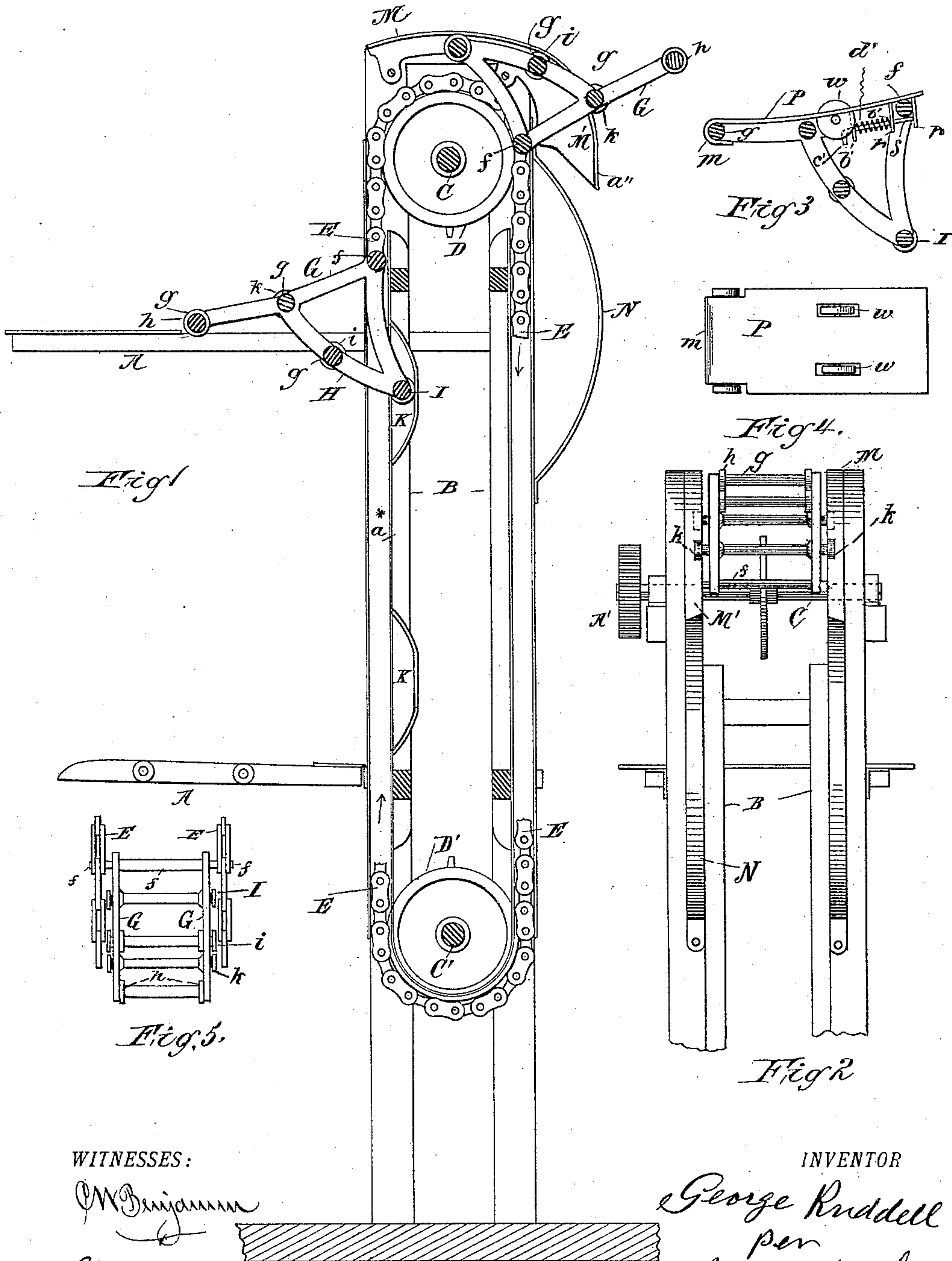


(No Model.)

G. RUDDELL.
PLATFORM ELEVATOR.

No. 445,610.

Patented Feb. 3, 1891.



WITNESSES:

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GEORGE RUDDELL, OF NEW YORK, N. Y.

