(No Model.) 2 Sheets—Sheet 1.

T. EVANS.

PORTABLE ELEVATOR.

No. 363,616. Patented May 24, 1887.

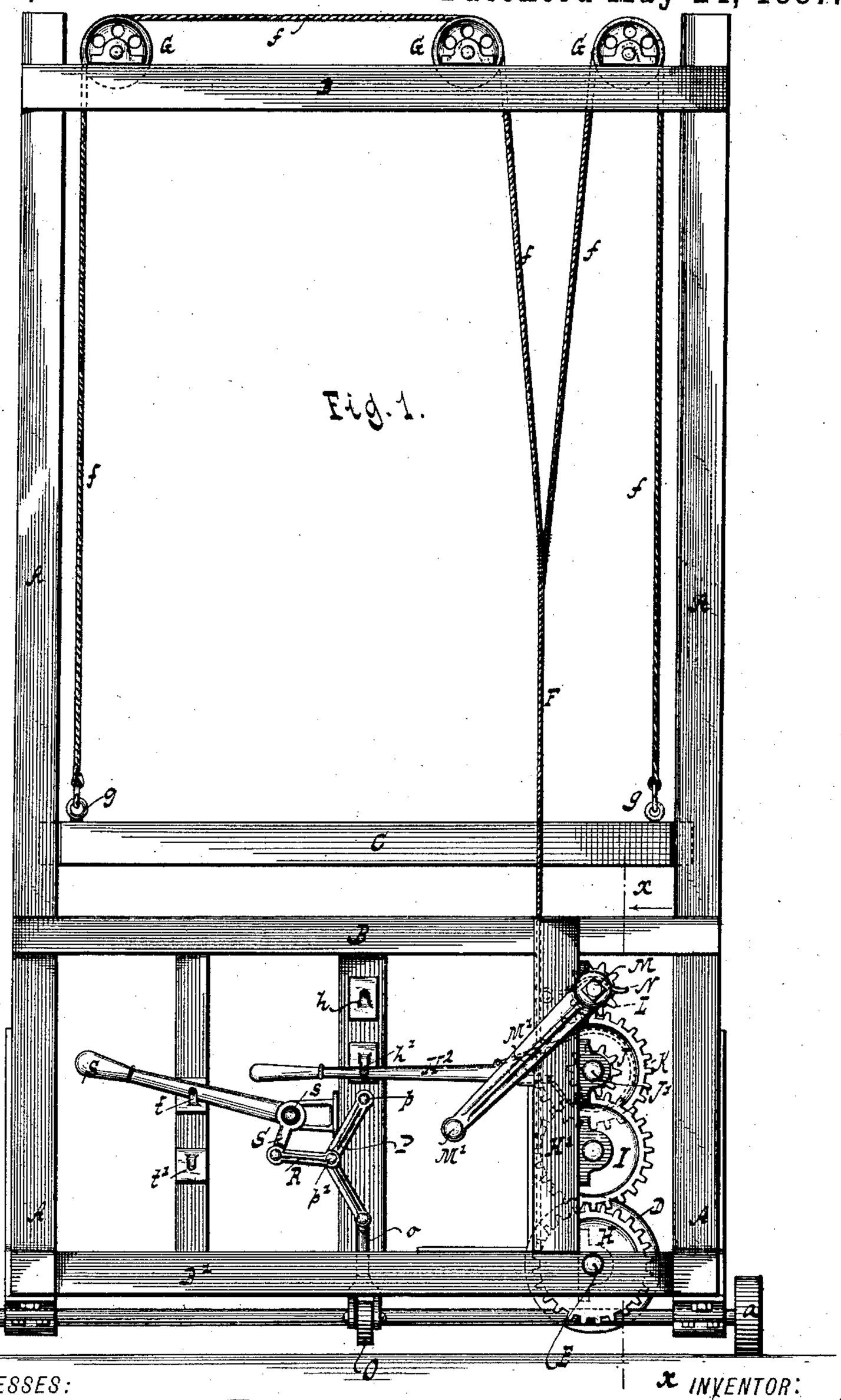

Fig. 1.

WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

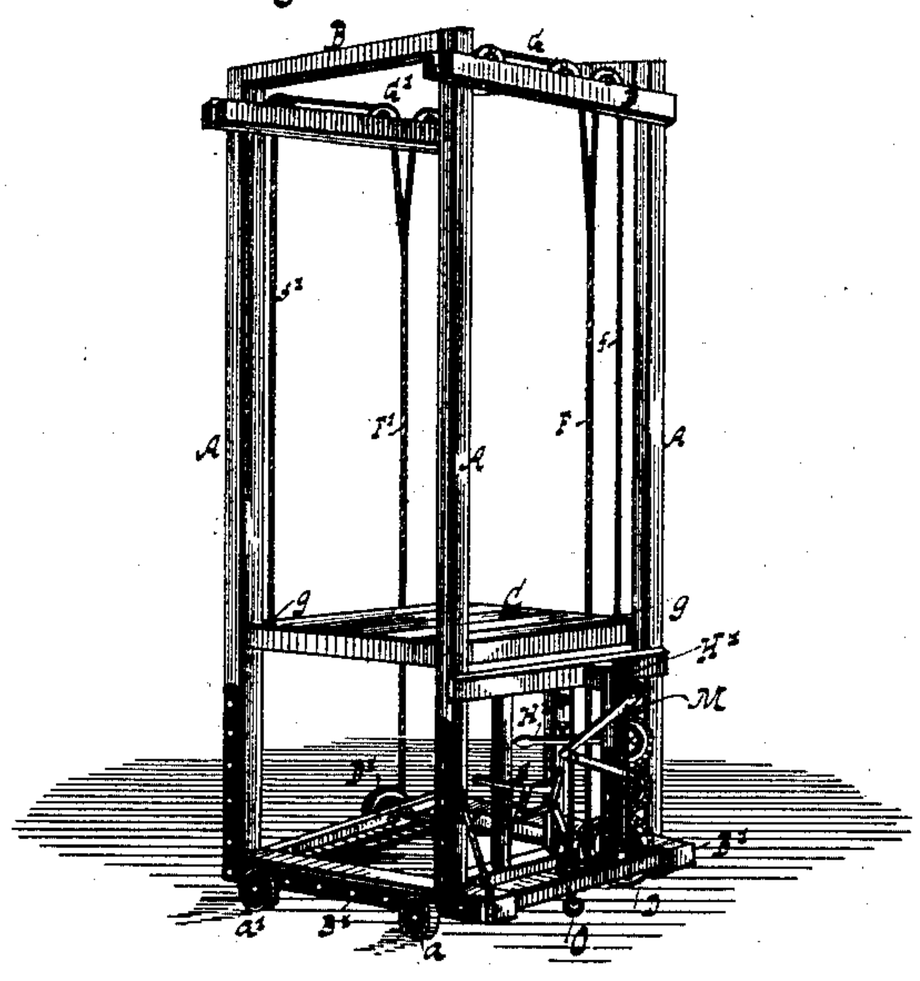


Fig. 2.

