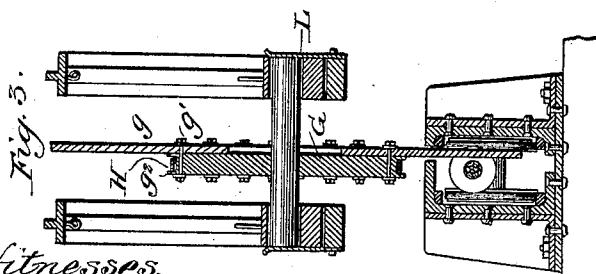
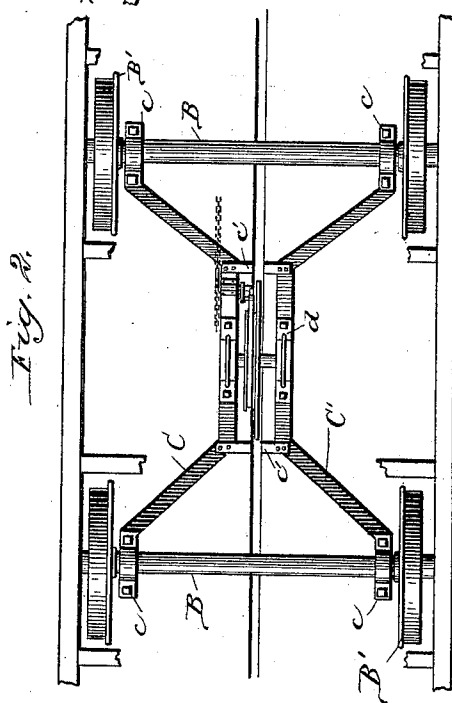
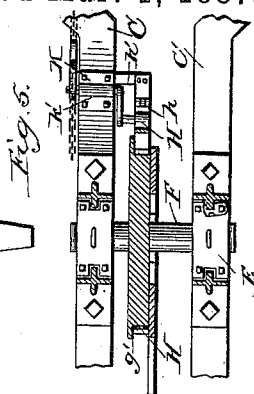
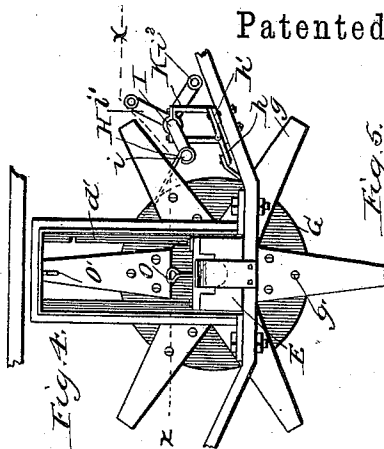
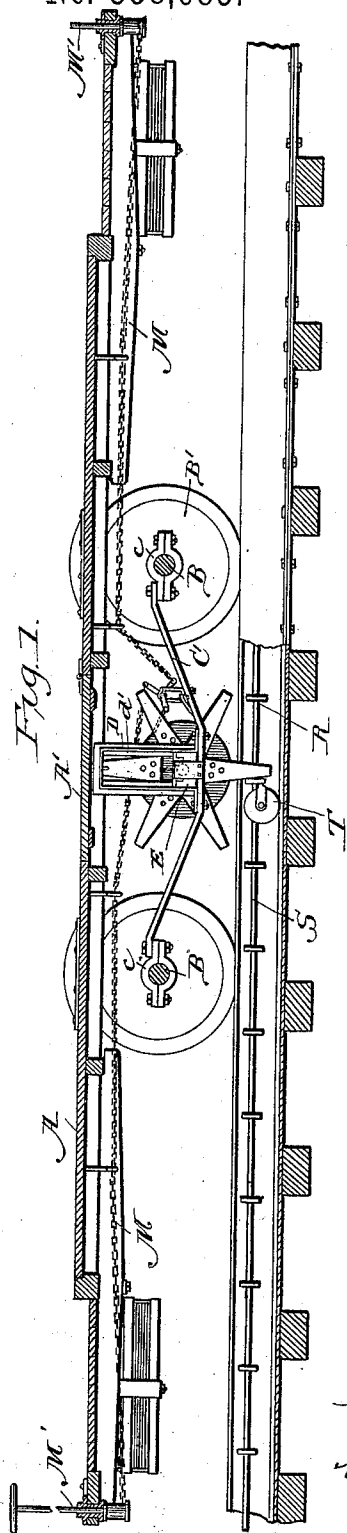


(No Model.)

