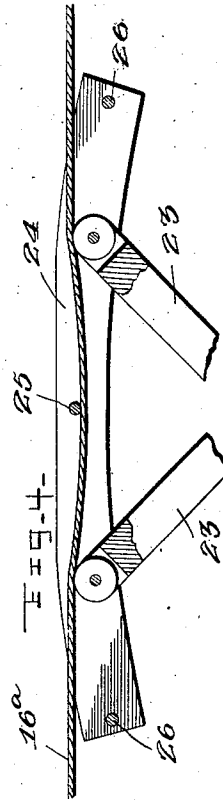
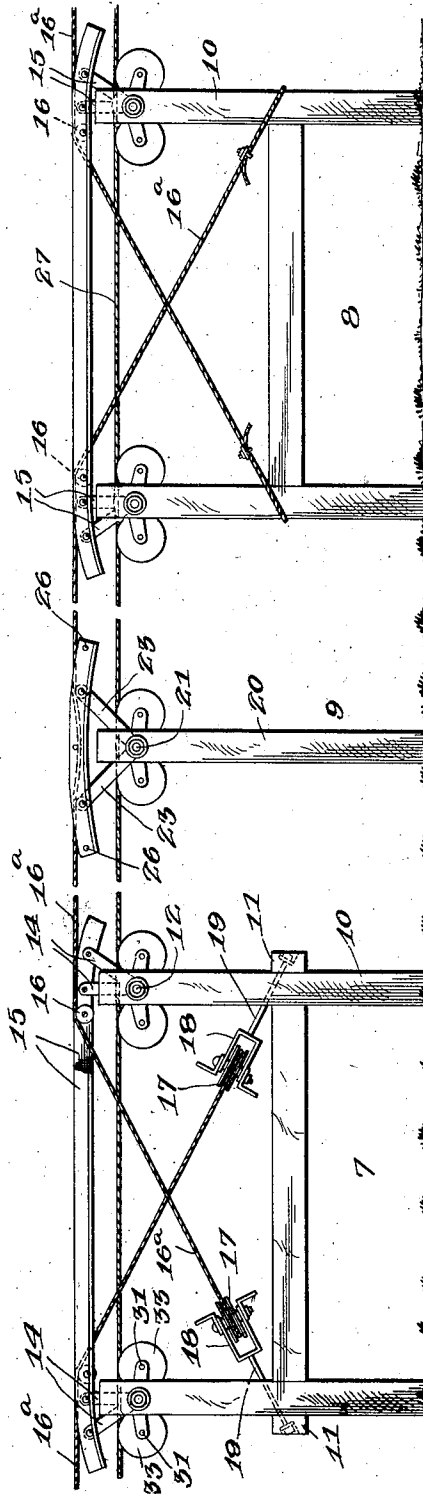


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AERIAL TRAMWAY.
APPLICATION FILED FEB. 8, 1910,

974,284.

Patented Nov. 1, 1910.

3 SHEETS-SHEET 1.



Witnesses

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Inventor
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by *W. C. Lawson*

