(No Model.) 2 Sheets—Sheet 1.

J. R. McCARDELL, C. H. WEST & M. J. McDONALD.

TOWER WAGON OR VEHICLE.

No. 534,075. Patented Feb. 12, 1895.

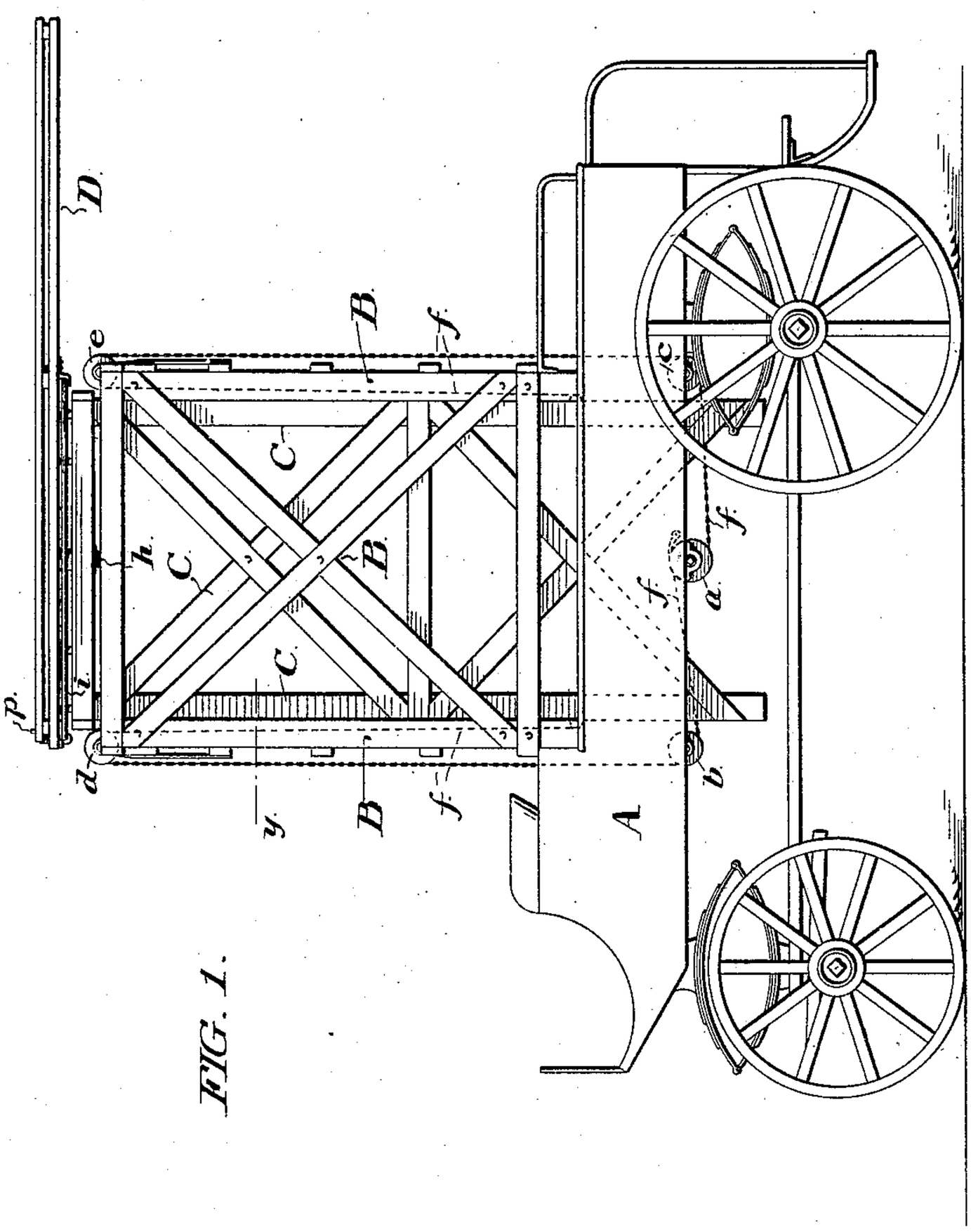

FIG. 1.

