SINGLE CABLE ROPEWAY
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My invention has for its object a single cable  
ropeway including a carriage provided on one  
hand with jaws adapted to clamp automatically  
the driving and carrying cables and on the other  
hand a suspension device carrying equipment  
for the transportation of passengers.

My improved ropeway is characterized by the  
fact that at least one of the jaws is connected  
positively with a slider guided inside a sidewalk  
of the carriage, while the suspension member or  
device is adapted to move vertically inside a  
guide provided on the rope railway carriage; the  
connection between the suspension member and  
the slider being ensured by an oblique sidewalk  
provided on one of said members, and cooperat-  
ing with a transmitting stud, provided on the  
other member, the suspension member being  
provided moreover with a bearing member such  
as a lateral roller that is adapted to provide its  
rising movement through its temporary engage-  
ment with a stationary disconnecting sloped  
track, the object of this arrangement being to  
provide for transient release of the jaws under  
the action of the rising of the suspension member  
inside its casing or guiding member while the  
load urges the suspension downwardly and pro-  
vides for the resumed tightening of said jaws.

Accompanying drawings illustrate by way of  
example a preferred embodiment of my invention.  
In said drawings:

Figs. 1 to 5 are general elevational views of  
the arrangement according to the invention as  
seen respectively from the side and from the  
front.

Fig. 3 is an elevational view of the carriage,  
part of which is omitted.

Fig. 4 is a cross section of the carriage through  
the axis of the slider.

Fig. 5 is a plan view of a carriage including a  
partial sectional view through line V—V of Fig. 3.

The suspension rod 1 on the ropeway carries  
a double seat cabin 2 arranged in a manner such  
that when inoperative the center of gravity of  
the load registers with a vertical line passing  
through the axis of the carrier and driving  
cable 3.

The suspension rod 1 is connected with a car-  
rriage 4—6 provided with rollers 5 which are  
adapted to run over upper and lower stationary  
rails 37 and 38 that are provided at each sta-  
tion but not between stations. The side frames  
4 of the carriage are rigid with a transverse  
plate 6 forming one piece with a hub 1. A sta-  
tionary jaw 8 is secured to the carriage plate 6  
while the hub 7 has an inner cylindrical surface  
provided with an anti-friction lining 9 inside  
which may rotate the coaxial horizontal hollow  
arm 10 of a guiding member 10—16 (Fig. 4) as-  
suming the shape of a hollow box-shaped struc-  
ture. A slider 11 having a longitudinally extend-  
ing body is carried inside the arm 10 through the  
agency of an anti-friction lining; said arm 10  
forms thus a normally horizontal slideway for the  
slider 11. Said slider is provided on its right  
hand side as shown in Fig. 4 with an extension 12  
forming a pivot adapted to revolve inside a cor-  
responding perforation provided in the bent  
flange of the movable jaw 13, said flange being  
held over the pivot 12 in one direction by an elas-  
tic washer 14 fitted in a groove at the end of the  
pivot 12 and in the other direction by a ball bear-  
ing 33.

The jaws 8 and 13 are shaped in a manner such  
as to be capable of clamping the cable 3 over the  
major part of its periphery.

The vertical walls of the arm 16 forming part  
of the guide 10—16 engage with a slight clear-  
ance two parallel arms 17 forming upwardly di-  
rected extensions of the suspension rod 1. Each  
of the arms 17 is provided on its outer surface  
with a recess assuming the shape of a gutter with  
vertical walls, the sides 18 of which form races  
for the corresponding rollers 19 rigid with spindles  
mounted in the ball bearings 20 provided in  
the adjacent sides of the guiding member 16.

Furthermore, the arms 17 are provided with  
elongated slots 21 registering with each other  
and arranged obliquely with reference to the  
slideway 10. The slider 11 (Fig. 5) carries trans-  
verse trunnions or studs 22 fitted through the  
agency of needle bearings 23 inside the oblique  
slots 21.

One of the vertical arms 17 is provided outwardly  
with notches or serrations 24 assuming a saw-tooth  
shape (Fig. 3); the guide 16 carries a bracket 25 serving as a bearing for a spindle 26  
to which is keyed a bell crank the lower arm 27 of which is adapted to engage the notches 24  
under the action of two coil springs 28. The  
arrangement including parts 24 to 28 forms a  
collapsible locking device.

The suspension rod 1 carries through a ball  
bearing having a horizontal axis, a bearing roller  
30 extending underneath the guiding member 16.

The ropeway described hereinabove operates as  
follows:

During normal operation the parts occupy the  
positions illustrated in Figs. 3 and 5.

Under the action of gravity, the suspension rod  
1 with its upper arms 17 assumes its lowermost
position with reference to the carriage (Fig. 3). The oblique slots 21 exert consequently a horizontal stress in the direction of the arrow F-1 on the trunnions 22 of the slider 11. Through its shoulder 23 and the ball bearing 35 engaged thereby said slider as it transmits the thrust in said direction F-1 to the jaw 13 that is thus urged against the cable 3 and clamps it in association with the jaw 8.