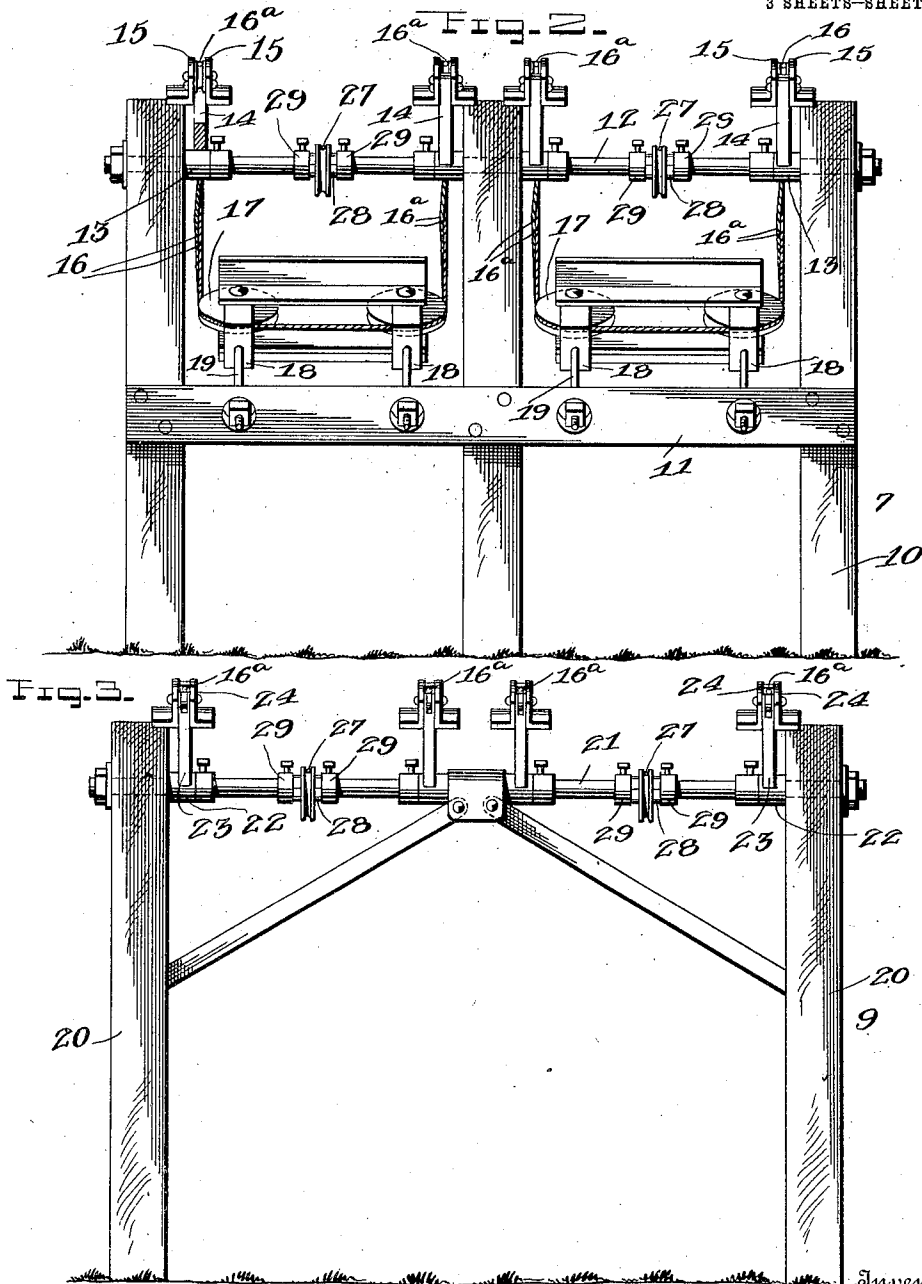
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3 SHEETS-SHEET 2.