PLATFORM-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 445,610, dated February 3, 1891.

Application filed May 26, 1888. Serial No. 275,152. (No model.)

To all whom it may concern:

Be it known that I, GEORGE RUDDELL, a citizen of the United States, residing at the city, county, and State of New York, have invented certain new and useful Improvements in Platform-Elevators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improvement upon the apparatus set forth and shown in the Letters Patent No. 278,050, granted to George Rud-
dell, and dated May 22, 1883.

The object of my present invention is to obviate the tendency sometimes experienced in apparatus constructed according to my former patent on the part of the elevator platform or platforms and their adjuncts to jar or slam while the same passes from the uppermost of the pulleys or sprocket-wheels whereupon run the vertical endless chains which carry the platform or platforms; also, to provide means whereby the platform or platforms of the apparatus may on occasion be employed for lifting and discharging boxes, bales, and the like, with the same facility as if discharging barrels and like cylindrical articles.

The said invention comprises certain novel combinations of parts whereby the objects hereinbefore indicated are effectually secured.

Figure 1 is a vertical transverse sectional view of an apparatus embracing the first here-
inbefore-indicated feature of my said inven-
tion. Fig. 2 is a rear view of a portion of the apparatus as shown in Fig. 1. Fig. 3 is a ver-
tical transverse sectional view of the platform which forms part of my said apparatus, and
Fig. 4 a plan view illustrating that feature of
my said invention which relates to the dis-
charge of boxes, bales, and the like from the
platform or platforms. Fig. 5 is a view illus-
trating one of the details of the construction
of said apparatus.

In Figs. 1 and 2, as in the drawings of my patent dated May 22, 1883, as aforesaid, A A indicate the several floors of a warehouse, and B the vertical frame which supports the work-
ing parts of the apparatus, and in connection

with which is provided the vertical hoistway through which said apparatus works. At the top of this frame B is a shaft C, on which are sprocket-wheels D. At the lower end of said frame is a corresponding shaft C', provided with like sprocket-wheels D'. Vertical end-
less chains E are placed upon these sprocket-
wheels D D', extending from one to the other. One of these shafts—as, for example, the up-
per shaft C—may be connected by suitable
gearing A', or otherwise, with a driving-shaft or mechanism for giving the requisite motion to the shaft, and consequently to the sprocket-
wheels, and from the latter to the endless
chains E.

G G are platforms, of which one or more may be provided to the endless chains, and each of which has its rear or inner end strongly hinged or pivoted to the two chains E, as indicated at f, each of the said plat-
forms having a downwardly - extending
bracket H, which has at its lower end an
anti-friction wheel or roller I, which runs in
contact with the front surface or tracks a* of
the two side posts of the frame B. The plat-
forms may be composed of side pieces con-
nected by cross-bars g g, and each platform
is provided with rollers h, which facilitate
the transfer therefrom of the articles elevated
and designed to be discharged upon one or
the other of the floors of the warehouse. In
the front of each of the posts of the frame B,
whereon run the anti-friction rollers I, are
what may be termed "fixed cams" K, so ar-
ranged with reference to the face or front of
the said side posts or parts of the frame B as
to permit the bracket H to swing backward
when the same is brought opposite said cam
during the upward movement of the platform.
This causes the platform to tilt as it rises, so
that temporarily its forward end remains sub-
stantially coincident with the level of the
floor, while the rear portion of said platform
is still rising, thereby causing the platform
to automatically discharge its load upon the
floor. As the upward movement of the plat-
form continues, the cams K, acting upon the
brackets of the platform, swing the same for-
ward, thereby causing the anti-friction rollers
I to come again upon the front surface or

tracks a^* , and consequently bringing the platform to its normal or substantially horizontal position. In this manner the upward movement of the front of the chains, due to the rotation in the requisite direction of the sprocket-wheels, brings the platforms in succession opposite each of the floors, and at each pair of the adjacent fixed cams K automatically actuates the platform to deposit its load. As the platforms G are carried around by the rotation of the chains E, they are of course inverted and swung upon their pivotal connections f as they pass to the back of the apparatus.

