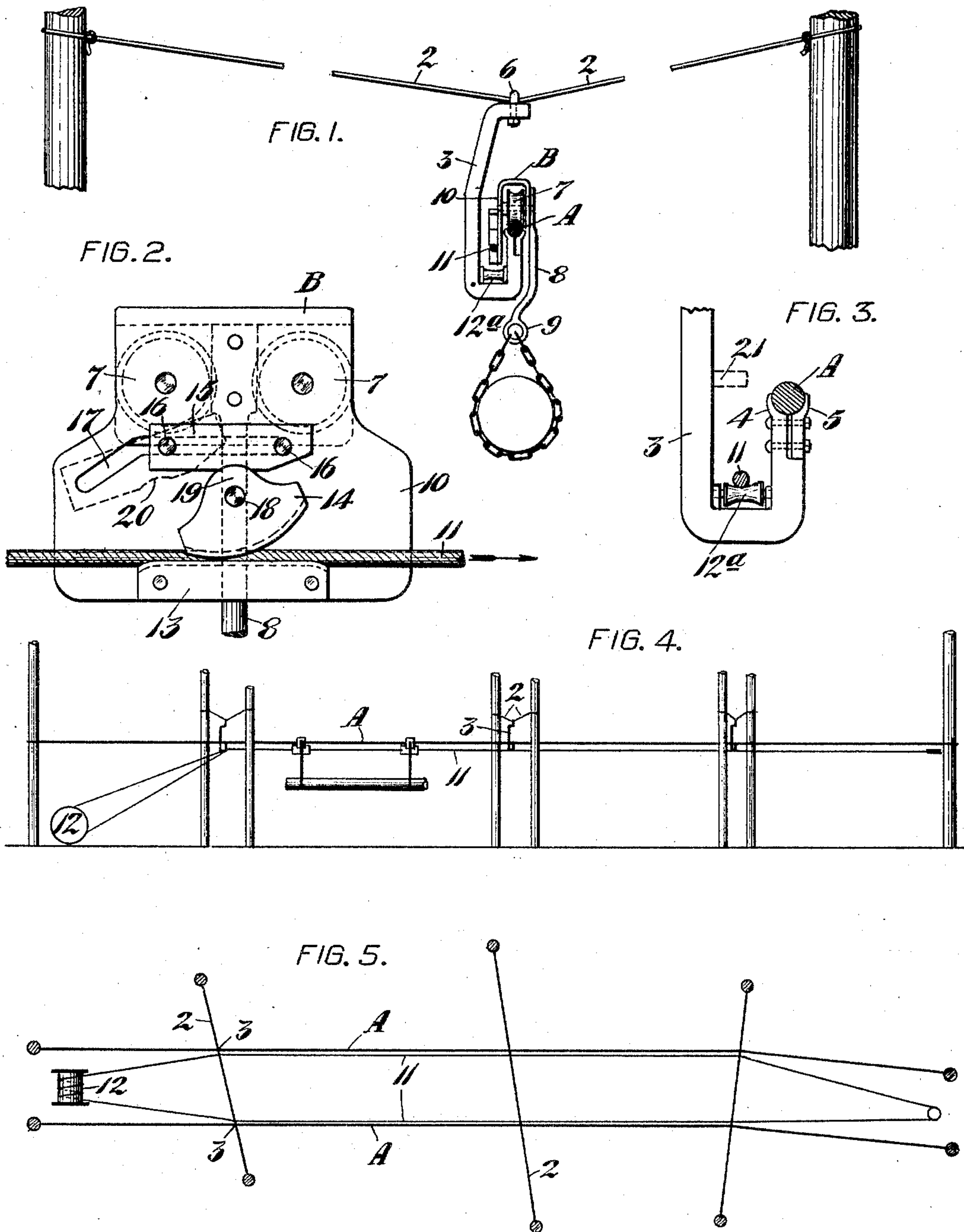


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J. S. REES.
AERIAL CABLEWAY.
APPLICATION FILED OCT. 12, 1904.