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3 SHEETS-SHEET 3

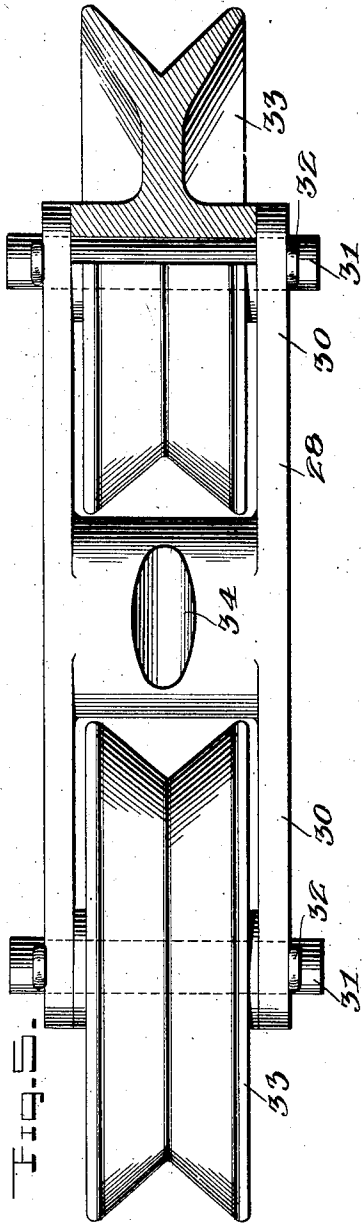
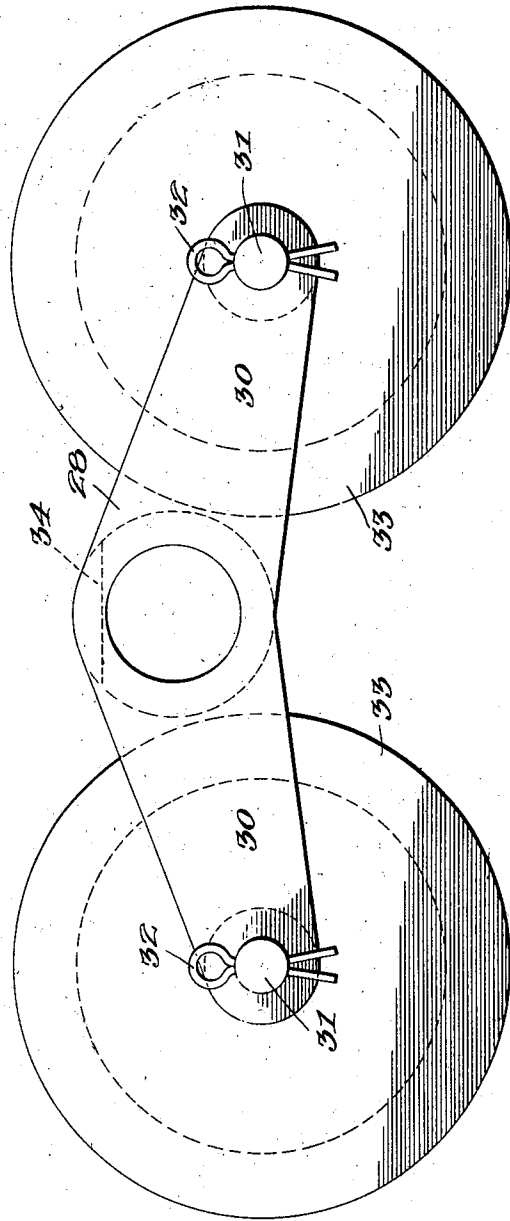


Fig. 5.



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UNITED STATES PATENT OFFICE.

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AERIAL TRAMWAY.

974,284.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed February 8, 1910. Serial No. 542,767.

To all whom it may concern:

Be it known that I, WILLIAM C. LAWSON, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented new and useful Improvements in Aerial Tramways, of which the following is a specification.

The present invention relates to improvements in that type of aerial tramway disclosed in my former Patents Nos. 826,340, July 17, 1906, and 921,718, May 18, 1909.

The primary object is to provide certain improvements, which produce a stronger structure, one that is at the same time simple and comparatively inexpensive to construct, and said improvements also resulting in less wear upon the various parts.

In the drawings:—Figure 1 is a side elevation of a section of the aerial tramway, with intermediate portions broken away. Fig. 2 is an end elevation of one of the supports for the terminal section loops. Fig. 3 is a view in elevation of one of the intermediate supports. Fig. 4 is a longitudinal sectional view through one of the rocker arms on an enlarged scale. Fig. 5 is a top plan view of one of the hauling cable supports and guides. Fig. 6 is a side elevation thereof.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

As usual, a plurality of supports, designated respectively 7 and 8, are employed for the terminals of the cable rail sections, and between these supports are placed one or more intermediate supports 9, depending on the distance the supports 7 and 8 are spaced apart. One of the supports, as 7, is employed for the looped ends of the cable rail sections, while the other support, as 8, is employed for anchoring the ends of the cable rail sections, as many of the supports 7 and 8 being employed, as may be desired, and depending of course on the loads to be carried and the length of the tramway.

