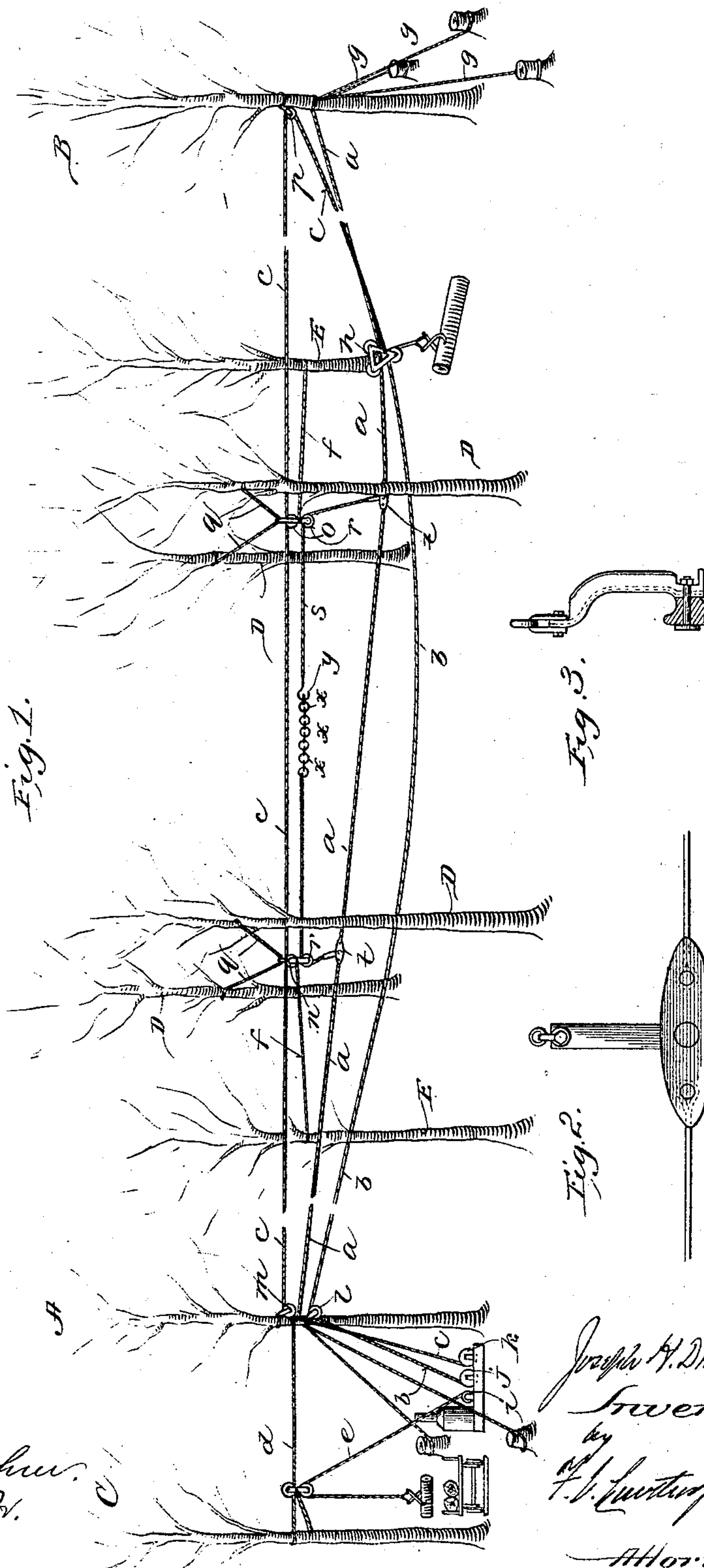


(No Model.)

J. H. DICKINSON.  
AERIAL TRAMWAY.

No. 495,398.

Patented Apr. 11, 1893.



witnesses:

Henry B. Rohrer.  
H. B. Starnes, Jr.

Joseph H. Dickinson  
Inventor:

by  
F. V. Luntrop, Jr.

Attorneys.



# UNITED STATES PATENT OFFICE.

JOSEPH H. DICKINSON, OF TRENTON, NEW JERSEY, ASSIGNOR TO THE  
TRENTON IRON COMPANY, OF SAME PLACE.

## AERIAL TRAMWAY.

SPECIFICATION forming part of Letters Patent No. 495,398, dated April 11, 1893.

Application filed August 31, 1892. Serial No. 444,632. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH H. DICKINSON, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Aerial Tramways; and I do hereby declare the following to be a full, clear, and exact description of my invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of aerial tramways wherein a traveling carriage from which is suspended the load to be transported moves upon a tram-rope; and more particularly to that class of such tramways as is used in skidding or moving logs from point to point.

The object of my invention is to provide means for materially extending the length of such tramways, and increasing their efficiency; such means consisting of adjustable intermediate supports for the tram-rope adapted to permit the traveling carriage with its load to automatically determine the altitude of the tram-rope, reduce all abrupt deflections therein, and readily pass all intermediate points of support without danger of derailment.

I shall now proceed to describe my invention more fully, having reference to the accompanying drawings, in which

Figure 1 shows a general view of my invention applied to an operative tramway. Fig. 2 shows a side elevation of a saddle for supporting the tram-rope, and Fig. 3 shows an end view of a saddle with a vertical cross-section of the shoe.

In the drawings A, B are the end standards or supports of the main system.

C is the outer support of the auxiliary loading system.

D, D, D, D are intermediate standards of the tramway.

E, E are standards to which are connected guy-ropes or cables for maintaining the intermediate tram-rope supports in their proper positions.

*a* is the tram-rope.

*b* is the hauling rope.

*c* is the tail rope or auxiliary hauling cable.

