

A. E. HOVEY.

ENDLESS ROPE RAILWAYS.

No. 184,624.

Patented Nov. 21, 1876.

Fig 1

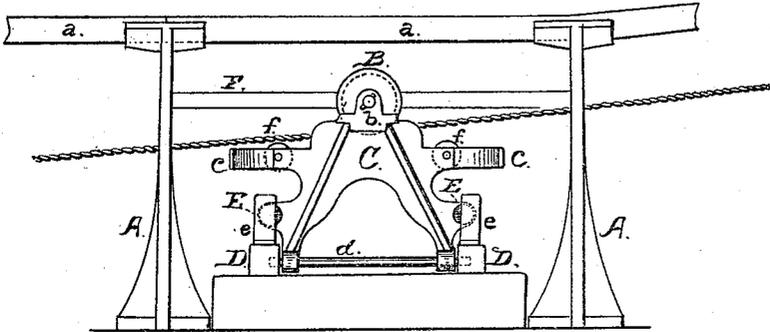
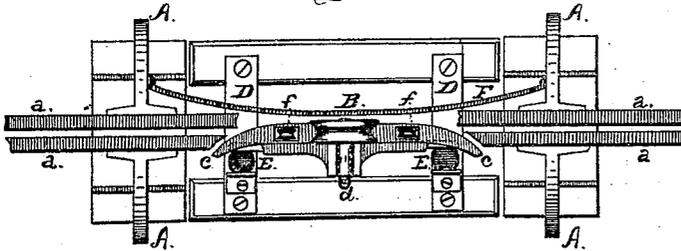


Fig 2



Witnesses:

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S. Patten

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN ENDLESS-ROPE RAILWAYS.

Specification forming part of Letters Patent No. 184,624, dated November 21, 1876; application filed September 22, 1876.

*To all whom it may concern:*

Be it known that I, ASA E. HOVEY, of the city and county of San Francisco, in the State of California, have invented an Improved Device for Operating the Depression-Pulleys in Endless-Rope Traction-Railways, of which the following is a specification:

My invention relates to a means or device for supporting and operating the depression-pulleys used in traction-railways to sustain the upward pull of the endless rope in the change of level of the road from a horizontal to an incline, whereby the pulley is automatically thrown out of the path of the rope-gripe as the dummy is drawn along by the rope, and is afterward brought into position over the rope as soon as the gripe is clear of the pulley-frame.

It consists in the construction and arrangement of a vibrating pulley frame or bracket within the rope-chamber, held in suitable bearings and operated in one direction by the pressure of the gripe against curved wings projecting from the sides of the frame, and in the other direction by the reaction of rubber springs, as will be more fully described and shown hereinafter.

The following description is sufficiently full and clear to enable any person skilled in the art to which it pertains to construct and apply the same, reference being had to the accompanying drawing, forming part of this specification.

Figure 1 is a side view, looking upon the frame of the rope-chamber and the pulley-bracket within it. Fig. 2 is a top view of the same.

A A represent the brackets that support the rails *a a*, the two parts forming together the shell or frame-work of the rope-chamber. The rails *a*, when in position, have a space between them of the proper width to allow the bar or frame of the rope-gripping device to pass along without rubbing the groove; and the brackets are of such form that they may be securely boarded up at the sides and top to form a continuous chamber or tunnel. Within this chamber, at or near the apex of the angle formed by a change in the road from a horizontal to an incline, is situated the de-

pression-pulley B, to sustain the upward strain or thrust of the cable. This pulley B is supported and operated by the frame or bracket C in such a manner that when the bar of the gripe approaches the pulley-frame and strikes its wings or flanges *c c*, the pulley is thrown laterally away from the cable and out of the path of the gripe. The frame C has a journal-box, *b*, for the axis of the pulley B, and two arms extending from thence radially, with collars upon them to receive the rod *d*. The frame and this rod are secured together, and the ends of the rod project at each side to form pivots for the frame. They work in sockets in the blocks D D, that are fastened on the sills placed on the bottom of the road-bed, whereby the pulley-frame vibrates upon these pivots as a center. At each side of the frame C are fixed two projecting curved wings or flanges, *c c*, that extend beyond the frame a proper distance to meet the bar of the gripe before it approaches the frame and pulley.

When the pulley is in position over the cable the ends of these wings *c c* are immediately in the path of the gripe-bar, so that the pressure of the bar, as the dummy advances, throws the frame B and its pulley over to one side, clear of the cable and the gripe, and holds the pulley in this position until the gripe has passed.

The reaction of the pulley-frame C is produced by the springs E E, situated between the frame and a fixed lug or bearing, *e e*, on the blocks D D. When the frame C is moved laterally away from the cable by the gripe-bar these springs are compressed between the fixed surfaces *e e* and the sides of the frame, and after the bar has passed the pulley they react to throw the pulley into its normal position over the cable. The movement of the frame C in the direction opposite to that produced by the action of the gripe-bar is governed by the fixed bar F, that acts as a stop to keep the pulley from being thrown beyond the line of the rope or cable.

The pulley-frame is also provided with two or more friction-rollers, *f*, situated below the pulley and in line with the path of the rope. They are hung in loose bearings, and are employed to keep the rope from rubbing against

the parts of the frame below the pulley when from any cause the rope becomes slack and drops down out of contact with the pulley.

As thus constructed and arranged my invention operates to hold the depression-pulley in endless-cable traction-railways in such manner that it is thrown automatically out of the path of the gripe as the dummy approaches the incline, and is afterward moved again into position over the cable after the dummy and gripe is clear of the frame, and before the cable can rise above the face of the pulley.

The distance between the top of the road and the rollers of the gripping device is always fixed and invariable, and is somewhat greater than the distance between the top of the groove-rails *a a* and the cable at the point where it is held down by the pulley B, so that the gripe has a downward pressure or thrust upon the cable as it passes along at this part of the road. This construction has the effect to release the pulley from the thrust or strain of the cable and allow it to swing freely to one side as the gripe-bar strikes the frame C.

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

1. The vibrating pulley frame or bracket C, with its journal-box *b*, the pivots *d*, and the curved projecting wings or surfaces *c c*, when combined with the springs E E, for returning the pulley to its position over the cable after the gripe has passed, and the stop-bar F, for controlling the movement of the pulley-frame, all arranged and operating together as and for the purpose set forth.

2. In combination with the vibrating pulley-frame for endless-rope traction-railways, constructed as hereinabove described, the rollers *f f*, arranged and applied as and for the purpose set forth and specified.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of September, 1876.

ASA EBENEZER HOVEY.

Witnesses:

WILLIAM HARNEY,  
EDWARD E. OSBORNE.