

(No Model.)

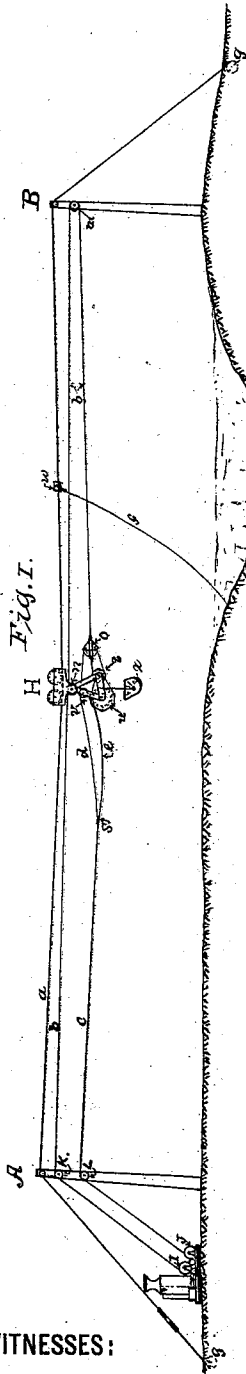
2 Sheets—Sheet 1.

J. H. DICKINSON
AERIAL TRAMWAY.

AERIAL TRAMWAY.

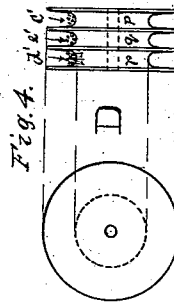
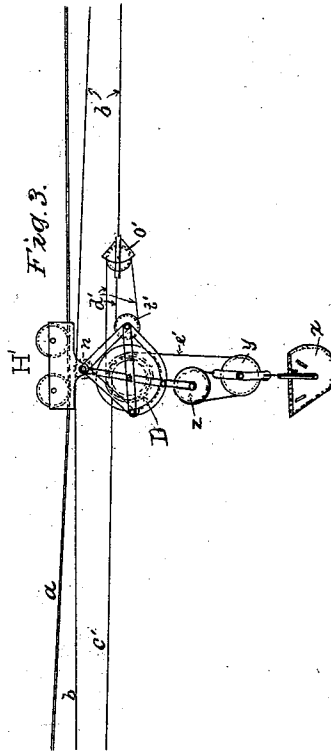
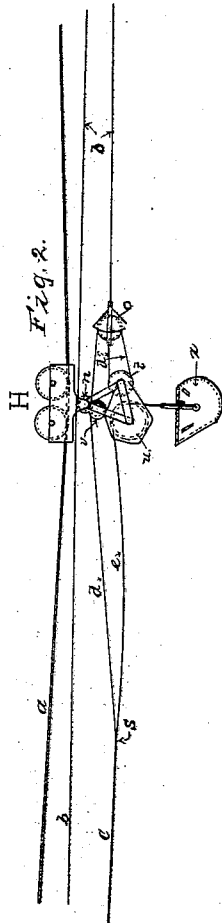
No. 546,508.

Patented Sept. 17, 1895.



WITNESSES:

A. M. Dickinson
M. S. Martindell



INVENTOR

Joseph H. Dickinson

(No Model.)