*d* is the sustaining cable of the auxiliary loading system.

*e* is the loading cable.

*f, f* are guy-ropes maintaining the intermediate supports in their proper positions.

*g, g, g* are cables by which the end supports of the main system of the tramway are anchored to the ground.

The tram-rope *a* is firmly attached at its ends to the trees or other supports A, B, which supports are firmly anchored to the ground as shown. The carriage *h*, consisting of a frame connecting two flanged wheels running upon the tram-rope *a* with a depending sheave, is connected with the tail rope or auxiliary hauling cable *c*. Near the standard A is located a steam winch or engine to which are geared three winding drums *i, j, k*, which may be operated independently of each other. The hauling rope *b* is wound upon the drum *j*, and passes over the sheave *l* fixed upon the support A, and through the sheave depending from the carriage *h*, and to its free end is attached a pair of tongs for gripping the logs to be conveyed. The tail rope or auxiliary hauling cable *c* is wound upon the drum *k* and passes over the sheave *m* on the standard A, and over the sheaves *n, o, p*, and back to the carriage *h*. Attached to each pair of intermediate supports D, D is a cable *q* on which is suspended a sheave, such as *n*, and *o* for sustaining the auxiliary hauling rope, and the sheave *r*, which sheave *r* is placed as nearly as may be in a vertical plane with the line of the tram-rope *a*. The cable *s* passes over the two sheaves *r, r* swung from adjacent pairs of intermediate supports of the tram-rope, and is attached at each end to one of the saddles *t, t*, in which saddles the tram-rope *a* is laid and secured. The cable *s* is arranged in two sections with rings *x, x, x*, or the like, placed at intervals upon one section, while a hook *y* is attached to the contiguous end of the other section thereof so as to engage with any of the said rings upon the first section of the cable *s* so that the length of the cable may be varied as occasion may require according to the interval between the two pairs of adjacent tram-rope supports D, D, D, D.

When in use my invention operates as fol-



lows: The drums *j*, and *k* are set in motion, and the carriage *h* is run out from the support A to a point on the line of the tramway where lie the logs which are to be transported.

5 The tongs at the free end of the hauling cable *b* are then gripped upon a log near one of its ends; the drum *j* is set in motion to wind the cable *b*, and the drum *k* is set in motion to unwind the auxiliary hauling rope *c*, and is controlled by a brake to keep the log in the desired position and elevation at the end of the hauling rope *b*. One end of the log is then raised clear from the ground, and the log is dragged toward the drums. As the carriage

15 *h* approaches the saddle *t* nearest it, the carriage and its load deflect the tram-rope *a* at the point of contact with the carriage. This operates to draw the cable *s* over the sheaves *r*, *r*, and while the saddle *t* nearest the carriage is depressed with the portion of the tram-rope adjacent thereto, the other saddle *t* connected therewith by the cable *s* is raised, and with it that portion of the tram-rope *a* contiguous thereto. This action of the tram-rope

25 and saddles *t*, *t* connected by the cable *s* obviates all abrupt deflection in the tram-rope *a* at the point of support which the carriage is passing, and enables the carriage to pass smoothly and easily over the saddle, and onto the next section of the tram-rope *a* without danger of derailment. As the carriage progresses toward the winding drums, and the point of maximum deflection in the tram-rope *a* moves away from one intermediate support

35 toward the next, the weight of the carriage and its load operates to shift the cable *s* and the saddles *t*, *t* so that the saddle which the carriage has passed and is leaving is gradually raised, while the saddle which the carriage is approaching is correspondingly depressed. It will be readily seen that when the carriage reaches a point upon the tram-rope midway between the two saddles *t*, *t*, those saddles will be upon the same horizontal plane, and

45 as the carriage proceeds farther toward the second saddle *t* the saddle which it approaches will be gradually depressed until it reaches practically the same level as that which was occupied by the first saddle passed at the time

50 the carriage crossed it, while the first saddle *t* is correspondingly elevated. The deflection in the tram-rope *a* at each saddle *t* is thus reduced to a minimum at the time the carriage

passes it. When the carriage reaches a point near the support A the log is released from the gripping tongs at the end of the hauling rope *b*, and the similar pair of gripping tongs attached to the free end of the hoisting cable *e* is made fast to the log; the drum *i* is set in motion to wind the cable *e*, and the log is promptly hoisted and unloaded upon the wagon, car or other vehicle intended to receive it. It will be seen that the intermediate supports of the tram-rope *a* may be multiplied to any desirable extent, and the saddles depending therefrom connected in pairs by compensating cables similar to the cable *s* so that the range of the tramway may be greatly amplified.

Having thus described my invention, I make no claim to the tramway as a whole; but

What I do claim is—

1. In an aerial tramway, a tram-rope in combination with a supporting cable playing upon sheaves sustaining the same, and attached to the tram-rope at two separate points, and adapted to automatically reduce the deflection in the tram-rope at the points where it is sustained by the supporting cable when the carriage traveling upon the tram-rope passes said points; substantially as shown and described.

2. In an aerial tramway, a tram-rope in combination with two saddles attached thereto at separated points, a supporting cable playing upon two supporting sheaves, and having each of its ends attached to one of said saddles, means for supporting said sheaves, and means for retaining said sheaves in their proper relative positions; substantially as shown and described.

3. In an aerial tramway, a tram-rope in combination with two saddles attached thereto at separated points, a supporting cable playing upon two supporting sheaves, adjustable as to its length, and having each of its ends attached to one of said saddles, means for supporting said sheaves, and means for maintaining said sheaves in their proper relative positions; substantially as shown and described.

JOSEPH H. DICKINSON.

Witnesses:

JOS. L. WATSON,  
F. B. STEVENS, Jr.