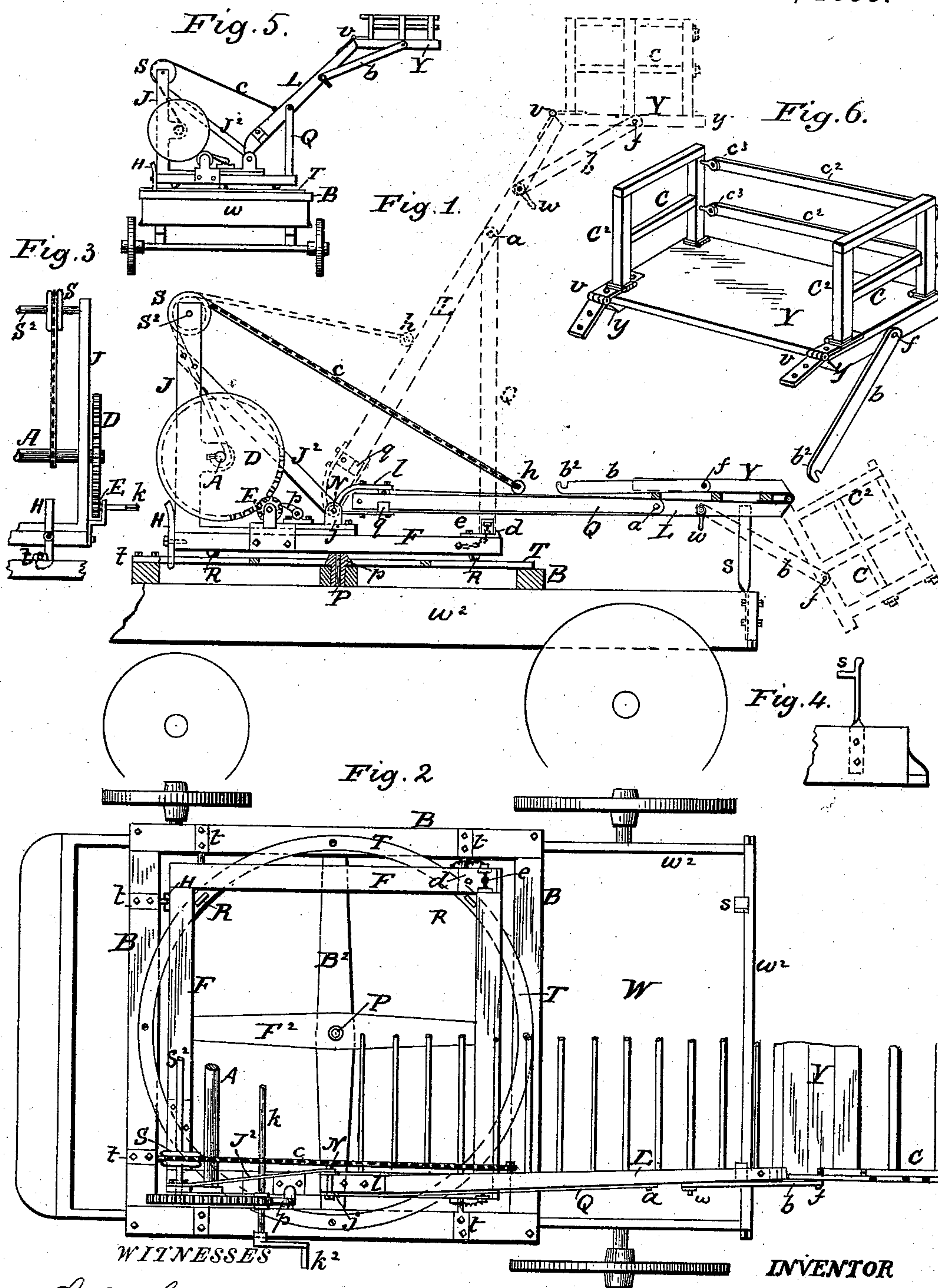


(No Model.)

J. H. LEONHARDT.  
TOWER WAGON FOR ELECTRIC LINE WORK.

No. 534,608.