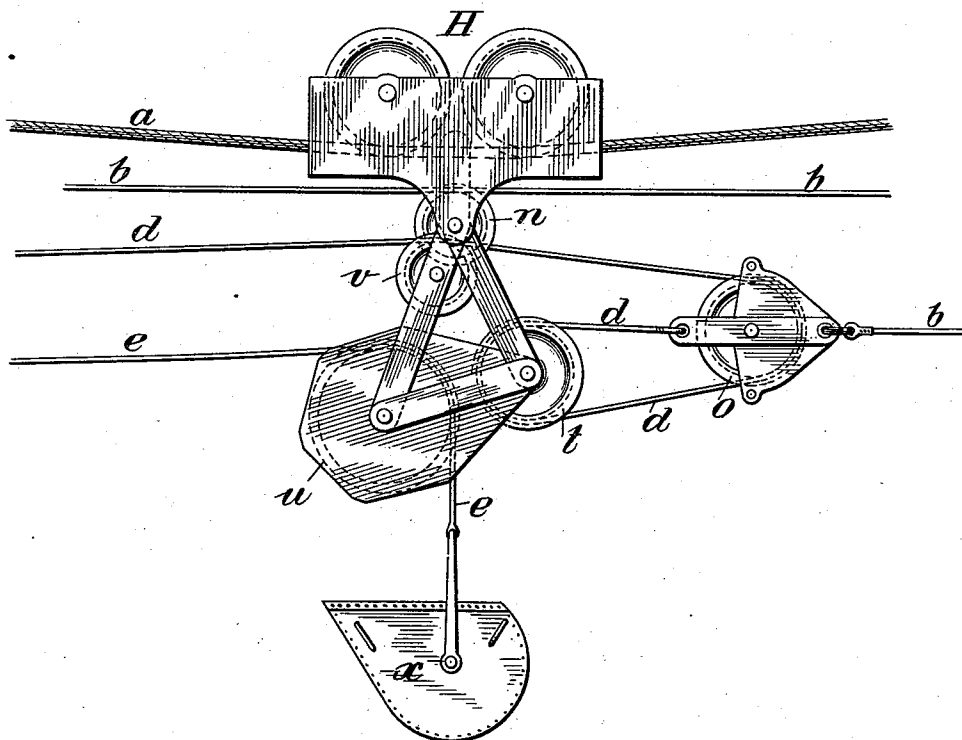
2 Sheets—Sheet 2.

J. H. DICKINSON.
AERIAL TRAMWAY.

No. 546,508.

Patented Sept. 17, 1895.

Fig. 5.



Witnesses:-

A. H. Raymond

M. Wilson

Inventor:-

Joseph H. Dickinson
by Gifford & Bull
Atty's.

UNITED STATES PATENT OFFICE.

JOSEPH H. DICKINSON, OF TRENTON, NEW JERSEY.

AERIAL TRAMWAY.

SPECIFICATION forming part of Letters Patent No. 546,508, dated September 17, 1895.

Application filed December 7, 1894. Serial No. 531,092. (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 true, 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 the traveling carriage, from which is suspended the load to be transported, moves upon a tram-rope, and particularly to that class of such tramways where a hoisting-rope is used to hoist and hold the load, as in moving material by cableway from point to point.

The object of my invention is to provide means to facilitate the getting down of the empty bucket or fall-block at point to be loaded without the use of fall-rope carriers, as has heretofore been necessary.

To the attainment of the foregoing and other objects, the invention consists in the peculiar construction, certain novel combinations, and the adaptation of parts hereinafter described, and particularly pointed out in the claims appended.

I shall now proceed to describe my invention more fully, having reference to the accompanying drawings, in which similar letters indicate similar parts.

Figure 1 shows a general view of my invention applied to an operative cableway. Fig. 2 shows the method of using my invention without the use of a drum upon the hoisting-carriage. Fig. 3 shows the method of using my invention with the use of a drum upon the hoisting-carriage, which is preferable when two or three part fall is required. Fig. 4 shows the three-part drum that is used in the carriage illustrated in Fig. 3, detached from the carriage and without the ropes. Fig. 5 is an enlarged detail of parts shown in Fig. 2.

In the drawings, A B are the terminal support-standards of the cableway. *a* is the tram or carrying rope. *b* is the tail-rope. *c* or *c'* is the hoisting-rope. *d* or *d'* is the ex-

tension to the tail-rope. *e* or *e'* is the fall-rope that holds the load.

Referring to Fig. 1, the carriage H is made to travel back and forth over the rope *a* by means of a hoisting-engine or other motive power that drives two drums I and J, which gives motion to the carriage by means of the ropes *b* and *c*. The rope *b*, which passes around the drum I, thence up over the sheave K, thence through a guide-sheave *n* upon the carriage H, thence around sheave *m* on standard B, and thence to sheave O, pulls the carriage H back from A toward B, and, further, serves, in connection with rope *d*, (as I explain later,) to lower the empty bucket. The rope *c*, which passes around the drum J, up over the sheave L, to coupling S, in Figs. 1 and 2, pulls the loaded carriage in toward standard A, where the load is deposited.

