

A. C. NEWTON.
ELEVATOR.

APPLICATION FILED MAY 9, 1908.

929,870.

Patented Aug. 3, 1909.

2 SHEETS—SHEET 1.

Fig. 2.

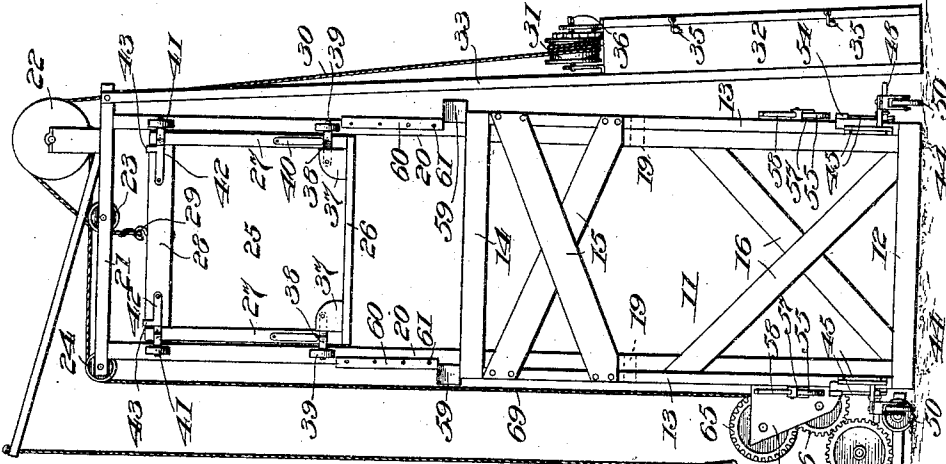
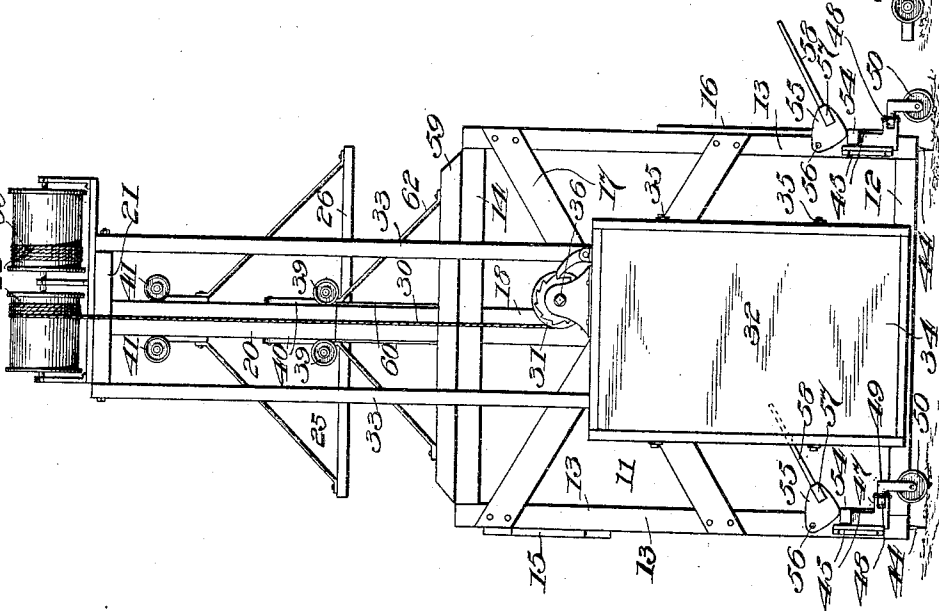


Fig. 1.