Patented Feb. 19, 1895.



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# UNITED STATES PATENT OFFICE.

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## TOWER-WAGON FOR ELECTRIC-LINE WORK.

SPECIFICATION forming part of Letters Patent No. 534,608, dated February 19, 1895.

Application filed December 29, 1894. Serial No. 533,268. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. LEONHARDT, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Tower-Wagons for Electric-Line Work, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The object of my invention is to construct a simple and strong tower-wagon, mainly for use in erecting and repairing the trolley wires of electric railroads and their supports. The tower of said wagon being provided with a platform for supporting one or more workmen is rotatably mounted upon a wagon's body and adapted to be elevated and swung around in any direction, the upper end of said tower and its platform occupying a position overhanging the sides of the wagon directly over the car track and alongside of the trolley wire while the car traffic continues in operation beneath said platform. I attain these objects by the construction illustrated in the accompanying drawings, in which—

25 Figure 1 is a side view of the tower wagon constructed in accordance with my invention, a portion of the turn table being shown in section, the ladder and its upper platform being shown folded in full lines, and the ladder raised and its platform extended in dotted lines. Fig. 2 is a top view of the tower wagon, one half of the ladder and its platform being broken away to clearly show the turn table and other parts of the body of the wagon. Fig. 3 is an end view of a portion of the ladder elevating frame and its gearing. Fig. 4 is a back view of a portion of the rear sill or side of the wagon showing one of the iron supports for the ladder to rest upon when lowered. Fig. 5 is a front view of the tower wagon on a small scale, showing the ladder and its upper platform elevated and turned so as to overhang one of its sides, a position that it generally occupies when extended over an electric railroad track under its trolley wire. Fig. 6 is a perspective view of the upper platform detached from the upper end of the ladder.

50 In said drawings W represents the bottom of a strong wagon having low sides and ends

w<sup>2</sup>, upon the front portion of which is mounted a rectangular frame B that is removably bolted at each corner to the sides of the wagon body. The sides of the frame B are centrally united by a beam B<sup>2</sup> that has in the middle of its length a perforation to receive the pivot bolt P of the turn table F. Said turn table consists of a rectangular frame having two of its sides centrally united by a beam F<sup>2</sup> through which the pivot bolt P passes. The central portion of said beam F<sup>2</sup> rests upon a bushing p placed upon the beam B<sup>2</sup> and through which the bolt P passes, but the turn-table frame F is carried and steadied by four rollers R suitably journaled in the corners of the frame F, and made to travel upon a circular track T secured on top of the frame B.

The ladder L carrying the operators' platform Y has the lower end of each of its sides provided with a metal strap l bolted thereto to constitute one member of a hinge, the second member consisting of a clip j having two vertical lugs that receive horizontally there-through, as well as through the loop of the strap l the pivot bolt N of one of the legs of the ladder. The clip j rests upon and is secured to the horizontal arm of an angular metal frame J, and said frame is bolted upon the turn-table frame B. (It must be understood that two frames as J, clip j and ladder legs are used.) To add to the rigidity of the frame J its vertical arm is connected to its horizontal arm by a diagonal brace J<sup>2</sup>.

Although the weight of the ladder L and of its upper platform Y would normally not tilt said ladder and turn table even when in the position shown in Figs. 1 and 5 nor bring any great pressure upon the pivot bolt P; yet for additional safety and to prevent any tendency of the turn table F to become tilted, the turn table frame has pivoted to its edge, and pendent therefrom, two hooked latches H the hooked portion of which is adapted to engage under lugs projecting from the inner end of plates t bolted on top of the frame B. The location of the latches H on the edge of the turn table is opposite that occupied by the ladder. In regard to the position occupied by the plates t, two of them are on the front beam of the frame B to guard against the tilting of said frame when the ladder is in-



clined toward the rear of the wagon, and two of them are on the side beams of the frame B for a similar purpose when the ladder is elevated with its top and upper platform overhanging either side of the wagon. The ladder when folded down has its rear portion supported upon iron stirrups *s* projecting upward from the tail end of the wagon.