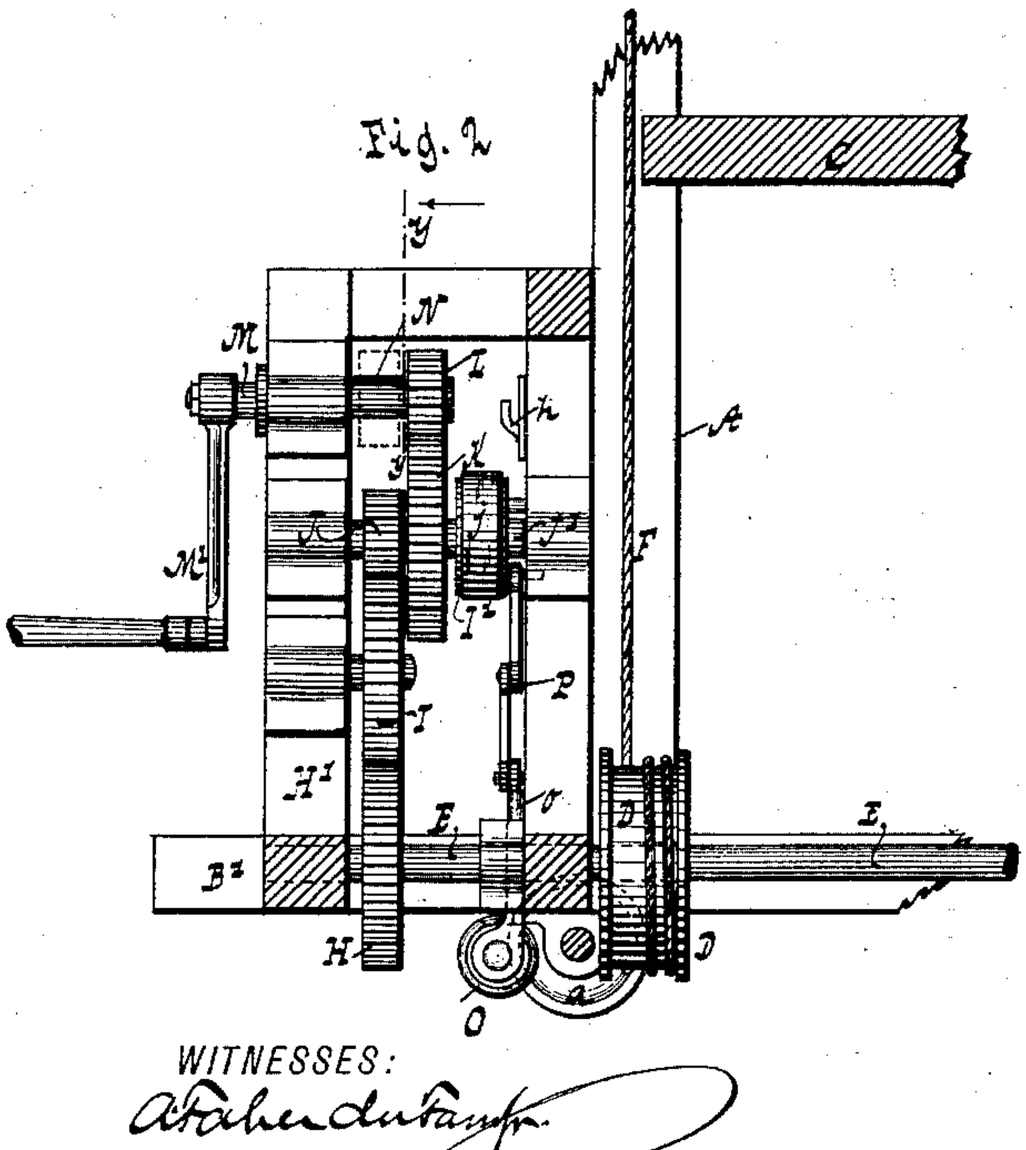
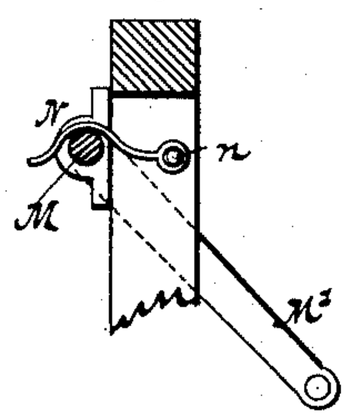


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS EVANS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO MORRIS FEIGEL, OF SAME PLACE.

PORTABLE ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 363,616, dated May 24, 1887.

Application filed March 10, 1887. Serial No. 230,413. (No model.)