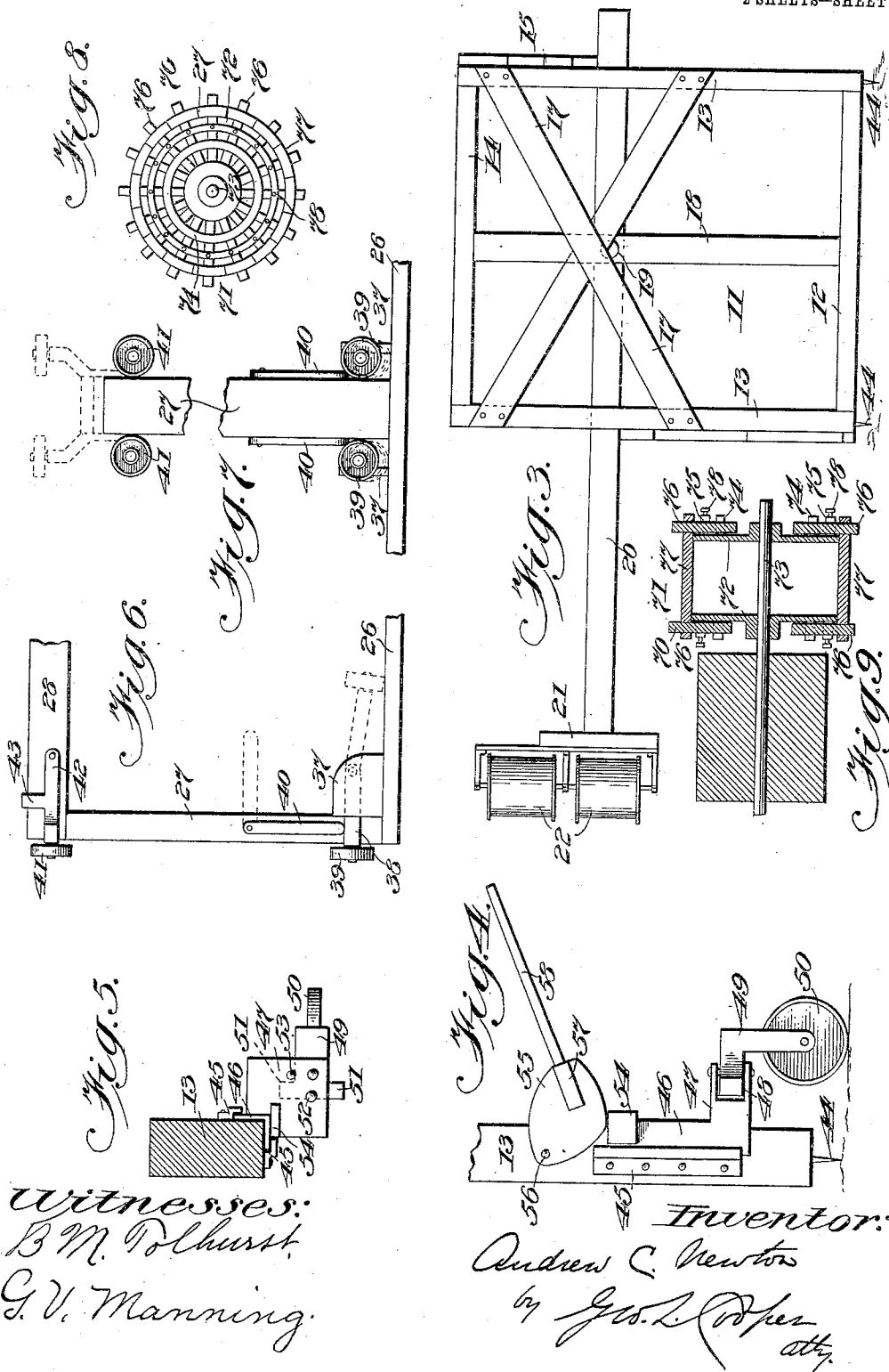
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UNITED STATES PATENT OFFICE.

ANDREW C. NEWTON, OF CRESCENT, NEW YORK.

ELEVATOR.

No. 929,870.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed May 9, 1908. Serial No. 431,894.

To all whom it may concern:

Be it known that I, ANDREW C. NEWTON, a citizen of the United States, and a resident of Crescent, Saratoga county, New York, have invented a new and useful Improvement in Elevators, of which the following is a specification.

My invention relates generally to elevators, and particularly, in some of its features, to portable elevators, such as can be easily "knocked down" and moved from place to place. Its object is to provide a convenient, durable and efficient elevator, which can be partially dismantled, and easily moved.

Further objects of the invention will appear in the specification and be pointed out in the claims.

In the particular embodiment of my invention which I have chosen for illustration, which form is capable of variation within wide limits, Figure 1 is a front, and Fig. 2 a side elevation of the elevator, certain details being omitted for clearness of illustration; Fig. 3 is a side elevation of the elevator partly dismantled and ready for transportation; Fig. 4 is an elevation and Fig. 5, a plan of a portion of the elevator frame, showing a truck wheel; Figs. 6 and 7 are front and side elevations respectively of a portion of the car or "jumper"; Fig. 8 is an end view, and Fig. 9, a vertical section of a modified form of hoisting drum.