H. W. McNEILL.
CABLE RAILWAY CAR.

No. 358,685.

Patented Mar. 1, 1887.



Witnesses.
W. Rositer
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Inventor:
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UNITED STATES PATENT OFFICE.

HOBART W. McNEILL, OF OSKALOOSA, IOWA, ASSIGNOR TO THE RASMUSEN
CABLE COMPANY, OF CHICAGO, ILLINOIS.

CABLE-RAILWAY CAR.

SPECIFICATION forming part of Letters Patent No. 358,685, dated March 1, 1887.

Application filed April 28, 1886. Serial No. 200,445. (No model.)

To all whom it may concern:

Be it known that I, HOBART W. McNEILL, a citizen of the United States, residing at Oskaloosa, in the State of Iowa, have invented certain new and useful Improvements in Cable-Railway Cars, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention has relation to the improvement of cable-railway cars of that class wherein the attachment of the car to the constantly-moving cable is effected by means of a sprocket-wheel sustained beneath the car, the arms of said sprocket-wheel entering the slot of the cable-tube and engaging with suitable stops fixed at intervals upon the traveling cable; and my invention consists in the several novel features of construction, hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

Figure 1 is a view in vertical longitudinal section at one side of the sustaining-frame of the sprocket-wheel. Fig. 2 is a plan view of the car wheels and axles, the sprocket-wheel, and its sustaining-frame. Fig. 3 is an enlarged view in vertical transverse section through the sprocket-wheel and its supports through the cable-tube beneath the same. Fig. 4 is an enlarged detail view, in side elevation, of the sprocket-wheel and a portion of its sustaining-frame. Fig. 5 is a view in transverse section on line *x x* of Fig. 4.

A designates the floor of the car-body, which will be supported in the usual manner upon the axles B of the car-wheels B'. Between the axles B extends the sustaining-frame of the sprocket or spider wheel, this frame consisting of the bars C and C'. The ends of these bars are supported by means of the straps *c* upon the axles, or by any other suitable connection with the axles or their journal-supports, so as not to be affected by the movement of the car-springs. The bars C and C' of the sustaining-frame incline downwardly from the axles toward the central portion of the car, and are preferably connected together by means of short cross-bars *c'*, and from the up-

per face of each of the bars C and C' rises a journal-bracket, D, the bottoms *d* of these brackets being bolted to the bars C and C'.

On the inner faces of the brackets D suitable ribs, *d'*, are formed, upon which slide the journal-boxes E of the axle F of the sprocket-wheel and friction-drum, these journal-boxes being preferably of sections suitably bolted together.

The body of the sprocket-wheel G, which, in the construction shown, also constitutes the body of the friction-drum, may be formed of malleable iron or other suitable metal, while the arms *g* of this wheel, which are bolted to the body, as at *g'*, are preferably formed of steel and comparatively thin. If desired, however, the sprocket-wheel may be formed separate from the friction-drum, it being simply necessary that it should be held in such relation to such drum that the movement of the wheel may be controlled by that of the drum. The periphery of the wheel G is formed with a friction-groove between the flanges *g''*, and within this groove fits the friction-strap H, which serves to check or arrest the movement of the wheel. One end of the strap H is fastened to the bar *h*, that is hinged to the bar *h'*, that extends between the main bars of the sustaining-frame, while the opposite end of the friction-strap is connected to the arm *i* of the elbow-lever I, which is journaled within a bracket, K, that is bolted, as shown at *h'*, upon the sustaining-frame.

To the outer sides of the bars C and C' of the sustaining-frame of the sprocket-wheel are bolted the plate-springs L, the free ends of which project upward and bear against the ends of the axle of the sprocket-wheel. It will be observed that this axle is fitted within its bearings in such manner as to be capable of lateral movement, and the purpose of the springs is to restore the axle to a normally central position after it has been moved therefrom.

To the arm *i'* of the elbow-lever I will be attached a chain or cable, M, connecting this lever to the winding-post M' at one end of the car, and from the other arm, *i''*, of the lever will extend the chain or cable N, leading to the

winding-post N' at the opposite end of the car.

