(No Model.) 3 Sheets—Sheet 1.

G. RUDDELL.

PLATFORM ELEVATOR.

No. 445,611. Patented Feb. 3, 1891.

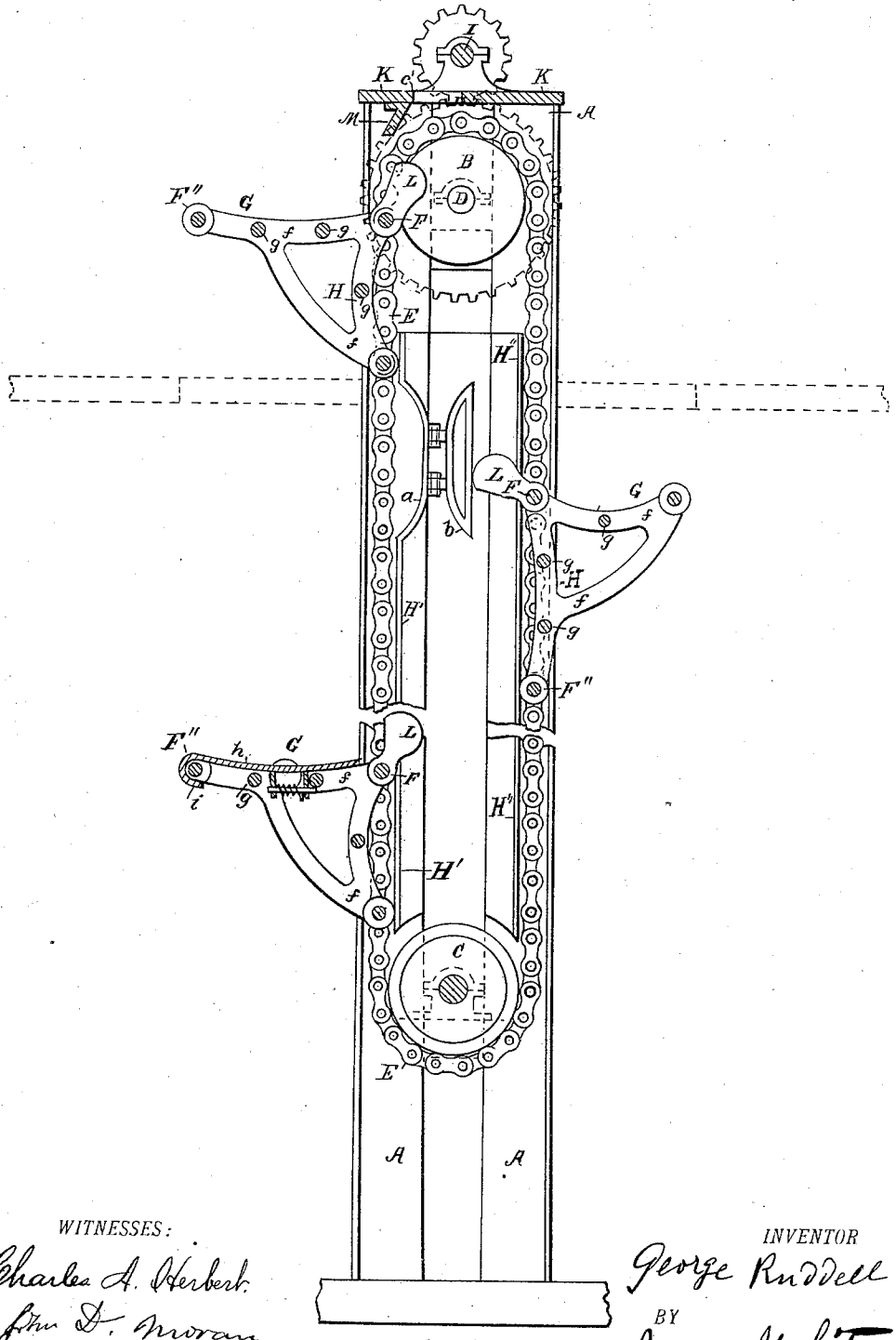


Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

G. RUDDELL.

PLATFORM ELEVATOR.

