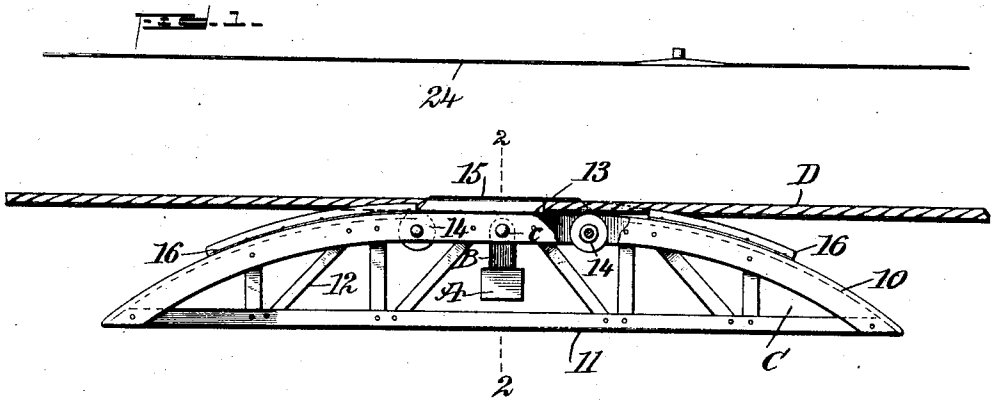
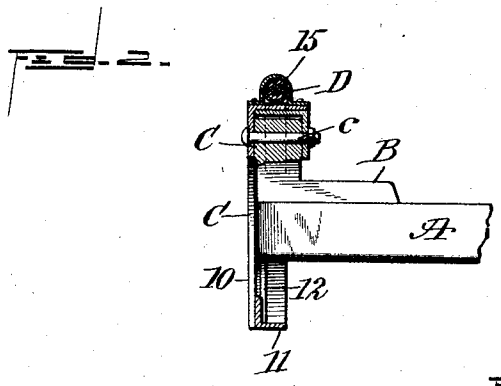
No. 784,955. PATENTED MAR. 14, 1905.

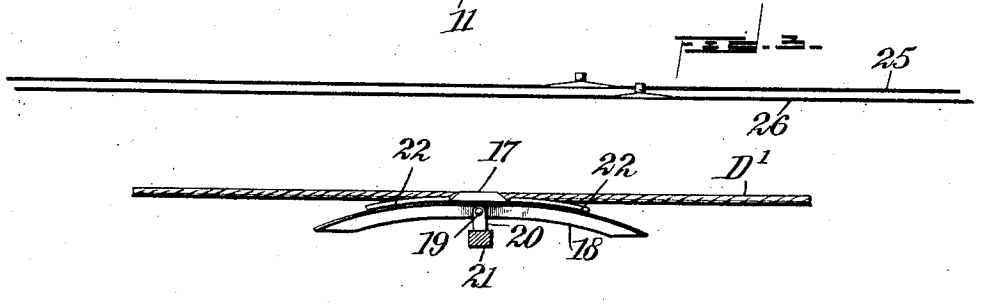
C. MESSICK, JR.

CABLE TRAMWAY.

APPLICATION FILED MAY 26, 1904.







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No. 784,955. Patented March 14, 1905.

UNITED STATES PATENT OFFICE.

CHARLES MESSICK, JR., OF HACKENSACK, NEW JERSEY.

CABLE-TRAMWAY.

SPECIFICATION forming part of Letters Patent No. 784,955, dated March 14, 1905.

Application filed May 26, 1904. Serial No. 209,846.

To all whom it may concern:

Be it known that I, CHARLES MESSICK, Jr., a citizen of the United States, and a resident of Hackensack, in the county of Bergen and State of New Jersey, have invented a new and useful Improvement in Cable-Tramways, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a support for a cable-tramway which is in the shape of an arch carried on a fulcrum located as near as possible to the top of the arch, which is placed beneath the track-cable and normally supports the cable at the central portion of the arch, whereby when a car approaches the arch one end is depressed, thus providing a gradual rise from the car as it approaches the supported arch and a gradual declivity as the car moves away from the arch.