In the drawings, 11 designates a main frame, shown as of rectangular form and comprising sills 12, posts 13, lintels 14 and cross-braces 15, 16, 17. At each side of the frame 11 is a swing-frame supporting portion, shown as a middle post 18, to which is pivoted at 19 one of the uprights 20 of a swing-frame, the uprights being connected by a top cross-piece 21, on which is mounted a drum 22 and two idlers 23, 24. Sliding between and guided by the upright posts 20 is a car 25 consisting of a platform 26, uprights 27 and lintel 28. From a hook 29 in the lintel 28 a rope, chain or the like, 30, makes one or more turns around the drum 22 and passes downward to a pawl-drum 31 mounted on a weight box 32. This counterpoise box 32 is shown as sliding on two slightly inclined braces 33, which are detachably engaged at their upper ends to the cross-piece 21. The box 32 is shown as a vertically disposed tray, having a cover 34 secured on its face by hooks 35, its depth be-

ing preferably such as to permit bricks to be piled lengthwise therein. The pawl-drum 31 permits the effective shortening of the rope 30, so that the car 25 may be stopped at different heights, with the box 32 resting on the ground or platform. For this purpose the shaft 36 of the drum 31 is squared for the attachment of a wrench or key, to wind the rope 30 thereon.

To guide the car 25 in its vertical movement and at the same time to make it detachable from the swing-frame, I provide the devices shown in Figs. 6 and 7. At each side of the car two plates 37 are secured to the platform 26, on which are pivoted guide bars 38, carrying at their free ends friction wheels 39, which travel one at each side of the upright 20, the bars 38 being held in their outturned position by pivoted lugs 40, which may be swung inward to permit the bars 38 to also swing inward, see dotted lines, Fig. 6. At the upper end of each upright 27 are similar friction guide wheels 41, mounted at the ends of bars 42, pivoted on the lintel 28 and secured together by a yoke 43, which passes over the top of the lintel, so that the device can be swung upward, see dotted lines, Fig. 7.

It will be seen that the main frame 11 is provided at each corner with a downwardly projecting spur 44 to engage in the ground or platform on which the elevator stands. For convenience of moving it, the devices of Figs. 4 and 5 may be employed. To each outer face of each post 13 is bolted a flanged bar 45, which hold in place, but permit the vertical movement of, L bars 46. From the lower end of each bar 46 projects a horizontal lug 47, the outer corner of which is recessed at 48. Within this recess 48 is pivoted an inverted L shaped caster holder 49, the lower end of which is bifurcated to hold a caster wheel 50. The upper horizontal member of the part 49 is formed with laterally projecting lugs 51, and the part 47 is pierced with two holes 52, see Fig. 5, in either of which a pin 53 may be placed, so that the holder 49 may be secured in either of two positions, *i. e.*, with the caster parallel with either adjacent sill 12 of the frame 11. At the upper end of the L bar 46 is a lug 54, against which bears a cam 55 pivoted at 56 and having a socket 57 for the reception of a hand lever 58.

Referring again to Figs. 1 and 2 of the drawings, I will describe a convenient means

for maintaining the swing-frame in its operative position, which means also serves an additional purpose. To the outer side of each upright 20 is detachably secured a brace comprising a footing 59, resting on the lintel 14 of the main-frame and of greater width than the lintel, so as to extend laterally therebeyond. From the footing 59 rises an iron trough-bar 60, which embraces the upright 20 and is secured thereto by pins or bolts 61, being held in vertical relation with the footing 59 by rods 62.

The hoisting engine 63, conventionally indicated in Fig. 2, may be of the usual form, mounted for convenience of transportation on a truck 64. I prefer, however, to mount the drum 65 and the pinion 66 on a bracket 67 bolted to the main-frame 1, and to provide any convenient means, not shown, for securing the engine 63 to the frame with its main wheel 68 meshing with the pinion 66. From the drum 65 a rope or cable 69 passes over the idler 24 and is wound around the drum 22 at the top of the swing-frame.