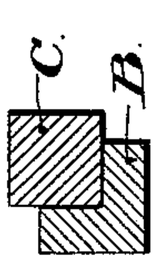

FIG. 6.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

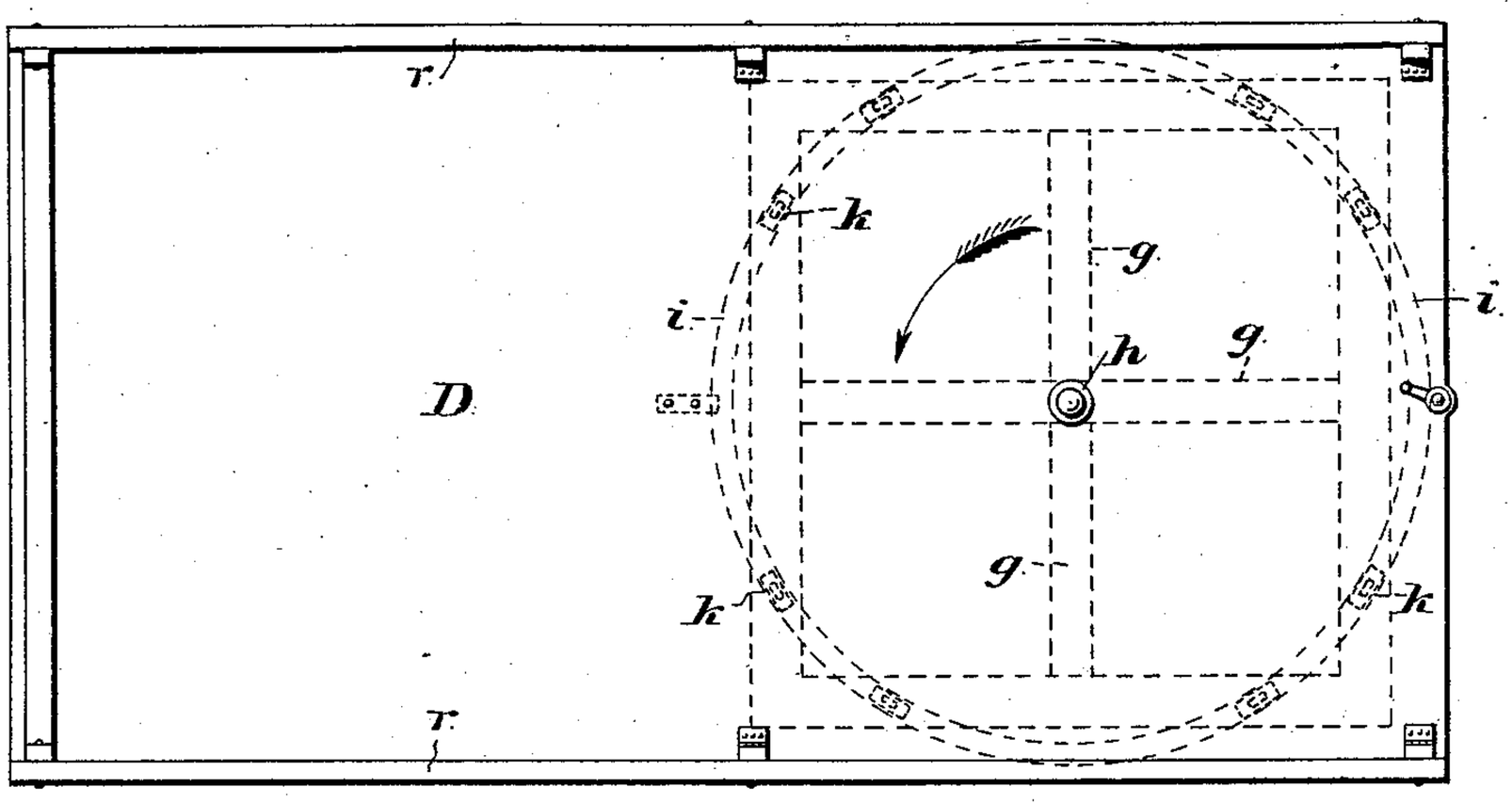


FIG. 2.