To all whom it may concern:

Be it known that I, THOMAS EVANS, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Portable Elevators, of which the following is a specification.

My invention relates to improvements in portable elevators, such as are designed for use in warehouses, breweries, &c., where casks or boxes are to be piled or tiered up or distributed; and said invention has for its object to provide a novel structure which can be moved not only in a right line but can be easily turned in any direction, whereby the work is greatly facilitated.

The invention consists, essentially, in the combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 represents an elevation of an elevator embodying my invention. Fig. 2 is a vertical section of a portion of the same in the plane *x x*, Fig. 1. Fig. 3 is a detail section in the plane *y y*, Fig. 2. Fig. 4 is a perspective drawn to a smaller scale than the preceding figures.

Similar letters indicate corresponding parts.

In the drawings, the letters A A designate the uprights or corner-posts of a frame, which are joined at top and bottom by traversers B B′ to form a rigid structure. Within said uprights is placed a platform, C, which is guided by the same, and can be moved vertically by suitable means. In the example illustrated in the drawings I have provided for this purpose a pair of rotary drums, D D′, which are rigidly mounted upon a common shaft, E, having bearings in suitable boxes arranged on the frame. These drums are located near the bottom of the frame and on opposite sides of the same. The ropes or chains F F′, attached to the drums, extend upwardly and connect with ropes or chains *f f′*, which extend over pulleys G G′, Figs. 1 and 2, to conduct said ropes or chains *f f′* near to the uprights A, whence they extend downward and are attached by suitable links or hooks, as *g g′*, to the four corners of the platform.

To turn the drums D D′ for elevating the platform, I connect the drum-shaft E by means of gears, such as H, I, J, K, and L, to a crank-shaft, M, having connected thereto a crank, M′, said shaft having a bearing in a box arranged on a standard, H′, which latter is attached at top and bottom to the frame. The gears H I, &c., are so compounded that one man, by turning the handle, can easily lift a large load.

The platform is caused to descend by its own weight, combined with that of the load, and to regulate the velocity with which it descends; and, also, to check and hold it in any intermediate position, I provide a band-brake having an operating-lever, H^2. The friction-drum I′ of said brake is mounted on the shafts J′ of the gears J and K, and the band *j* is connected to the pivoted operating-lever H^2 in such a manner that when said lever is depressed the brake is applied to the friction-drum. Catches *h h′* are provided for the lever H^2, one catch, *h*, holding the same in its upper or releasing position, and the lower catch, *h′*, holding the same when the brake is applied to the friction-drum I′. By depressing the lever H^2, more or less, the velocity with which the platform descends can be regulated or entirely checked.

In order that the crank-shaft handle M′ shall not be revolved as the platform descends, which would cause a considerable vibration of the frame, I make the crank-shaft M, Figs. 1, 2, and 3, movable lengthwise in its box, so that the gear L thereon can be drawn out of engagement with the gear K on the shaft J′ when desired. A locking-bar, N, Figs. 1, 2, and 3, pivoted at *n* to the standard H′, and projecting between the gear L and the standard H′, serves to prevent the shaft from being inadvertently moved. This locking-bar can be swung clear of the shaft when it is desired to move the latter.

The frame A is carried upon four wheels, *a a′*, so that it can be readily moved in a right line; but in many instances it is desirable to turn the elevator, and for this purpose I provide a fifth-wheel or caster, O, the shank *o* of which is guided in a box arranged on one of the lower traversers, B′, of the frame. By depressing this caster O one side of the frame is raised to lift two of the wheels, *a*, out of contact with the floor, and the elevator thus rests on the remaining two wheels, *a′*, and the caster O, so that it can be readily turned about in any

direction. The caster O can be raised or lowered by any suitable system of levers—such, for instance, as a toggle-lever, P, Fig. 1, which is pivoted at *p* to the frame and secured at *p'* to the shank *o* of the caster, the links of said lever P being connected by a link, R, to a bell-crank lever, S, pivoted at *s* to a hanger arranged in the frame. By raising the lever S the caster is drawn out of contact with the floor, and by depressing the same the caster is lowered to raise one side of the elevator. Catches *t t'*, secured to the frame, lock the lever S in either position. It will be observed that the various levers and the handle M' are so arranged that one man can conveniently operate all of them, as may be desired. By the use of this caster O, in connection with the wheels *a a'*, the structure is steadied on four wheels while the loads are being handled, and therefore stands perfectly rigid, but can be readily thrown on only three wheels when desired.