In the case of a light load capable of being subjected to a swinging movement under the action of the wind, the suspension rod 1 may have a tendency to rise inside the guiding member 16, but this would be prevented by the engagement of the serration 24 with the lever arm 21.

Each station of the ropeway is provided with angle bars 39 adapted to release the means locking the suspension rod through action on the upper arm 40 of the lever 27-40 to rock the latter in the direction of the arrow F-3, when the carriage of the ropeway enters the station. Consequently the lower arm 27 of said lever 27-40 disengages the serration 24 which allows the rod extensions 17 to slide vertically inside the guiding member 16.

Immediately after the collapse of the bent lever 27-40 the bearing roller 30 and the suspension rod 1 are gradually raised by a direct acting sloped track 35 carried by the framework forming the station, whereby the carriage of the ropeway executes a slight upward movement with respect to the cable 3 owing to the slope of the track 35 being different from the cable incline at the station. At the same time, the rollers 5 of the carriage are guided by the rails 37 and 38 that are adapted to hold the carriage in the desired position. By reason of the rising movement of the suspension rod 1, the oblique slots 21 exert on the trunnions 22 a thrust in the direction of the arrow F-2 that urges the jaw 13 away from the cable 3. The guiding rails 37 raise slightly the carriage whereby the jaws 8 and 13 also rise and enter a level above the cable 3.

For restarting the carriage system, the disconnecting track 35 is downwardly operated from beneath the bearing roller 30 by means that are not illustrated. At substantially the same time, the carriage-releasing angle bar 39 is downwardly actuated to release the lever 40. Then, the lever arm is again urged by spring 20 on the serration 24. In the meantime, the carriage has advanced over the downwardly sloping rails 31 and 38 so that it may be lowered sufficiently for the jaws 8 and 13 to return into the level registering with the location of the cable 3. The lowering motion of the carriage is almost simultaneous with a vertical downward sliding of the extensions 17 in the guiding member 16, the track 36 being operated as above described, so that the jaw 13 engages the cable 3 under action of the lever 11 urged by the trunnions 22 in the direction of the arrow F-1.

The sliding movement of the extensions 17 of the suspension rod 1 inside the guiding member 16 are executed with a very slight friction as during the upward movement of the suspension rod with reference to the carriage, as illustrated in Figs. 3 and 5, the left hand bearings 18 run over the rollers 16 and when the rod sinks, the right hand bearings 17 run over the rollers.

With 1.

1. In a ropeway operated by a single cable between a plurality of stations, the provision of a carriage adapted to run on guiding rails at said stations, two jaws one of which is rigid with the carriage and the other is slidingly carried thereon to move in a direction transverse and horizontally with respect to the cable, said jaws being adapted to clamp the cable between them, suspension means adapted to carry the load, a sideway provided transversely on the carriage, a slider adapted to slide inside the sideway, a swivelling link connecting said slider with the movable jaw, a vertical guideway provided in the carriage and in which the suspension means are slidingly carried, a connection between the suspension means and the slider including a slotted member the slot in which is oblique with reference to the vertical and a transmitting stud engaging the slot, said slotted member and transmitting stud carried respectively by one of the following parts, the suspension means and the slider, a vertically reciprocable disconnecting track adapted to take an upper and a lower position at each station of the ropeway, said track being sloped up with respect to said each station at the said upper position said track is adapted to raise the suspension means as it passes into a station, the raising of the suspension means acting on the slider through the slotted member and said transmitting stud urging the movable jaw away from the first jaw, the lowering of the suspension means and load under the action of gravity at a point beyond the disconnecting track at each station returning the slider and jaw into their operative cable clamping positions.

2. In a ropeway operated by a single cable between a plurality of stations, the provision of a carriage adapted to run on guiding rails at said stations, two jaws one of which is rigid with the carriage and the other is slidably carried thereon to move in a direction transverse and horizontally with reference to the cable, said jaws being adapted to clamp the cable between them, suspension means mounted on said carriage and adapted to carry the load, a sideway provided transversely on the carriage, a slider adapted to slide inside the sideway, a swivelling link connecting said slider with the movable jaw, a vertical guideway provided in the carriage and in which the suspension means are slidingly carried, said guideway having a vertical cross section, the guideway extending at right angles across the sideway, the guideway including two vertical extensions rigid with the upper end thereof and engaging the guideway, said extension being located respectively facing the front and to the rear of the slider and provided with elongated slots oblique with reference to the vertical and registering with each other, said slider carrying at least one transmitting roller arranged at right angles said sideway and engaging the slots in the extensions, a vertically reciprocable disconnecting track adapted to take an upper and a lower position at each station, said track being sloped up with respect to said cable, so that in its upper position, said track is adapted to raise the suspension means in the guiding member as it passes into a station, the raising of the suspension means acting on the slider through the slotted extensions and roller system to urge the slider and movable jaw away from the first jaw, the lowering of the suspension means and load under the action of gravity at a point beyond the disconnecting track at each station returning the slider and jaw into their operative cable clamping positions.