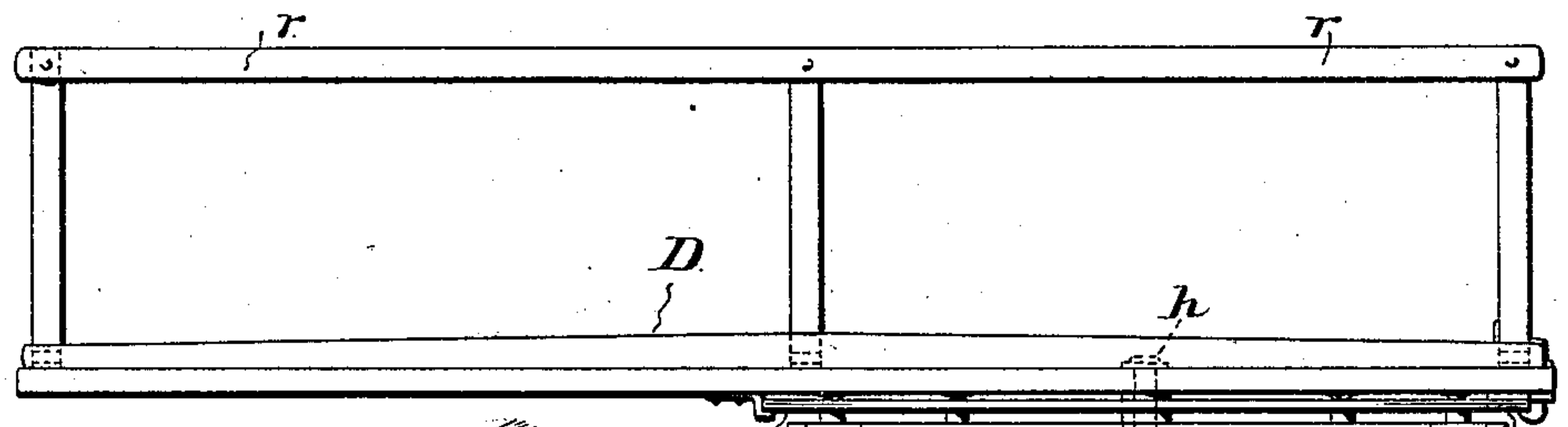


FIG. 4.

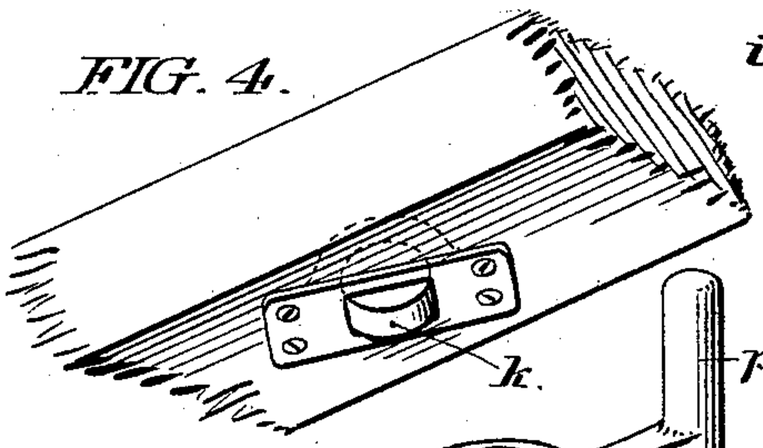
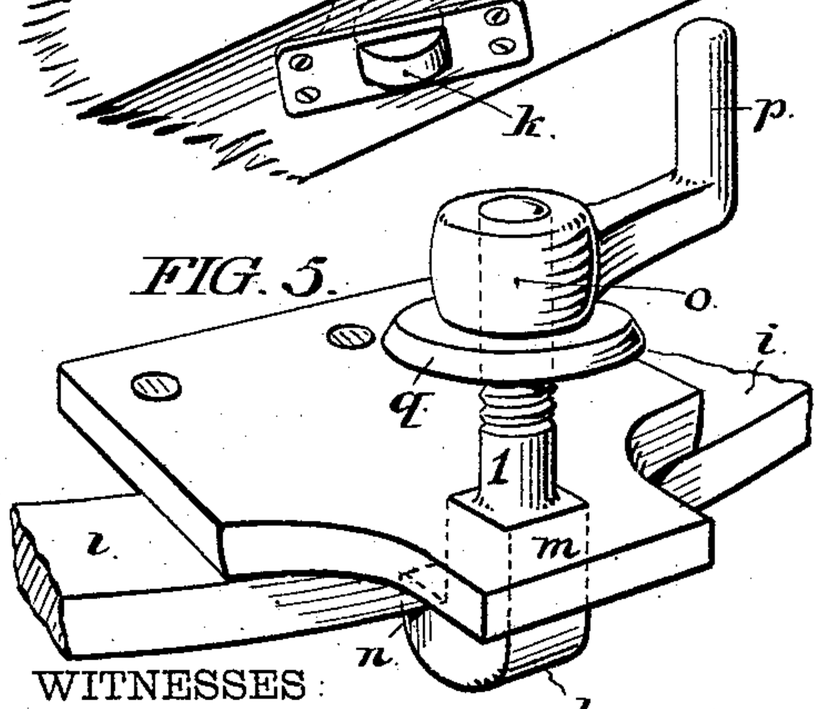


FIG. 5.