To the top of the journal-boxes of the sprocket-wheel and friction-drum are fastened suitable loops, O, which, when the sprocket-wheel and friction-drum have been lifted in vertical direction, will engage with the hooks O' at the top of the journal-brackets, and will serve to sustain such wheel and drum in elevated position. A latch, O', engaging with notches in the brackets may also be used to hold the journal-boxes at the top of bottom of the brackets. It will be observed that in the floor of the car a trap-door, A', is formed, through which the sprocket-wheel may be reached, and through which, also, the arms of this wheel may project when it has been elevated. The blades or arms g of the sprocket-wheel are of sufficient length to extend through the slot of the cable-tube P and engage with the stops R, fixed upon the cable S at suitable distances corresponding with the arms of the sprocket. The cable is supported, as shown, upon the trucks T at proper intervals throughout its length, these trucks being connected to the stops of the cable. The construction of the cables, trucks, or stops, being fully described and claimed in an application filed by me of even date herewith, and numbered 200,446, need not be more particularly set out herein, nor need the precise construction of the cable-tube be herein defined, as it also constitutes subject-matter of said companion application.

It will be readily seen that by lifting the sprocket-wheel in vertical direction its projecting arms can be removed from the cable-tube, so as to permit this wheel to pass over any obstructions—such, for example, as a fire-hose across the track or intersecting cross-tracks or switches. By placing the sprocket-wheel beneath the central portion of the car and extending suitable connecting chains or cables from its friction-drum to the ends of the car the movement of the sprocket-wheel from either end of the car can be readily controlled at pleasure, since by winding either the chains M the elbow-lever I will be turned in such manner as to force the friction-strap to check the movement of the drum. By sustaining the axle of the sprocket-wheel G in the manner shown a slight lateral movement of such wheel will be permitted as the car is traversing a curve of the roadway.

I have not deemed it necessary to illustrate in the accompanying drawings any particular form of brake mechanism for the car, although it will be readily understood that any suitable brake mechanism may be employed to operate either conjointly with the friction-clutch of the sprocket-wheel, as in the patent of Rasmussen, dated October 25, 1881, or independently thereof, as in the ordinary car.

The operation of my improved cable-car will from the foregoing construction be readily apparent. When either of the winding-posts at the end of the car has been turned so as to cause the friction-strap to bind upon the fric-

tion-drum and consequently check the movement of the sprocket-wheel, one of the arms of the sprocket-wheel will be caught by a stop of the endless cable, and the car will thus be moved forward. If, now, it is desired to stop the car, the winding-post at the end will be released, so as to relieve the pressure of the friction-strap upon the drum and permit the sprocket-wheel to be revolved by the stops of the cable, which will engage successively with the projecting arms. It will be readily understood that the sprocket-wheel could be located near one side of the central portion of the car, in case it should be deemed desirable to locate the cable-tube near one of the tracks, and where the expression "central portion of the car" is used in this specification I do not wish to be understood as involving a limitation which would exclude such construction.

I am well aware that it has been heretofore proposed in cable-railway systems of the kind to which my invention relates to provide a vertically and laterally movable sprocket-wheel beneath the central portion of the car for engagement with the underground cable; and I am also aware that in the patent of Rasmussen above referred to it was proposed to control the sprocket-wheel located beneath the car by a suitable friction-drum having connections extending beneath to the ends of the car. To such construction, therefore, I do not broadly make any claim.

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

1. The combination, with a cable-railway car, of a fixed sprocket-wheel frame and a vertically-movable sprocket-wheel adapted to be raised or lowered independently thereof, substantially as described.

2. The combination, with a cable-railway car, of a vertically-movable sprocket-wheel, a frame for sustaining said sprocket-wheel beneath the central portion of the car, said frame being provided with suitable brackets or supports for the journal-boxes of the sprocket-wheel, and suitable journal-boxes arranged to slide in said brackets or supports, substantially as described.

3. The combination, with a cable-railway car, of a sprocket-wheel, a fixed frame for sustaining said sprocket-wheel beneath the central portion of the car, a vertically-movable sprocket-wheel sustained by said frame, a friction-drum connected with the sprocket-wheel, a friction-strap connected with the drum in a manner permitting said drum to move in vertical direction, and a fixed lever connected to said strap, and suitable connections between said lever and its operating device at the end of the car, substantially as described.

4. The combination, with a cable-railway car, of a sprocket-wheel, a frame for sustaining said sprocket-wheel beneath the central portion of the car, a friction drum and strap for said sprocket-wheel, a double elbow-lever

connected to said friction-strap, and suitable connections extending from said lever to both ends of the car, substantially as described.

5 5. The combination, with a cable-railway car, of a laterally-movable sprocket-wheel, a frame for sustaining said sprocket-wheel, and suitable springs for pressing said sprocket-

wheel toward a central portion, substantially as described.

HOBART W. McNEILL.

Witnesses:

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GEO. P. FISHER, Jr.