

J. T. CLARK.
ELEVATOR.

APPLICATION FILED AUG. 9, 1910.

1,023,124.

Patented Apr. 16, 1912.

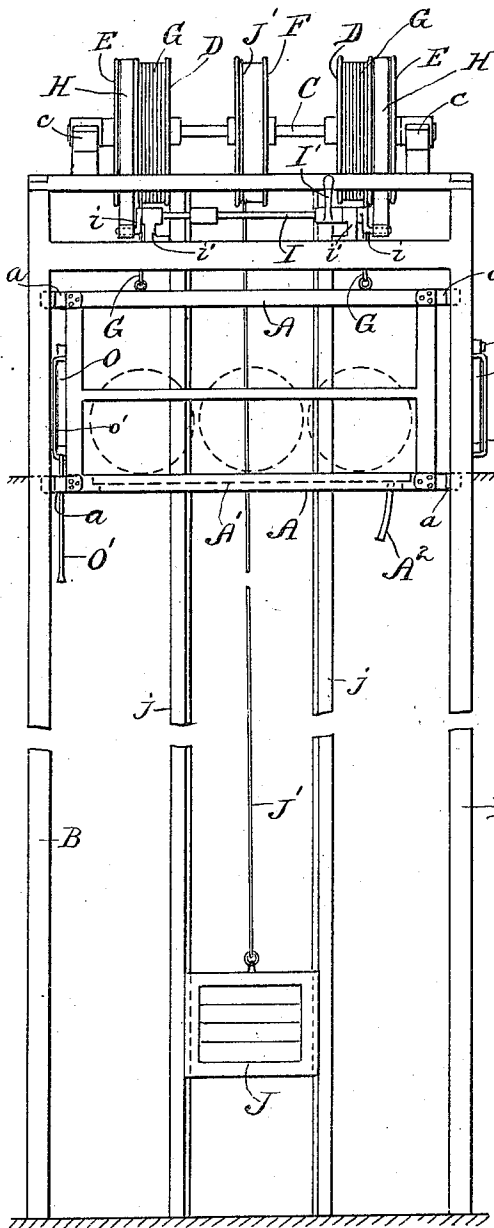


Fig. 1.

WITNESSES

J. F. Mothurshead
Raymond Bernhardt.

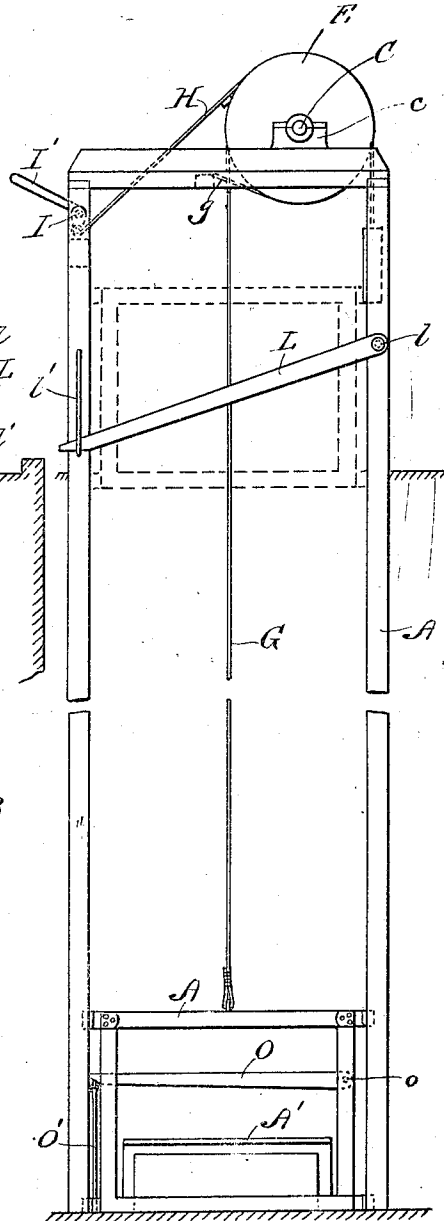


Fig. 2.

INVENTOR

John T. Clark,

BY

Griffins Bernhard
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN T. CLARK, OF NEW YORK, N. Y.

ELEVATOR.

1,023,124.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed August 9, 1910. Serial No. 576,352.

To all whom it may concern:

Be it known that I, JOHN T. CLARK, a citizen of the United States, residing in the city of New York, borough of Manhattan, county and State of New York, have invented a certain new and useful Elevator, of which the following is a specification.

This invention is an elevator, the same being adapted, more particularly, for handling freight, although it may be employed for other purposes.