The operation of the device is as follows: The form of elevator shown is particularly adapted for use in a brick-yard, both for raising the unburned brick to fill a kiln, and for loading the finished brick into a boat or the like. The parts being assembled as shown in Figs. 1 and 2, it is evident that a barrow of bricks may be wheeled on to the car 25 and hoisted to any desired height. It is also obvious that by winding up the rope 30 on the pawl-drum 31, the counterpoise 32 may be brought to rest on the ground or platform with the car or "jumper" at any desired height, *e. g.*, with its floor 26 on a level with the bench of a scaffold, not shown, of convenient height. When it is desired to move the elevator along the kiln, or to remove it therefrom, the car 25 is lowered to rest on the bottom of the elevator frame, the rope 30 is unhooked from the hook 29 and unwound from the drum 22, when the box 32 may be set aside, and the braces 33 detached from the cross-piece 21. The guide-wheels 39 and 41 are then thrown to the positions shown in dotted lines, Figs. 6 and 7, and the car 25 moved forwardly out of the frame 11. The hoisting engine 63 is then unhooked from the frame and moved aside. The pins 61 being then withdrawn, the braces 59—60 are laterally removed, when the swing-frame may be tilted to the approximately horizontal position shown in Fig. 3, the brace boards 15 serving as stops to limit its downward movement. Either before or after tilting the swing-frame, the casters 50 may be forced downward by means of the cams 55, as shown in Fig. 4, when the dismantled frames may be readily wheeled to any desired position. It will be seen that by reason of the weight of the main-frame, and of the pivoting of

the swing-frame at a substantial distance from the lower ends of the uprights 20, *i. e.*, from the sills 12 of the main-frame, whereby the ends of the uprights 20 extend laterally beyond the main-frame at each side thereof; the entire elevator, in its movable position, is substantially balanced. Clearly the re-erection of the device is a mere reversal of the operation just described.

When it is desired to use the elevator for lowering bricks or other articles into the hold of a boat or like vessel, it is supported by the brace-footings 59 resting on the hatch combing or on timbers whose ends rest on the thwarts of the vessel, so that the main-frame 11 is within the hold.

In Figs. 8 and 9 I have shown a new form of speed-changing hoisting-drum, which may be used in place of the drum 22, or wherever such a device is desirable. The drum 70 is made in two parts, on one of which the rope or cable passing to the car is wound. On the other part is wound the rope which extends to the hoisting engine. One of these parts is made expansible, so that the diametric relation of the two may be varied. In the present instance, the part 71 has two disks 72 secured to the shaft 73, and each formed with concentric annular flanges 74, 75, through which pass a series of spokes 76, each pair of spokes carrying near their free ends a drum segment 77. The spokes are radially adjustable and may be secured in desired position by means of set-screws 78 in the flange 75, see dotted lines, Fig. 8. The projecting ends of the spokes 76 serve as side guards for the rope or cable wound on the drum, the effective diameter of which, as will be clearly seen, can be considerably varied.

I do not wish my invention to be considered as limited to the forms of construction, or the combinations of parts, herein described, as both are variable within wide limits.

What I claim is:

1. An elevator including a main-frame comprising sills, vertical corner posts, lintels connecting opposite pairs of said posts and supporting portions between said pairs of posts; a swing-frame including two uprights each pivotally mounted between one of said pairs of posts at a substantial distance from the lower end of said uprights; and a car movable in said swing-frame; whereby said swing-frame may be lowered to an approximately horizontal position with its uprights extending laterally on each side of said main-frame, substantially for the purposes set forth.

2. An elevator including a main-frame comprising sills, vertical corner posts, lintels connecting opposite pairs of said posts and supporting portions between said pairs of posts; a swing-frame including two up-

rights each pivotally mounted between one of said pairs of posts at a substantial distance from the lower end of said uprights; and a car movable in said swing-frame and detachable therefrom; whereby said swing-frame may be lowered to an approximately horizontal position with its uprights extending laterally on each side of said main-frame, substantially for the purposes set forth.

3. An elevator including a main-frame comprising sills, vertical corner posts, lintels connecting opposite pairs of said posts and supporting portions between said pairs of posts; a swing-frame including two uprights each pivotally mounted on said supporting portion at a substantial distance from their lower ends; and a stop on said main-frame to limit the pivotal movement of said swing-frame; whereby said swing-frame may be lowered to an approximately horizontal position with its uprights extending laterally on each side of said main-frame, substantially for the purposes set forth.

4. An elevator including a main-frame comprising sills, vertical corner posts, lintels connecting opposite pairs of said posts and supporting portions between said pairs of posts; a swing-frame including two uprights each pivotally mounted on said supporting portion at a substantial distance from their lower ends; and a brace portion resting on said lintels and detachably secured to said swing-frame for securing the latter in its operative position, substantially for the purposes set forth.