In Figs. 1 and 2, rope *c* is coupled to ropes *d* and *e* at point *s*. The light rope *d* passes from S over the sheave *v*, down around the sheave *o*, and then around the sheave *t* to the frame of the sheave *o*, where it is secured. The rope *e* passes from S, over the carriage-hoisting sheave *u*, down to the depending bucket *x*, and there is secured to same. *w* is a movable stop-block upon rope *a* and is guyed and held at any desired point along the line by rope *f*. Now it will be seen if while the tail-rope *b* is pulling the carriage H out toward B the carriage is stopped by the block *w* or by any other means, and at the same time the rope *c* is slackened the rope *b* will draw the sheave *o* back away farther from the carriage and sheave *t*, (*t* being secured to the carriage,) thus shortening the amount of rope *d* in front of the carriage H, and consequently drawing the point S up toward the carriage. Then, since the empty bucket is made heavy enough to overcome the sag in *e* between S and carriage, the bucket, due to the force of gravity, lowers while the rope *b* is pulling out the sheave *o*.

When two or three part fall is required, which would necessitate a much longer rope *e*, and thus prevent the carriage from going as near as may be desired to standard A, (due to rope connection S, passing sheave L,) it will be necessary to use this device in connection with a drum upon the carriage, as

shown in Fig. 3. The drum D (used as illustrated in Fig. 4) is made with three deep grooves, each groove large enough to carry the required number of coils of the rope used upon it.

The hoisting-rope c' , which is handled by the drum J of the hoisting-engine, as before explained, is at the carriage end fastened around groove P of drum D of carriage. The rope d' , fastened at one end to frame of sheaves o' , passes around sheave t' , thence around sheave o' , as before explained, and thence to and around, for the required number of coils, the groove r of drum D of carriage. The fall-rope e' is fastened at lower end to frame of fall-block y , thence passes up around the depending sheave Z, which is secured to the carriage, thence down around the sheave y , and thence up to and around, for the required number of coils, the groove q of drum D of carriage. Now it will be seen in this case, as in the preceding case explained in Figs. 1 and 2, if while the tail-rope b is pulling the carriage H' out toward B the carriage is stopped by the block w or by any other means, and at the same time the rope c' is slackened, the rope b will draw the sheave o' back away farther from the carriage, thus causing the rope d' to unwind from the drum, this unwinding of d' causing the drum D to revolve in such a direction that it must coil up c' upon groove p and uncoil e' from groove q , thus lengthening rope e' , which enables the bucket and fall-block to lower.

In both the constructions shown it will be observed that the tail-rope carries a sheave o or o' and that this sheave is connected both with the hoisting or fall rope and with the carriage. Two means are shown for connecting it with the hoisting-rope, (viz., the direct connection by the coupling at S and the indirect connection by the sheave D,) both con-

nections performing the function of enabling the rope d or d' to assist the descent of the fall-block by pulling upon the slack of the hoisting-rope; but I do not desire to be limited to either of these forms of connection. One means is shown for connecting the slack-pulling rope d or d' with the carriage, (viz., the sheave t or t' , mounted upon the carriage;) but I do not wish to be limited to this form of connection. Neither do I wish to be limited to the stop-block w as a means for arresting the outward movement of the carriage.

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

1. In a conveying apparatus having a cable or trackway, a carriage to travel thereon and a hoisting rope, the combination with the said parts, of a tail rope and a slack-pulling-rope connecting the carriage and hoisting rope with said tail rope, substantially as described.

2. In a conveying apparatus having a cable or trackway, a carriage to travel thereon and a hoisting rope, the combination with the said parts, of a sheave connected with the tail rope and a slack-pulling-rope connecting said sheave with the carriage and the hoisting rope, substantially as described.

3. In a conveying apparatus having a cable or trackway, a carriage to travel thereon and a hoisting rope, the combination with said parts, of a hoisting rope sheave mounted upon the carriage, a tail rope and a slack-pulling-rope connecting said tail rope with said hoisting rope through said hoisting rope sheave, substantially as described.

JOSEPH H. DICKINSON.

Witnesses:

PETER W. CROZER,
WM. M. CROZER.