The apparatus embodies a car or cage positioned for engagement with a vertical guideway by which said car is precluded from swaying during the operations of raising or lowering the car with or without its load, means for controlling the rise and fall of the car, and a counterweight operating to automatically elevate the car when a load is discharged therefrom, said counterweight being retained by a vertical guideway for movement in a predetermined path, whereby the car and the weight may be arranged in close or compact relationship without the one interfering with the operation of the other.

Other features of the invention, and the advantages thereof, will appear in the course of the annexed detailed description.

In the accompanying drawings I have illustrated a practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, of said invention, and not as defining the limits thereof.

Figure 1 is a side elevation of an elevator constructed in accordance with the invention, a loaded car or cage being shown in a raised position. Fig. 2 is an elevation looking at the elevator toward the right in Fig. 1.

The car or cage, A, may be of any suitable construction known to those skilled in the art. It is shown as consisting of a platform and a frame extending upwardly from said platform. Said car is limited to movement in a vertical direction by a guideway herein shown as consisting of the uprights, B, with which engage guides, a, of the car.

C designates a horizontal shaft positioned over the guideway, said shaft being mounted for free rotation in bearings, c, provided at the upper end of said guideway. Secured rigidly to this shaft are winding drums, D, brake-drums, E, and a counterweight drum, F, whereby all of said drums rotate with

said shaft. The winding drums are spaced at suitable intervals on the shaft, and upon said drums are coiled the cables, G, by which the car is adapted to be raised and lowered when shaft C rotates in its bearings, in one direction or the other. The cables are attached by suitable means to the car, at the upper part of the upstanding frame thereon, and if desired, suitable guides, indicated by dotted lines at g in Fig. 2 may be employed for properly directing the cables upon the winding drums. Coöperating with brake-drums, E, are brake-bands, H, each of which loosely encircles one of said drums. The brake-bands are secured firmly, at one end thereof, to a cross-rail, g, at the top of the guideway, but the other ends of said brake-bands are attached to cranks, i, of a rock-shaft, I. Said rock-shaft is positioned horizontally at one side of shaft, C, and the drums thereon, and it is supported in bearings, i', fixed to a part of the framework. The brake-bands are composed of spring metal so that they are free normally from engagement with the brake-drums, but when it is desired to apply the brake mechanism and arrest shaft C, shaft I is rocked in its bearings by a suitable manually operated element, such as the lever-arm I', the same being secured rigidly to the rock-shaft and positioned within convenient reach of an operator.

The car is adapted to be elevated automatically when a load is discharged therefrom by the operation of counterweight mechanism, such as shown in the drawings. A counterweight, J, is slidably fitted to appropriate guides, j, which are fixed adjacent and parallel to the guideway B for the car. The counterweight is shown as consisting of a suitable frame and a series of weight elements positioned within said frame so as to be removable therefrom, thus making provision for securing a variation in the weight of the counterweight. To the upper part of said counterweight is attached a cable, J', which extends upwardly to the drum, F, so that the cable may be coiled on said drum. The counterweight moves in an upward direction when the car travels downwardly, and to secure this operation the cable J' is coiled on drum F in an opposite direction to that in which cables G are coiled upon winding drums, D.

The car or cage is provided with a movable bottom A', said bottom being hingedly

or pivotally supported at one end and provided at its other end with a depending leg, A². When the car reaches the bottom of the guideway, or when it is arrested at a desired point in its downward movement, the depending leg comes into contact with the bottom A' of the shaft or hatchway, whereby the bottom A' of the car is raised so that the bottom assumes an inclined position to the horizontal plane of the platform or base frame of the car, the effect of which is to automatically discharge the load from the car.

To prevent the barrels or casks from rolling off a floor, or other surface, into the elevator shaft or hatchway, I employ a stop bar, L, shown more clearly in Fig. 2. Said stop bar is pivoted at one end, by a pin l, to a part of the framework, and the other end of said bar is engaged with a keeper, l', secured to the framework, whereby the free or unattached end of the bar may be raised to a height sufficient for the barrels or casks to be rolled under the bar in loading the car.

The car is provided with a stop-bar, O, at the end thereof distant from that side of the shaft or hatchway to which stop bar, L, is applied. Stop bar, O, is pivoted to a part of car A by a pin or bolt, o, and its other or unattached end is slidably fitted in a keeper, o', secured to the car. Stop bar O is adapted to be lifted automatically when the car reaches the bottom of the hatchway or shaft by a leg, O', which is pivotally or loosely connected to the free end of said stop bar. Said leg, O', extends below the bottom of the car, as shown in Fig. 1, when the latter occupies an elevated, or partly elevated, position within the hatchway, but as the car reaches the limit of its downward movement, leg, O', is operated to lift the stop-bar O, thus permitting the barrels or casks to be discharged from the car.