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TO WILLIAM S. LEWIS, OF LOYALTON, CALIFORNIA.

AERIAL CABLEWAY.

SPECIFICATION forming part of Letters Patent No. 780,127, dated January 17, 1905.

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To all whom it may concern:

Be it known that I, JESSE S. REES, a citizen of the United States, residing at Loyalton, in the county of Sierra and State of California, have invented new and useful Improvements in Aerial Cableways, of which the following is a specification.

My invention relates to aerial cableways, and especially to a system adapted for logging purposes.

The object of my invention is to provide a suitable logging system which shall be simple and cheaply and easily installed, which can be strung to indefinite lengths through the forests and made to transport logs either bodily or by dragging them along the ground, and which can be run on irregular lines and made to turn as many corners as necessary or desired.

The invention consists of the parts and the construction and combination of parts, as hereinafter more fully described, having reference to the accompanying drawings, in which—

Figure 1 is an end elevation of a hanger and burden-carrier with load, showing means of suspending the carrier between its supports. Fig. 2 is a side elevation of the carrier, showing the gripping mechanism. Fig. 3 is a detail of a part of a hanger, showing method of gripping the drag-rope and stop for releasing the fall-rope grip. Fig. 4 is a diagrammatic representation of an elevation of my system, and Fig. 5 is a plan view of same.

Heretofore in logging it has been customary to use one of two systems—the one where the track-cable is fixedly secured to head and tail supports with no intermediate supports, the limit of transmission being the distance between these head and tail supports and necessarily being in a straight line. By this system the distance that a burden can be transported is necessarily limited. Another system of aerial tramway sometimes employed requires a series of more or less elaborate artificial towers along the line to support the trackway, and it is very expensive, besides being capable of being run only in a straight line.

In carrying out my system a suitable path-way is provided through the forests, and the trees on either side of this trackway form suitable anchorages for the ropes or cables 2, which support the track-rope A. To these cross-cables 2 are attached the hangers 3, which form the immediate support for the track-rope. These hangers are here shown as somewhat C-shaped. The track-rope, which is stationary and suitably anchored at the ends, is removably gripped between a fixed flanged part 4 and a correspondingly-flanged movable part 5 on the edge of the lower upturned part of the hanger. The connection of the hanger to the overhead cross-cables 2 may be through the medium of the eyebolt 6, which permits a certain pivotal movement of the hanger. The use of the cross-cables 2 also provides a more or less resilient support for the track-rope, so that jar is relieved to a great extent as the carriage B, conveying the burden, passes over or through the hanger. This carriage comprises a suitable sheave-frame, open at the bottom, so as to allow it to be hooked over the track-rope, and is preferably provided with two bearing sheaves or wheels 7. The track-rope grips 4 5 of the hanger are so proportioned and arranged that while they will firmly grip and hold the track-rope they will offer no substantial obstacle to the free passage of the sheaves. From the outside of the sheave-casing depends an arm 8, having suitable means at its lower end, as the eye 9, for the attachment of the chains or other means by which the burden is supported. On the inside of the sheave-frame, and preferably depending a little below the track-rope, so as to form an interior guide therefor, but so arranged as not to interfere with the free traverse of the carriage through a hanger, is a plate or extension 10, carrying the means for gripping the haul-line 11.

It should be stated here that there are usually two track-ropes arranged parallel, or nearly so, to each other, and a haul-line 11, which is endless and is operated at one end of the system by a suitable engine and, as indicated at 12, has one section running out along one of the track-ropes and returning

along the other, being supported at suitable intervals on the rollers 12^a in the bottom of the loop of each hanger 3.