Considering first the supports 7 and 8 for the ends of the cable rail sections 16, it will be noted that sets of spaced standards 10 are employed that are connected by lower cross bars 11. The upper ends of the standards of each set are connected by tie rods 12, and mounted on these tie rods, are brackets, comprising hubs 13, through which said rods pass, these hubs carrying

divergently disposed arms 14. Secured to the upper ends of the arms, and located on opposite sides of the same, are spaced rail-forming elements 15 formed of angle bars riveted or otherwise secured to said arms. Arranged between the said rail elements 15, inside the bracket arms 14, are rollers 16. The ends of the looped cable rail sections are fixed to the standards 10 of the support 8, and extend in opposite directions, being crossed, as shown in Fig. 1. They pass over the rollers 16 between the rail elements 15, and thence extend to the adjacent supports 7 for the looped ends of the sections. At this support, they pass down over the rollers 16 between the rail elements 15, and around sheaves 17, journaled in yokes 18 that are secured to certain of the cross bars 11 by tension bolts 19. It will be observed that the ends of the rail elements 15 are downturned, and that the cables are fitted between said ends, so that they can play up and down therein, without being hammered or cut, and this is an important feature in the practical working of the system.

The intermediate supports 9, have spaced standards 20, connected at their upper ends by a tie rod 21, on which are journaled rockers. These rockers comprise hubs 22, carrying upwardly divergent arms 23, to the upper ends of which are secured track sections or elements 24 that comprise angle bars. The terminal portions of these bars are downturned. The cable rail sections 16 pass longitudinally between the elements 15, and are held against upward movement by centrally disposed pins 25. The rocking movements of the track elements are also limited by pins 26 passing through the ends of said elements, and disposed below the cables. It will thus be evident that with these rockers, the cable and elements 24 can have a relative up and down play, without hammering or cutting the cable. Furthermore the distance between the axis of each rocker and the cable is such that the swinging movement of said cable will just equal the longitudinal movement of said cable under the strain of an approaching car, and there will therefore be no longitudinal sliding movement of the cable in the rocker. As a consequence, when a car passes over this system, the cables will have free movement, and there will be practically no wearing action upon them, nor will they be ham-

mered by the wheels of the car, nor subjected to cutting action on the part of any interfering element of the track sections.

The usual hauling cable is shown, and is designated 27, and said hauling cable is supported and guided by the following means. On each tie rod between the track members and rockers, are loosely journaled brackets 28 that are held in longitudinal movement on said tie rods by collars 29. These brackets have oppositely extending downwardly inclined sets of arms 30. A journal pin 31 connects the free ends of the arms of each set, said pin being held in place by any suitable means, as for instance by cotter pins 32. Rotatably mounted on these pins, between the arms, are idler sheaves 33, over which the hauling cable passes. The hub of the bracket is preferably provided at its upper side with a central groove 34 to permit the passage of the hauling cable, without friction.

There are many advantages for this structure. In the first place, it will be observed that the cable is comparatively low. Then again, instead of its being supported at each structure by a single sheave, the weight is divided between the two sheaves, which automatically position themselves against said cable. Furthermore, inasmuch as the tie rods 12 and 21 are ordinarily of comparatively great diameter, a single sheave rotatably mounted thereon, is subjected to considerable friction, whereas the two sheaves, as disclosed, can be mounted on comparatively small journal pins.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In an aerial tramway, the combination with supporting means, of an upstanding bracket mounted thereon, spaced rail members secured to opposite sides of the bracket, and a cable rail extending between the rail members.

2. In an aerial tramway, the combination with supporting means, of a bracket mounted thereon and having upstanding arms, rail members secured to opposite sides of the bracket arms, and a cable rail extending between the rail members and over the bracket arms.

3. In an aerial tramway, the combination with spaced standards and a tie rod connecting the same, of an upstanding bracket

mounted on the tie rod, spaced rail members secured to opposite sides of the bracket, and a cable rail extending between the rail members.

4. In an aerial tramway, the combination with spaced standards and a tie rod connecting the same, of an upstanding bracket comprising a hub through which the rod passes, said hub having an upstanding arm, a rail member fixed to the arm, and a cable rail engaged with the bracket.