I am aware that portable elevators have heretofore been mounted on wheels, and that vertically-movable casters are not new; but I am not aware that an elevator mounted on wheels has ever been provided with a vertically-movable caster between a pair of the supporting-wheels at one side of the elevator-frame for facility in turning the elevator.

What I claim as new, and desire to secure by Letters Patent, is—

1. A portable elevator-frame mounted on pairs of supporting-wheels, in combination with a caster arranged between a pair of said supporting-wheels at one side of the elevator-frame and movable vertically on the frame to lift the pair of supporting-wheels at one side from the surface traversed to place the load on the caster for turning the elevator at will, substantially as described.

2. A portable elevator-frame mounted on pairs of supporting-wheels, in combination with a caster having a shank movable vertically in a boxing at one side of the frame between a pair of the supporting-wheels at such side of the frame to lift the said pair of wheels from the surface traversed and place the load on the caster for turning the elevator at will, the toggle-lever pivoted to the caster-shank and to the elevator-frame, and a hand-lever connected with the toggle-lever, substantially as described.

3. The combination, with a portable elevator-frame, of the supporting-wheels arranged in pairs at opposite sides of the frame and a caster having a shank movable vertically in a boxing on the frame between a pair of supporting-wheels at one side of the frame to lift said wheels from the surface traversed and throw the load on the caster for turning the elevator-frame at will, substantially as described.

4. The combination, with a portable elevator-frame, of the supporting-wheels arranged in pairs at opposite sides of the frame, a caster having a shank movable vertically in a bearing located between a pair of the wheels at one side of the frame, the toggle-lever P, pivoted to the frame and to the upper end of the caster-shank, the link R, connected with the toggle-lever, and a hand bell-crank lever pivoted on the frame and having its short arm attached to the said link for lifting the wheels at one side of the frame from the surface traversed to turn the elevator at will, substantially as described.

5. The combination, with an elevator-frame, of supporting-wheels arranged in pairs at opposite sides of the frame, a caster having a shank movable vertically in a bearing located between a pair of the wheels at one side of the frame, the toggle-lever pivoted to said caster-shank and to the frame, the upper and lower catches, *t t'*, on the frame, and the bell-crank lever connected with the toggle-lever and adapted to engage said catches, substantially as described.

6. The combination, with a frame mounted on wheels, of a caster having a shank movable in vertical bearings on the frame, the toggle-lever P, connected with said shank, the lever S, and the catches *t t'*, substantially as shown and described.

7. The combination, in a portable elevator, of the main frame, the movable platform C, the winding-drums D D', the hoisting ropes or chains F F', a crank-shaft, M, movable lengthwise in its bearings and having at its inner end the gear L, geared with the winding-drums, and a movable locking-bar, N, arranged between a part of the main frame and the gear at the inner end of the lengthwise-movable shaft, substantially as described.

8. The combination, in a portable elevator, of the main frame, the movable platform C, the winding-drums D D', the hoisting ropes or chains F F', a crank-shaft, M, movable lengthwise in its bearing and provided at its inner end with the gear L, geared with the winding-drums, and the locking-bar N, pivoted to part of the elevator-frame to swing between a part of the elevator-frame and the gear at the inner end of the lengthwise-movable shaft, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

THOMAS EVANS. [L. S.]

Witnesses:

A. FABER DU FAUR, Jr.,

E. F. KASTENHUBER.