To prevent the platforms from too suddenly swinging down to a position parallel with the adjacent portion of the chains E after they pass over the uppermost sprocket-wheels D, my present improvements are applied to the apparatus as follows: Fixed in suitable relation to the said upper sprocket-wheels D are curved "concave cams," as they may be termed M, and affixed upon the frame B, at the opposite sides thereof and in the same vertical planes with the cams M are what may be conveniently designated "fixed cams" M' . The cams M are so placed that lateral projections provided with anti-friction rollers i , placed externally upon the lateral edges or sides of the platforms G, will pass underneath and in contact with the same, and by preventing the too sudden turning of the platform upon its pivotal connection f retards the downward-swinging movement of said platform. When a certain point is reached, other similar pulleys k pass upon the outer surface a'' of said cams M' , which are preferably made integral with the cams M. The cams M' , because of their contour, hinder without entirely impeding the downward movement of the platform G around its pivotal connection f , simultaneous with its being carried down by the movement of the chains E. When the anti-friction rollers k pass upon the cams N, arranged below, which as the platforms pass bodily downward gravitate their turning upon their pivots f until they are brought to their position parallel with the adjacent sides or portions of the chains E, which position they retain until swung into their original position when carried around under and from the lower sprocket-wheels D' .

The anti-friction rollers i k work upon the laterally-extended ends of the cross-bars g , said ends forming journals for said anti-friction rollers. By the means described the platforms G and their brackets H are carried over at the top of the apparatus without any of the jar or concussion sometimes incident to the operation of the machine when constructed as shown in my patent of May 22, 1883, aforesaid.

In order to increase the facility with which boxes, bales, &c., may be discharged from the

platforms, I provide a supplemental plate or frame-work P, (shown in Figs. 3 and 4,) which may be formed of sheet metal of any suitable thickness, and which has a hook formed at its outer extremity, as shown at m , so that it may be hooked upon the outermost of the cross-bars g of the platform, and at its inner end it is provided with downwardly-projecting studs r , which pass astride of the corresponding innermost bar, as, for example, the bar or pivot f , the ends of which connect the platforms G with the chains E. A sliding rod s works in suitable guides b' , provided to the plate or frame-work P, and one of which may be formed by the studs r . This sliding rod or catch is provided with a knob or handle c' , by which it may be retracted, and with a spiral spring d' , by which it is forced backward under the bar f , thereby retaining the plate or frame-work P upon the platform. This plate or frame-work P is provided with any desired number of rollers w , the upper surfaces of which project above the upper surface of said plate or frame-work P, and inasmuch as said plate or frame-work P is put in position, as just explained, upon the upper part of the platform, it follows that a box, bale, or the like will ride upon the rollers w when the platform is tilted, as hereinbefore explained, and so be deposited upon the adjacent floor A, with substantially the same certainty and facility as a barrel would roll from the said platform when the latter is not provided with the plate or frame-work P and its rollers w . By retracting the sliding rod or catch s and lifting the rear or inner end of the plate or frame-work P, its opposite or hooked end m may be readily detached and the frame-work and its adjuncts removed from the platform.

The pivotal connection f of the platform G with the endless chains E is preferably made by means of a cross-bar extending from one side to the other of that part of the platform with its ends extended through said sides of the platform and entering into suitable sockets in the said chains, as shown in Fig. 5. Said sockets may, when desired, be provided by the pivot-holes of the adjoining links in each chain, the ends of the cross-bar f serving the double purpose of pivots to connect said links at said point and of pivoting the platform to said chains at such junction of the links.

Certain features of construction shown and described, but not claimed in this application, are shown, described, and claimed in an application filed by me, Serial No. 355,012.

What I claim as my invention is—

1. The combination, with the sprocket-wheels D D' , endless chains E, frame B, having one or more fixed cams K, and platform G, having brackets H, of the cams M and M' , and the rollers i and k at the lateral edges of the platform, and arranged to engage, respectively, with the under side of the cam M and

the outer side of the cam M', substantially as and for the purpose herein set forth.

5 2. The combination, with the sprocket-wheels D D', endless chains E, frame B, having one or more fixed cams K, and platform G, having brackets H, of the anti-friction rollers *k* and *i* and fixed cams M, M', and N, all

substantially as and for the purpose herein set forth.

GEORGE RUDDELL.

Witnesses:

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