5. In an aerial tramway, the combination with supporting means, of upstanding brackets mounted thereon, rail members including spaced elements, each secured at its ends to opposite sides of the brackets, and cable rails passing between the elements and secured to the supporting means.

6. In an aerial tramway, the combination with supporting means comprising sets of spaced standards, and a tie rod connecting the standards of each set, of brackets mounted on the tie rods and having divergent arms, rail members comprising spaced flanged bars secured to opposite sides of the bracket arms, and cable rails passing between the flanged bars.

7. In an aerial tramway, the combination with supporting means, of a rail element pivoted between its ends on the supporting means and a rail cable that extends longitudinally of the rail element, said cable and member being capable of relative up and down play without causing a cutting or hammering action on the cable.

8. In an aerial tramway, the combination with supporting means, of a rocker element pivotally mounted on the supporting means, and a rail cable that extends alongside the rocker element, the ends of said rocker element and the cable being capable of relative up and down play alongside each other.

9. In an aerial tramway, the combination with supporting means, of a rail member pivotally mounted between its ends thereon and comprising spaced elements and a cable rail extending between the elements and movable with respect thereto.

10. In an aerial tramway, the combination with supporting means, of a single rail member pivotally mounted between its ends thereon, and a cable rail extending alongside the element, said element and rail being relatively movable without causing a cutting or hammering action on the cable.

11. In an aerial tramway, the combination with a support, of a bracket pivoted thereon, spaced track elements fixed to the bracket, and a cable rail extending between the elements.

12. In an aerial tramway, the combination with a support, of a bracket pivoted thereto and having divergent arms, angle bars secured to opposite sides of the arms, and a track rail extending between the angle bars.

13. In an aerial tramway, the combination with spaced supports, of a tie rod connecting the same, rocker arms pivoted on the tie rod, a spacing device interposed between the rocker arms, and means connecting the supports and spacing device.

14. In an aerial tramway, the combination with spaced supports, of a tie rod connecting the same, sets of rocker arms pivoted on the tie rod and comprising hubs having divergent arms, spaced angle bars secured to opposite sides of the arms, cable rails extending between the spaced angle bars, a spacing device interposed between the central rocker arms, and bracing means connecting the spaced supports and spacing device.

15. In an aerial tramway, the combination with a support, of a track mounted thereon, a hauling cable, and means for supporting and guiding the hauling cable comprising a bracket pivoted between its ends on the support, and cable engaging idlers journaled on the bracket on opposite sides of its pivot axis.

16. In an aerial tramway, the combination with a support having a tie rod, of a track mounted on the support, a hauling cable and means for supporting and guiding the hauling cable comprising a bracket pivoted between its ends on the support and having oppositely extending downwardly inclined arms, and cable engaging idlers journaled on the bracket on opposite sides of its pivot axis.

17. In an aerial tramway, the combination with spaced standards, of a tie rod connecting the same, track members mounted on the

tie rod, cable rail sections engaging the track members, a bracket pivoted on the rod between the track members and between its ends, and idlers journaled on the bracket on opposite sides of the tie rod.

18. In an aerial tramway, the combination with a supporting frame comprising sets of spaced standards, of transversely disposed tie rods connecting the standards of each set, longitudinally disposed rail members mounted on the tie rods, and cable rail sections disposed longitudinally of the rail members and secured in crossed relation to the supporting frame.

19. In an aerial tramway, the combination with supporting means, of spaced upstanding brackets mounted thereon, spaced rail members connecting the brackets and secured to opposite sides of the same, and a cable rail extending between the rail members.

20. In an aerial tramway, the combination with supporting means including transverse tie rods, of spaced upstanding brackets comprising hubs through which the tie rods pass, said hubs having upstanding arms, a rail member having its end portions secured to the said bracket arms, and a cable rail extending longitudinally of the rail member and associated therewith.

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

WILLIAM C. LAWSON.

Witnesses:

S. M. CORNETT, Jr.,
C. W. BISHOP.