Another purpose of the invention is to provide the arch with an upper central flat surface, so that the action of the cable upon the pivotally-supported arch after the passing of the car will restore the arch to its normal position, and to provide the arch at or near the terminal of its flat surface with friction-rollers over which the cable passes, so that the arch will offer a minimum amount of resistance to the cable.

Another purpose of the invention is to provide a cage or retaining-guide at the upper flat portion of the arch through which the cable passes and also to provide flanges at the side portions of the downwardly-curved portions of the arch at its upper face, so that as the arch is rocked upon its pivot the cable will be prevented from slipping off the upper or contacting surface of the arch.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improved device, parts being broken away. Fig. 2 is a vertical section taken practically on the line 2 2 of Fig. 1; and Fig. 3 is a side elevation of a slight modification in the construction of the arch, the support for said arch being in section.

A represents a support sustained in any suitable or approved manner, and B a bracket which extends from the support.

C represents a truss structure comprising an upper arched section 10, of sufficient width to accommodate a cable D, and a lower bar 11, together with struts or braces 12, connecting the upper section 10 with the lower section 11. This truss structure C is pivoted at its upper central portion as near the top as possible to the bracket B by means of a suitable pivot-pin *c*. The upper face of the upper arch member 10 of the truss structure is made flat for a predetermined distance each side of its center, so that the cable D will have a uniform bearing on this portion of the truss structure when it is in its normal position and so that when the truss structure C is turned in direction of either end the cable acting on the upper flat portion will automatically restore the said truss structure C to its normal position.

In order that the cable D may travel over the truss structure C with a minimum of wear and a minimum of friction, friction-pulleys 14 are preferably provided at each end portion of the flat upper surface 13, the said friction rollers or pulleys 14 being so placed as to be normally in engagement with the under face of the cable D. In order that the cable D may be held in proper position at all times relative to the pivoted truss structure C, a cage or retaining-guide 15 is located at the central portion of the said truss structure at its upper or flat surface 13, and the cable D is loosely passed through this guide or cage. When a car approaches the truss structure C, the end of the structure approached will be tilted downward, and the car will then ascend an inclined plane formed by the cable and supported by the said truss structure, and as the car leaves the truss structure the opposite end of the said structure will be depressed, and the car will then descend the declivity thus formed, and yet the cable will be in engagement with the said structure. In order that the cable

shall be at all times under all conditions in proper position on the said truss structure, flanges 16 are provided at each side of the upper member 10, extending from the flat surface 13 a predetermined distance in direction of the terminals of the said structure, as is shown in Fig. 1.

In Fig. 3 I have illustrated a simplified form of the invention adapted particularly for use when light work is to be performed. In this construction I employ an arched T-body 18, having a cage or retaining-guide 17 at its upper portion over a flat central outer section corresponding to the flat surface 13, heretofore referred to, and through which cage or retaining-guide the cable D' is adapted to freely pass. This simple form of the sustaining and guiding arch is pivoted by means of a suitable pin 19 passed through the arch at its central portion, the said arched T-body 18 consisting of a tread-section to receive the cable and a web-section extending downward therefrom. The pivot-pin 19 is passed likewise through a bracket 20, which extends from a support 21, sustained in any suitable or approved manner, and at the side edges of the arched T-body 18 flanges 22 are formed, corresponding to the flanges 16, above referred to and adapted for the same purpose. In fact, the truss structure C and the arched body 18 may be termed "saddles" for the cable.

Many advantages are obtained by the use of the construction above described, and among the said advantages it may be stated that the pounding of the car at the support of the cable is prevented, likewise the external wear of the cable at the saddle, equilibrium is preserved, end movement is obtained, and the cable is guided over the support. The pounding of the cable at the support is reduced by making the saddle very long and preferably in the form of a truss structure, as described, where heavy work is to be done. The flat portion at the center of the saddle admits of a very long bearing, and this bearing being of soft structural iron with smooth faces (unlike cast-iron or cast-steel, the skin of both of which is rough or abrasive) makes an ideal rest for the cable. When the cable is not depressed, a slight tilting of the saddle will raise the cable considerably on the end of the flat surface which is elevated, thereby causing the entire weight of the cable to rest upon it. The weight of the cable will bring the saddle back to its normal or horizontal position after it has passed and will keep it in a stable equilibrium until the cable is depressed by another approaching car. Even when a car approaches the support and the cable naturally draws over the saddle toward it the flat surface of the saddle will tend to equally divide the angles which the cable assumes on the depressed side nearest the car and on the side away from the car. The high location of the pivot increases its stability. The two or more friction-rollers 14 render the movement of the cable exceedingly easy, and, furthermore, internal wear on the cable-wires is reduced by producing a flat surface at the central portion of the saddle between the two curved ends where the cable bends when in action. The cage or retaining-guide 15 (shown in Fig. 1) and the corresponding device 17 (shown in Fig. 3) serve to hold the cable positively on the saddle when the saddle is located on a support between two higher supports or where the cable slightly bends in the horizontal plane of a saddle. A holddown device of this kind is not convenient when used in connection with a curved saddle, as the interior of the arch will have to conform to the curvature of the saddle when the cable is bent by the weight of a car; but such is not the case where a flat surface at the crown of the arch is employed.