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UNITED STATES PATENT OFFICE.

JAMES R. McCARDELL, CHARLES H. WEST, AND MARTIN J. McDONALD, OF TRENTON, NEW JERSEY.

TOWER WAGON OR VEHICLE.

SPECIFICATION forming part of Letters Patent No. 534,075, dated February 12, 1895.

Application filed June 6, 1894. Serial No. 513,632. (No model.)

To all whom it may concern:

Be it known that we, JAMES R. MCCARDELL, CHARLES H. WEST, and MARTIN J. MCDONALD, citizens of the United States, and residents of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful improvements in tower wagons or vehicles used in doing construction or repair work upon elevated structures, such as the trolley-wires of electric railways, &c., of which the following is a specification.

Our invention relates to that class of vehicles which are provided with an adjustable elevated staging which may be raised or lowered relatively to the vehicle frame or body to accommodate the position of the person operating thereon to the varying altitudes at which he is obliged to carry on his work; and the object of our invention is to provide means for facilitating changes in the position of the elevated platform of the vehicle without moving the vehicle itself and to permit of the vehicle being used in construction or repair work without interfering with the passage of other vehicles beneath the point where the construction or repair work is being prosecuted.

In the drawings forming a part of this specification Figure 1 is a side elevation of a tower wagon containing our invention. Fig. 2 is a side elevation of a portion of the movable crib or frame work and the working platform superimposed thereon. Fig. 3 is a plan view of the working platform. Fig. 4 is a section of the operating platform carrying a friction roller. Fig. 5 is a detail view showing the stop and stop plate and a portion of the circular rail; and Fig. 6 is a horizontal sectional view on the line *y* in Fig. 1 showing the relative positions of the upright members of the stationary and movable frames.

In the drawings A is the body or frame of the wagon.

B is the outer or stationary frame or crib.

C is the inner or movable frame or crib.

D is the operating platform or turn-table.

The carriage itself upon which our appliance is placed may be of any ordinary construction made sufficiently strong for the purposes to which it is devoted, and upon the carriage and connected firmly to it is constructed the frame work B which is preferably stiffened with lateral braces as shown in Fig. 1. Beneath the middle of the frame work B and at or near the bottom of the carriage is placed the windlass *a* preferably supported at each end at the sides of the carriage. Before the frame work B is placed a sheave *b*, at or near the middle of the carriage as shown in Fig. 1. Likewise back of the frame work B is placed a sheave *c* opposite to the sheave *b*. On the front and back sides of the frame work B at or near the top thereof are placed two sheaves *d* and *e*. Two chains or bands *f* are attached to the windlass *a*, at points on the windlass opposite the sheaves *b* and *c*. These chains or bands are carried from the windlass *a* over the sheaves *b* and *c* respectively and up over the sheaves *d* and *e* and are attached to the lower parts of the inner or movable frame or crib C. This movable frame C is generally similar in its construction to the stationary frame B but has somewhat smaller dimensions to enable it to be placed within the stationary frame B, and the uprights of the frame B so embrace the uprights of the frame C as to serve as guides (see Fig. 6), and induce a steady and uniform motion of the frame work C when it is being hoisted or lowered.

It will be readily observed that on the small post of the windlass *a* which extends outside of the side frame of the carriage a crank may be fitted or attached, and by turning the crank a draft is effected on the chains or bands *f* and the inner frame C may be raised to any desired height. Within the top frame work of the frame C and securely attached thereto are the cross braces *g* shown in dotted lines in Fig. 3. At the crossing of these cross braces *g*, *g* is a pivot or swivel bolt *h* shown in Figs. 2 and 3.

Secured to the top of the frame work C is a circular strap rail *i* indicated in side elevation in Fig. 2 and in plan view in dotted lines in Fig. 3, while at different points on the bottom of the operating platform D are attached friction rollers *k* so arranged as to roll upon the strap rail *i*.