5. An elevator including a main frame; a swing-frame pivotally mounted in said main frame; a car vertically movable in said swing-frame; a counterpoise for said car; and braces extending downwardly from said swing-frame and serving as guides for said counterpoise, substantially for the purposes set forth.

6. An elevator including a main frame, a swing-frame pivotally mounted in said main frame; a car vertically movable in said swing-frame; a counterpoise for said car; and braces extending downwardly and outwardly from the top of said swing-frame and serving as guides for said counterpoise, substantially for the purposes set forth.

7. An elevator including a main-frame; a swing-frame pivotally mounted in said main-frame; a rope-winding drum at the top of said swing-frame; a second drum at the side of said main-frame; a rope or cable connecting said drum; a hoisting engine; and cooperating means on said main-frame and said hoisting engine for securing the latter in operative connection with said second drum, substantially for the purposes set forth.

8. In an elevator, a main frame; a swing-

frame pivotally mounted in said main frame and including a pair of upright posts; a car of a width less than the distance between said posts and vertically movable therebetween; and guides on said car and operatively extending therebeyond for engagement with opposite sides of said posts, said guides being movable out of their operative position for permitting the removal of said car horizontally from between said posts, substantially for the purposes set forth.

9. In an elevator, a main frame; a swing-frame pivotally mounted in said main frame and including a pair of upright posts; a car of a width less than the distance between said posts and vertically movable therebetween; and guides including friction wheels on said car and operatively extending therebeyond for engagement with said posts, said guides being movable from their operative position for permitting the removal of said car horizontally from between said posts, substantially for the purposes set forth.

10. In an elevator, a main frame; a swing-frame pivotally mounted in said main frame and including a pair of upright posts; a car of a width less than the distance between said posts and vertically movable therebetween; a guide on said car comprising a bar pivotally mounted thereon and operatively extending therebeyond and a friction wheel at the free end of said bar; and means for holding said bar in operative position and for permitting its removal from such operative position, whereby said car may be horizontally removed from between said posts, substantially for the purposes set forth.

11. In an elevator, a main frame; a swing-frame pivotally mounted in said main frame and including a pair of upright posts; a car of less width than the distance between said posts and vertically movable therebetween; plates secured to the floor of said car; a bar pivoted to each of said plates and operatively extending beyond the side of the car; a friction wheel at the free end of said bar; and means on said car for detachably holding said bar in operative position, whereby said car may be horizontally removed from between said posts, substantially for the purposes set forth.

12. In an elevator, upright posts; a car vertically movable between said posts; a pair of bars one of which is pivoted at each side of the frame of said car adjacent its upper end and projects beyond the side of the car; a friction wheel at the free end of each of said bars; and a yoke connecting said bars and extending over the top of the car frame for maintaining said wheels in their operative position, substantially for the purposes set forth.

13. In a portable elevator, a main frame; and a vertically adjustable caster at each lower corner of said frame, said caster com-

prising an angle bar embracing said corner and secured except against vertical movement, a horizontally recessed lug on said bar, a T headed caster holder pivoted in
5 said recess, said lug being provided with two vertical holes for receiving a pin for engaging a lateral arm of said holder, and a
caster wheel in said holder, substantially for the purposes set forth.

10 14. In a portable elevator, a main frame; a vertically adjustable caster at each lower corner of said frame, said caster comprising an angle bar embracing said corner and secured except against vertical movement,
15 a horizontally recessed lug on said bar, a T headed caster holder pivoted in said recess, said lug being provided with two vertical holes for receiving a pin for engaging a lateral arm of said holder and a
20 wheel in said holder; and a cam pivoted on said frame for forcing said caster downward into operative position, substantially for the purposes set forth.

15 15. An elevator including a main-frame comprising sills, vertical corner posts, lintels connecting opposite pairs of said posts and supporting portions between said pairs

of posts; a swing-frame including two uprights each pivotally mounted on one of said supporting portions at a substantial distance from their lower ends; and two brace
30 portions each detachably secured to one of said uprights and provided with a footing resting on and extending laterally beyond one of said lintels, substantially for the purposes set forth. 35

16. A portable elevator including sills, vertical corner posts, lintels connecting opposite pairs of said posts, uprights mounted between said pairs of posts and extending
40 above said lintels, a car vertically movable between said uprights, a rope-winding drum at the top of said uprights, a second drum secured to one of said pairs of posts, and a
45 rope or cable connecting said drums; in combination with a hoisting engine for rotating said second drum, and means for maintaining said elevator and said engine in operative relation, substantially for the purposes set forth.

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