To tilt up and elevate the ladder there is received in suitable bearings mounted upon the vertical frames J a horizontal shaft A to which one end of chains *c* is attached. Said chains are made to pass over sheaves S upon a horizontal shaft S<sup>2</sup> retained in the upper ends of the frames J, and the opposite end of said chains is secured to eye-bolts *h* carried by the sides of the ladder. To wind a portion of the chains *c* upon the shaft A, a gear wheel D is mounted upon said shaft and a pinion E is made to mesh with said gear wheel. Said pinion is mounted upon a shaft *k* carried in suitable bearings of the frames J, and its retrograde revolution is prevented by a pawl *p* having its outer end in engagement with the teeth of said pinion. Upon the outer end of the shaft *k* a handle *k*<sup>2</sup> is mounted to rotate it. After the ladder has been sufficiently raised it is retained in that position, and the chains *c* relieved of strain, by means of props Q hinged by means of bolts *a* to the sides of the ladder. The lower ends of said props are made to rest upon socket plates *d* secured on top of the turn table. Said plates *d* have perforated lugs to receive a split-key *e* that is made to pass also through a horizontal perforation in the lower end of each prop Q. Projecting from the lower portion of the sides of the ladder are stirrups *q* to support the lower end of each prop Q when they are folded along the sides of said ladder.

To the upper ends of the sides of the ladder is attached the platform Y by means of hinges *v*, said platform consisting of two short joists *y* having their inner ends undercut adjacent to the hinges *v*, and flooring having their ends secured upon said joists. To relieve the hinges *v* of strain due to the weight of the operators that may be upon the platform, braces *b* are pivotally secured at one end to the sides of the joists *y* by means of bolts *f*, and their opposite ends are in the form of a hook *b*<sup>2</sup> adapted to straddle a short bolt projecting from the faces of the sides of the ladder, and a hand nut *w* upon said bolt clamps each brace *b* to the sides of the ladder. The platform is provided with guard rails C secured to posts C<sup>2</sup> having their lower ends hinged to the platform Y in such a man-

ner that they can be folded inwardly upon said platform, but cannot be tilted outwardly beyond a perpendicular position. The outer posts of the side guard rails C are furthermore united together by bars *c*<sup>2</sup> that are hinged at one end to eye bolts *c*<sup>3</sup> pivotally secured to said posts, and thus render the bars *c*<sup>2</sup> swiveled to said posts and capable to be folded against the inner face of the guard rails C. The opposite ends of the bars *c*<sup>2</sup> are in the form of hooks (similar to the hooks *b*<sup>2</sup> of the braces *b*) to straddle bolts projecting from the outer posts and be clamped by hand nuts (as *w*) upon said bolts.

Having now fully described my invention, I claim—

1. In a tower-wagon the combination of the body of a wagon, a frame B bolted thereto and having a central pivot bearing, a circular track secured upon said frame, a turn-table frame having a central pivot and rollers R in each corner, plates *t* secured to the frame B and having lugs projecting within said frame, and vertical latches H pivoted to the sides of the turn table frame for engagement with the plates *t* substantially as described.

2. In a tower-wagon the combination of the body of a wagon, a frame B bolted thereto, a circular track secured upon said frame, a turn table frame guided upon said frame B and its track, vertical latches H pivoted to the sides of the turn table frame, projections to engage said latches a ladder having the lower ends of its sides pivoted to said turn-table frame, a frame J secured upon the turn-table frame and having horizontal shafts S<sup>2</sup> and A, a sheave upon the shaft S<sup>2</sup>, a chain passing over said sheave and having one end secured to the ladder and the other end to the shaft A, and means to rotate said shaft substantially as described.

3. In a tower-wagon the combination of the body of a wagon, a frame B bolted thereto, a circular track, a turn-table frame thereon, a ladder having its lower end hinged to the turn table, and means as described to elevate the ladder, props Q pivoted to the sides of the ladder, a platform Y hinged to the upper ends of the ladder and having foldable sides, a brace *b* having one end hinged to said platform and a hand-nut securing its opposite end to the ladder substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. LEONHARDT.

Witnesses:

W. K. FAUST,  
CHAS. M. HARDY.