The operation is as follows:—When the car is raised to the top part of the hatchway, counterweight J is near the bottom of the hatchway, and said car is held in a stationary position by the application of the brake mechanism. Stop bar O is lowered across one end of the car, but stop bar, L, is raised, whereby the barrels or casks may be rolled upon the bottom, A', of the car, bar O preventing the barrels from rolling off the other side of said car. Stop bar L is now lowered, and the brake mechanism is released by operating lever arm, I', rocking the shaft I so that the cranks will relax the brake-bands. The load resting upon the car is greater than the force of the counterweight, J, and when the brake mechanism is released, the car and its load will descend within the hatchway. Cables G are thus unwound from the winding drums, D, and cable J' is coiled upon the counterweight drum F for the purpose of raising the coun-

terweight. As the car reaches the bottom of the hatch-way, leg O' lifts the stop-bar O, and leg A², raises the movable member or bottom A' to an inclined position, whereby the load is discharged automatically from the car. The car being relieved of the weight of the load, the counterweight J acts through cable J' and drum F to coil cable J' and impart rotary motion to shaft C for the purpose of coiling cables G upon drums, D, whereby the car is elevated automatically to a position where another load may be deposited thereon.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In an elevator, a car provided with means for discharging a load therefrom when said car reaches the limit of its downward movement, means for guiding the car in a substantially vertical path, a shaft, winding drums rotatable with the shaft, cables attached to the car and coiled upon said winding drums, a separate drum rotatable with the shaft, a cable wound on the separate drum in an opposite direction to that in which the cage suspending cables are wound upon the winding drums, a counterweight attached to the last mentioned cable and operating to automatically lift the car upon the discharge of a load therefrom, and brake mechanism for controlling the rotation of the shaft and the vertical movement of the cage.

2. In an elevator, a car provided with means for discharging a load therefrom when said car reaches its downward movement, guideways in which the car is positioned for movement in a substantially vertical direction, a shaft, a plurality of winding drums on said shaft, cables attached to the car and separately coiled upon said winding drums, a counterweight operating to automatically elevate the car upon the discharge of a load therefrom, a separate drum on the shaft, a cable attached to the counterweight and wound on the separate drum in an opposite direction to that in which the car suspending cables are wound on said winding drums, brake drums fixed to the shaft, brake bands coöperating with said drums, a crank shaft to which the brake bands are attached, and means for operating said crank shaft.

3. In an elevator, a car provided with a movable bottom, means for lifting the bottom to an inclined position for discharging the load when the car reaches the limit of its movement in one direction, guides between which the car travels and by which the car is limited to movement in a vertical direction, a shaft, winding drums on said shaft, cables attached to the car and coiled in one direction on said drums, a separate drum on the shaft, a counterweight cable

coiled on the separate drum in an opposite direction to that in which the cage-suspending cables are coiled on the winding drums, a counterweight attached to the 5 counterweight cable and operating to elevate the car when a load is discharged therefrom, and means for controlling the vertical movement of the car.

4. In an elevator, a car provided with a 10 pivoted bottom, a leg depending from said pivoted bottom for moving the latter to an inclined position upon the descent of the car, a retaining bar pivotally mounted on said car to normally close the exit there- 15 from, and a leg depending from said retaining bar, whereby when the car reaches the limit of its downward movement said retaining bar will be withdrawn from the path of the load and said pivoted bottom 20 will be elevated to discharge the load from the car through the exit controlled by said retaining bar.

5. A car provided with means for dis- charging a load therefrom, guide mecha- 25 nism for restricting the movement of the car to a vertical path, a counterweight for

said car, a retaining bar attached to the car and positioned in the path of the load, and means for elevating the retaining bar, when the car reaches the limit of its downward 30 movement, whereby the retaining bar is withdrawn from the path of the load prior to the discharge of the load from the car.

6. In an elevator, a car having a movable 35 bottom, means for raising the bottom to an inclined position as the car travels downwardly, whereby a load is adapted to be discharged from the car, a retaining bar positioned on said car and in the path of 40 the load, and means for operating the retaining bar to remove it from the path of the load as the latter is discharged from said car, said bar retaining means being ac- tuated by the movement of the car.

In testimony whereof, I have hereunto 45 signed my name in the presence of two subscribing witnesses.

JOHN T. CLARK.

Witnesses:

WESTMINSTER ABBEY,
EDGAR E. LE BLANC.