the driving wheels and the winding drums.

9. In a cableway carriage, a pair of oppositely rotatable winding drums having their axes of rotation in spaced parallel relation, and driving wheels for the winding drums, each driving wheel being in axial relation to a respective drum and the said driving wheels being in alinement one with the other in a plane at right angles to the axes of rotation.

10. In a cableway carriage, a pair of winding drums, transmission gearing housed in each drum, and simultaneously movable driving wheels, one for each winding drum, a driving wheel being coupled to the respective winding drum through the transmission gearing carried by the latter.

11. In a cableway carriage, supporting

wheels and a pair of oppositely rotatable winding drums all in the same central longitudinal central plane of the carriage and a pair of driving wheels exterior to the carriage and each in axial relation to a respective winding drum, the said driving wheels
5 being rotatable in the same direction.

12. A cableway carriage provided with supporting wheels near opposite ends of
10 the carriage, winding drums below the supporting wheels, driving wheels for the

winding drums, each to one side of the respective winding drum, and cable engaging sheaves on the carriage extending above the supporting wheels.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signature in the presence of two witnesses.

SEBERN A. COONEY.

Witnesses:

C. E. DOYLE,

F. T. CHAPMAN.