The pivot or swivel bolt *h* is securely set in

its socket at the junction of the cross braces *g*, *g* and at its upper end is firmly attached to the operating platform D as is shown in Fig. 2. As the operating platform D is practically a turn-table it is necessary to provide means for securing it in any desired position relative to the frame work C on which it turns. This securing device is most clearly illustrated in Fig. 5, and it consists of a screw clutch *l* which is passed through the metal plate *m* which is preferably secured to the operating platform D at the middle of the short end thereof as shown in Figs. 2 and 3. A squared opening is made in the plate *m* in which a correspondingly squared portion of the clutch plays to prevent lateral deflection of the toe *n* at the lower end of the clutch. A screw nut *o*, on which is formed a crank or lever *p*, is turned to draw the toe of the clutch up against the under side of the strap rail *i*, the washer *q* being interposed between the screw nut *o* and the plate *m*. As will be observed, as the operating platform D is turned upon its pivot the toe of the clutch *l* will follow around underneath the strap rail, and can be adjusted thereto at any point at which it is desired to fix the position of the platform D.

The platform D is provided preferably with a collapsible or folding railing or guard, which, when the apparatus is not in use, may be unhooked and folded down upon the platform in the manner shown in Fig. 1. The railing consists of standards hinged to the platform, as indicated at l^2 in Fig. 2, so as to fold inwardly and downwardly upon the same as shown in Fig. 1, and guard rails *r* along the sides and end, the latter serving to keep the standards in elevated position. By providing this collapsible guard we are enabled to afford protection to the persons working upon the platform, and yet, when the platform is out of use, by collapsing the railing and lowering the frame work C, the apparatus can be more readily housed or passed under overhanging obstructions.

When the apparatus is being conveyed from place to place the platform D is preferably swung rearwardly of the frame work upon which it rests in order that it may not come in contact with passing objects.

When the apparatus is to be used in construction or repair work, as, for instance, of the trolley wires of an electric railway, the carriage is run to one side of the railway track and the platform D is swung around so as to project at right angles above the side of the carriage, the railing *r* is raised and fastened in its upright position, a crank is attached to the post of the windlass *a* and turned until the frame work C is raised to the desired height when a dog playing in the ratchet wheel of the windlass prevents its backward motion and the apparatus is ready for use, the cross braces *b* at the front and rear of the stationary frame B, shown in Fig. 2, constituting rungs or steps serving as a ladder to enable the persons using the same to ascend to the platform.

All cars, carriages, wagons, &c., are enabled to use the track over which the operations are being prosecuted without difficulty or obstruction. If the electric railway is in operation the cars may be run under the platform without difficulty by simply drawing down the trolley out of contact with the wire and to a sufficient distance below the same to permit of its passing readily under the operating platform or turn-table of the vehicle, the impetus of the car being sufficient to carry it beyond the obstruction and the trolley can then be permitted to rise to its seat upon the wire.

It will be observed that this operating platform or turn-table may be applied to various forms of elevated frame work with the same effect, and we do not wish to be confined in our claims to the details of the construction of elevated frames or cribs upon which the the platform rests.

What we claim is—

1. A vehicle having an elevated stationary frame, a rising and falling frame movable within and guided by said stationary frame, an oblong or rectangular platform pivoted at one side of its center upon the top of the movable frame, a circular track or rail on said movable frame, rollers on the bottom of the platform adapted to travel upon said track, and a clamping device carried by the platform and arranged and adapted to engage the track rail and lock the platform in different positions of adjustment; substantially as described.

2. A vehicle having an elevated stationary frame, a rising and falling frame movable vertically within and guided by said stationary frame, pulleys on opposite sides of the stationary frame at the top, a windlass mechanism mounted on the body of the vehicle, flexible connections extending from opposite sides of the windlass roller up over the pulleys and connected to the movable frame at or near the bottom, an oblong or rectangular platform pivoted at one side of its center upon the top of the movable frame, a circular track or rail on said movable frame, rollers on the bottom of the platform adapted to travel upon said track, a clamp carried by the platform and overlapping the edge of the track rail, a handle for operating said clamp and thereby locking the platform in different positions of adjustment, and rungs or steps upon the stationary frame constituting a ladder by means of which workmen may mount to the elevated platform; substantially as described.

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