3. In a ropeway operated by a single cable between a plurality of stations, the provision of a carriage adapted to run on guiding rails at said
stations, two jaws one of which is rigid with the carriage and the other is slidingly carried thereon to move in a direction transverse and horizontally with reference to the cable, said jaws being adapted to clamp the cable between them, suspension means mounted on said carriage and adapted for the lever locker adapted to slide inside the slideway and pivotally connected with the movable jaw, a vertical guideway provided in the carriage and in which the suspension means are slidingly carried, said guideway extending at right angles across the slideway, the suspension means including two vertical extensions rigid with the upper end thereof and engaging the guideway, said extensions being located respectively to the front and to the rear of the slider and provided with elongated slots oblique with reference to the vertical and registering with each other, said extensions being provided on their outer surface with a gutter-shaped recess having vertical side walls forming races, said guideway being provided with vertical rollers engaging either race in the corresponding recess, said slider carrying at least one transmitting roller arranged at right angles to said slideway and engaging the slots in the extensions, a vertically reciprocable disconnecting track adapted to take an upper and a lower position at each station, said track being sloped up with respect to the travelling cable and adapted, in its upper position, to raise the suspension means as it passes into a station considered, the raising of the suspension means acting on the slider through the slotted extension and transmitting roller system to urge the slider and movable jaw away from the first jaw, the lowering of the suspension means and load under the action of gravity at a point beyond the disconnecting sloped track at each station returning the slider and jaw into their operative cable clamping positions.

4. In a ropeway operated by a single cable between a plurality of stations, the provision of a carriage adapted to run on guiding rails at said stations, two jaws one of which is rigid with the carriage and the other is slidingly carried thereon to move in a direction transverse and horizontally with reference to the cable, said jaws being adapted to clamp the cable between them, suspension means mounted on said carriage and adapted to carry the load, a slideway provided transversely on the carriage, a slider adapted to slide inside the slideway and pivotally connected with the movable jaw, a vertical guideway provided in the carriage and in which the suspension means is slidingly carried, collapsible locking means fitted partly on the suspension means and partly on the guideway to hold the suspension means in their lowermost position for constantly urging the jaws into their cable clamping position between the stations, said locking means including a lever pivotally secured to the guideway, a serration provided on the suspension means, a spring urging one arm of said lever into locking engagement with said serration and a stationary releasing collapsible bar at each station adapted to transiently rock said lever out of its operative position, as the carriage passes past said releasing bar, a connection between the suspension means and the slider including a slotted member the slot of which is oblique with reference to the vertical and a transmitting stud engaging the slot, said slotted member and stud being carried respectively by one of the following parts, the suspension means and the slider, a disconnecting track at each station of the ropeway, said track being adapted to be given a lower and an upper position in which latter it is adapted to raise the suspension means as it passes into a station, the raising of the suspension means acting on the slider through the slotted member and transmitting stud to urge the slider and movable jaw away from the first jaw, the lowering of the suspension means and load under the action of gravity at a point beyond the disconnecting track at each station returning the slider and jaw into their operative cable clamping positions.

5. In a ropeway operated by a single cable between a plurality of stations, the provision of a carriage adapted to run on guiding rails, at said stations, two jaws one of which is rigid with the carriage and the other is slidingly carried thereon to move in a direction transverse and horizontally with reference to the cable, said jaws being adapted to clamp the cable between them, suspension means mounted on said carriage and adapted to carry the load, a slideway provided transversely on the carriage, a slider adapted to slide inside the slideway and pivotally connected with the movable jaw, a vertical guideway provided in the carriage and in which the suspension means are slidingly carried, collapsible locking means fitted partly on the suspension means and partly on the guideway to hold the suspension means in their lowermost position for constantly urging the jaws into their cable clamping position between the stations, said locking means including a lever pivotally secured to the guideway, a serration provided on the suspension means, a spring urging one arm of said lever into locking engagement with said serration and a stationary releasing collapsible bar at each station adapted to transiently rock said lever out of its operative position, as the carriage passes past said releasing bar, a connection between the suspension means and the slider including a slotted member the slot of which is oblique with reference to the vertical and a transmitting stud engaging the slot, said slotted member and stud being carried respectively by one of the following parts, the suspension means and the slider, a disconnecting track at each station of the ropeway, said track being adapted to be given a lower and an upper position in which latter it is adapted to raise the suspension means as it passes into a station, the raising of the suspension means acting on the slider through the slotted member and transmitting stud to urge the slider and movable jaw away from the first jaw, the lowering of the suspension means and load under the action of gravity at a point beyond the disconnecting track at each station returning the slider and jaw into their operative cable clamping positions.

No references cited.