The length of the saddle will be proportional to the length of the span and the speed of the car, high speed requiring specially long saddles to reduce the impact at the support. The type of saddle shown is particularly adapted to electric cableway-work, where much higher speeds, more rail curves, and consequently more side swaying and vibration are to be provided for than in cable-traction cableways.

In Figs. 1 and 3 I have illustrated trolley-wires in connection with the cable D. In Fig. 1 a single wire 24 is used, the cable D being utilized for the return current, whereas in Fig. 3 I employ two trolley-wires 25 26, the current passing through one and returning through the other.

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

1. A pivoted saddle in the form of an arch with a flat crown.

2. A pivoted saddle in the form of an arch with a flat crown and retaining-guide or cage.

3. A pivoted saddle in the form of an arch having sheave-wheels at the crown of the arch.

4. A pivoted saddle in the form of an arch with a flat crown, and a channel on said flat crown to retain a cable from slipping off the arch sidewise.

5. A pivoted, built-up, structural-iron truss-saddle in the form of an arch, with means for retaining a cable on said arch.

6. A built-up, structural, iron-arch saddle with a flat crown, and having means for retaining a cable on said arch.

7. A pivoted saddle of arched construction, having a flat crown outer surface and a cage at the said flat surface adapted to receive a cable, substantially as described.

8. A pivoted saddle in the form of an arch with a flat crown, having retaining sides on said flat crown.

9. A pivoted saddle in the form of an arch with a strap located at the center and flanges

at each side of the strap to retain the cable in place.

10. A pivoted saddle in the form of an arch with a flat crown having a retaining-strap fastened over the cable at the crown so that the cable passes over the saddle but under the strap.

11. An arched saddle, a support to which said saddle is pivoted in the upper central portion, the tread-face of the saddle being flat above the pivotal point and for a predetermined distance each side of such point, a cage or retaining-guide for the cable located at the flattened upper portion of said saddle, and side flanges extending above the upper face of the saddle toward its curved ends, for the purposes described.

12. An arched saddle, a support to which said saddle is pivoted at its upper central portion, the tread-face of the saddle being flat above the pivotal point and for a predetermined distance each side of such point, a cage or retaining-guide for the cable located on the flattened upper portion of said saddle, side flanges extending above the upper face of the saddle toward its curved ends, and friction-rollers mounted to turn in the said upper portion of the saddle, which friction-rollers are located between the cage and said flanges extending along the upper face of the saddle for engagement with the cable passed through said cage, as described.

13. A pivoted saddle with sheave-wheels at the crown, permitting the freest possible end movement of the cable, as described.

14. A pivoted saddle in the form of an arch having sheave-wheels at the crown and a retaining-strap over the cable to keep the cable in place.

15. An arch saddle in the form of a built-up structural-iron truss pivoted in the center near the crown and having means for keeping the cable in place on the upper surface of the arch.

16. An arched saddle in the form of a structural-iron truss pivoted in the center, composed of a single piece with means for retaining a cable on the saddle.

17. An arched saddle in the form of a built-up structural-iron truss with a flat crown, pivoted in the center near the crown and having means for keeping the cable in place on the upper surface of the arch.

18. An arched saddle in the form of a structural-iron truss with a flat crown, pivoted in the center, composed of a single main piece with means for retaining the cable in position on the saddle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES MESSICK, Jr.

Witnesses:
J. Fred. Acker,
Jno. M. Ritter.