The cable-gripping means on plate 10 comprise a fixed jaw part 13, a cooperating oscillating segmental movable jaw 14, and a reciprocating locking-block 15. The top of the fixed jaw 13 and the opposed curved under side of the movable jaw 14 are preferably grooved, so as to provide a sufficient gripping surface on the haul-line. The locking-block 15 is reciprocal in the direction of travel and is held in place by means of the lateral bolts or projections 16, which are movable in the irregular cam-shaped slot 17. The movable jaw 14 is reciprocal to and from the fixed jaw 13 and transversely of the line of movement of the stop-block 15. This movable jaw has a bolt or projection 18 extending from one side which is movable in the slot 19 in plate 10 and serves to hold the jaw in position and to operate as a pivot therefor. The top of the jaw 14 is curved, and the forward end of the block 15 is correspondingly tapered, so that the latter can easily be slipped over the former. The under side of the block 15 may be concaved, as shown at 20, into which the convexity of the upper surface of the jaw 14 engages when the haul-line has been gripped, so that disengagement of the parts will not readily take place.

The segmental and pivotal character of the movable jaw 14 allows the latter to operate with equal efficiency on the haul-rope whether the load is being transported uphill or down.

When the carriage is traveling uphill, the rear end of the jaw tends to tip back and bind more tightly on the haul-line and insure a still firmer grip. On the other hand, when the carriage and load are traveling downhill there is no possibility of the load running away or moving faster than the haul-line, because at the first indication of such a happening the forward end of the fixed jaw is thrown downward and binds, in conjunction with the fixed jaw 13, like a wedge upon the haul-line to hold the load in check.

The carriage is arranged upon the track-rope with the forward end of the stop-block 15 pointing in the direction of travel, so that when the point of unloading is reached the forward end of the stop-block may engage a suitable obstruction, as the pin 21, carried by the last hanger 3, whereby the stop-block is automatically pushed back to disengage the movable jaw 14 and allow the latter to reciprocate upward, thus releasing the grip on the haul-rope. The carriage coming to a standstill, the load is discharged, and the carriages are taken off this track-rope, placed on the other, the return section of the haul-rope regripped, and the empty carriage sent back to its destination in the forest.

The hangers 3, which are provided with the

trip members 21, are only disposed at terminal points either where the load is to be discharged or the empty carriages taken off of one line and placed on the other.

By this system two or more carriages may be arranged tandem and close to each other, so as to support a log or like heavy and bulky burden at each end and carry it bodily through the forests. This obviates in many instances the necessity and expense of clearing out undergrowth, since with suitable anchorages for the overhead cross-cables 2 the track-rope can be supported at such heights as to clear such obstructions as commonly interfere with snaking of the logs along the ground. By using natural anchorages for these cross supporting-ropes and having a track-rope hanger and carrier substantially as described it is possible to run this aerial tramway on almost any desired lines through the forest, to turn any ordinary angles, and to extend the line to any desired length.

It is not necessary either that the anchorages for the overhead ropes 2 should be opposite each other, since the ropes or cables 2 may be run at various angles relative to the track-rope, and the sections of the ropes 2 on either side of the track-rope need not be of equal length.

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

1. A logging system comprising two stationary track-ropes, overhead supports for said track-ropes including cross ropes or cables having suitable anchorages on either side of the track-ropes and hangers secured to these cross-cables and provided with means for the attachment of the track-ropes, burden-carriers reciprocal along said track-ropes and an endless haul-line supported by said hangers and having means of attachment to said carriages.

2. In a logging system, the combination with a stationary track-rope, overhead supports therefor including cross-ropes having suitable anchorages on either side of the track-rope, a hanger suspended from said cross-ropes and having means for the support of the track-rope, a burden-carrier reciprocal along the track-rope, a haul-line and grip means carried by the carrier engageable with the haul-line.

3. In a logging system, the combination with a stationary track-rope, overhead supports therefor including cross-ropes having suitable anchorages on either side of the track-rope, a hanger suspended from said cross-ropes and having means for the support of the track-rope, a burden-carrier reciprocal along the track-rope, a haul-line and grip means carried by the carrier engageable with the haul-line and means for automatically releasing said grip from the haul-line.

4. In a logging system, the combination with a stationary track-rope, an overhead support for said track-rope including cross-ropes suitably anchored on either side of the track-rope, a hanger depending from said cross-ropes and having means for detachably securing the track-rope thereto, a burden-carrier reciprocal along the track-rope and a haul-line supported by the hangers and engageable with the burden-carrier.

5. In an aerial cableway, the combination with a track-rope of an overhead support therefor including a hanger having an upwardly - projecting portion supporting the track-rope a burden-carrier and a haul-line, said burden-carrier having a portion depending outside of the hanger for the attachment of a burden, and a portion traversing the space within the hanger having gripping means for engagement with the haul-line.

6. In an aerial cableway, the combination with a track-rope of an overhead support therefor including a hanger having an upwardly - projecting portion supporting the track-rope a burden-carrier and a haul-line, said burden-carrier having a portion depending outside of the hanger for the attachment of a burden, and a portion traversing the space within the hanger having gripping means for engagement with the haul-line, and means for automatically disengaging said gripping means from the haul-line.

7. In an aerial cableway, the combination with a track-rope of an overhead support therefor including a hanger having an upwardly - projecting portion supporting the track-rope a burden-carrier and a haul-line, said burden-carrier having a portion depending outside of the hanger for the attachment of a burden, and a portion traversing the space within the hanger having gripping means for engagement with the haul-line, and means carried by a hanger for automatically disengaging the gripping means from the haul-line.

8. In an aerial cableway, the combination with a suitably-supported track-rope and a haul-line, of a burden-carrier reciprocal along the track-rope, said burden-carrier having a portion pendent on one side of the track-rope for the attachment of a burden, and a portion on the opposite side of the track-rope having gripping means engageable with the haul-line.

9. In an aerial cableway, the combination with a suitably-supported track-rope and a haul-line, of a burden-carrier reciprocal along the track-rope, said burden-carrier having a portion pendent on one side of the track-rope for the attachment of a burden, a portion on the opposite side of the track-rope having gripping means engageable with the haul-

line, and means for automatically disengaging said gripping means from the haul-line.

10. In an aerial cableway, the combination with a suitably-supported track-rope and a haul-line, of a burden-carrier reciprocal on the track-rope, grip means carried by the burden-carrier engageable with the haul-line, said gripping means including a fixed jaw member, a movable jaw member and a reciprocating stop member arranged to lock the movable jaw to grip the haul-line.

11. In an aerial cableway, the combination with a suitably-supported track-rope and a haul-line, of a burden-carrier reciprocal on the track-rope and grip means carried by the burden-carrier engageable with the haul-line, said gripping means including a fixed jaw member, a movable jaw member having both an oscillating and a reciprocating movement, and stop means interposable in the path of the movable jaw to limit its reciprocation.

12. In an aerial cableway, the combination with a suitably-supported track-rope and a haul-line, of a burden-carrier reciprocal on the track-rope and grip means carried by the burden-carrier engageable with the haul-line, said grip means including a fixed jaw, a tilting segmental jaw having a limited movement to and from the fixed jaw, and means for limiting the movement of the segmental jaw to and from the fixed jaw.

13. In an aerial cableway, the combination with a suitably-supported track-rope and a haul-line, of a burden-carrier reciprocal on the track-rope, and grip means carried by the burden-carrier engageable with the haul-line, said means including a fixed jaw, a segmental oscillating jaw movable to and from the fixed jaw, and means including a reciprocating stop to limit the to-and-fro movement of the segmental jaw.

14. In an aerial cableway, the combination with a suitably-supported track-rope and a haul-line, of a burden-carrier reciprocal on the track-rope and grip means carried by the burden-carrier engageable with the haul-line, said means including a fixed jaw, a segmental oscillating jaw movable to and from the fixed jaw, means including a reciprocating stop to limit the to-and-fro movement of the segmental jaw and means in the path of the carrier for operating said stop member automatically to release the grip on the haul-line.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JESSE S. REES.

Witnesses:

W. S. LEWIS,

W. E. REES.