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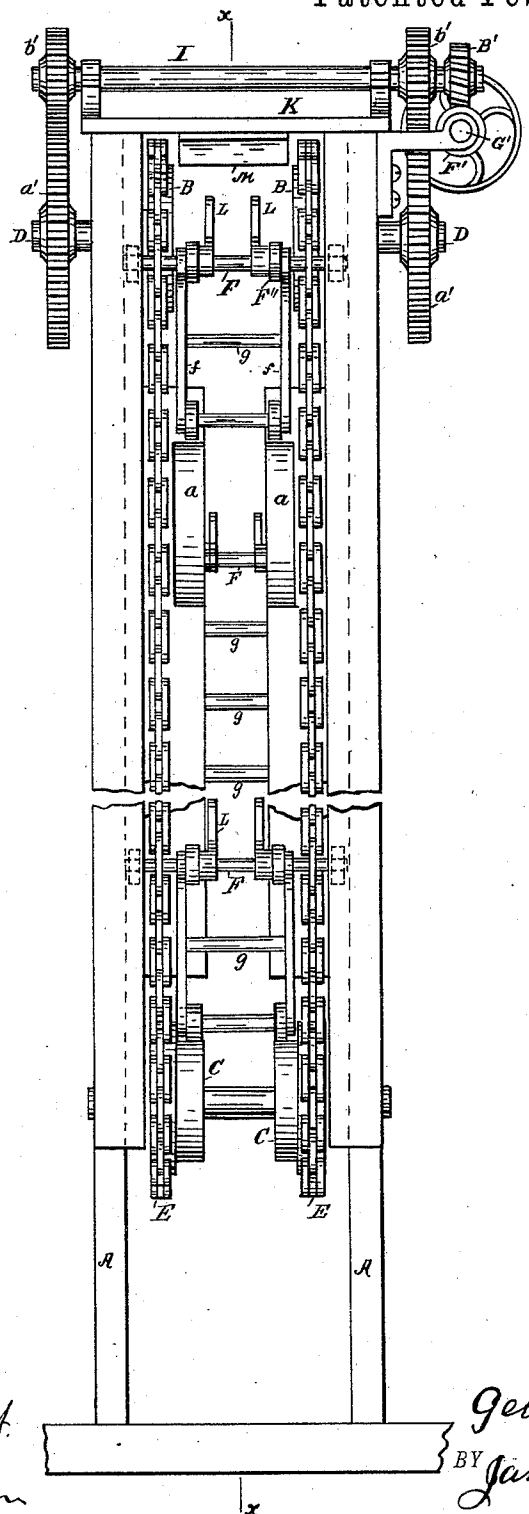


Fig. 2.

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(No Model.)

3 Sheets—Sheet 3.

G. RUDDELL.

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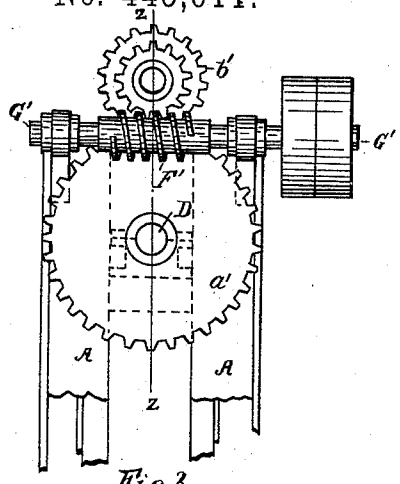


Fig. 3.

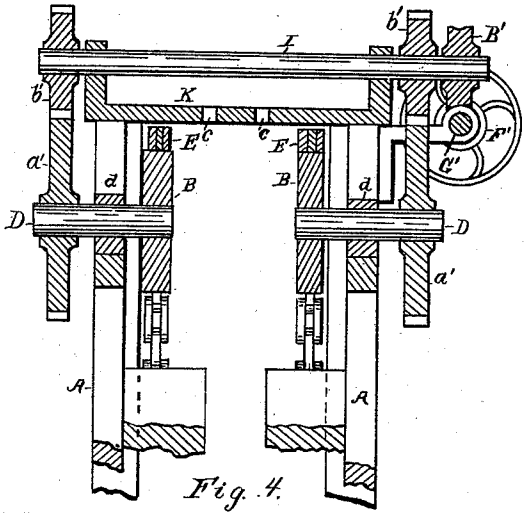


Fig. 4.

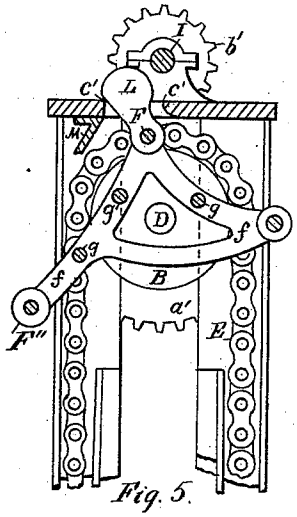


Fig. 5.

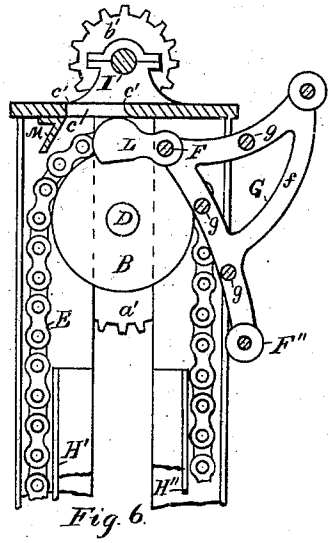


Fig. 6.

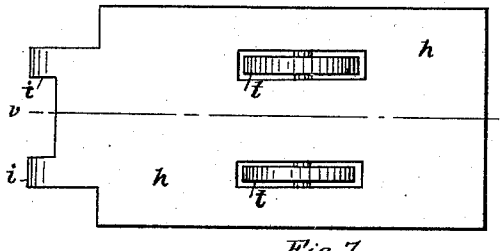


Fig. 7.

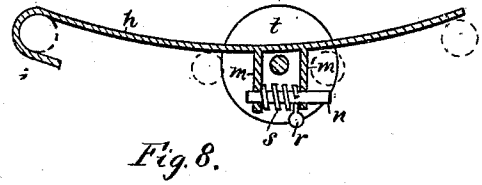


Fig. 8.

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UNITED STATES PATENT OFFICE.

GEORGE RUDDELL, OF NEW YORK, N. Y.

PLATFORM-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 445,611, dated February 3, 1891.

Application filed June 11, 1890. Serial No. 355,012. (No model.)

To all whom it may concern.

Be it known that I, GEORGE RUDDELL, of 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 relates to that class of hoisting apparatus more commonly employed for hoisting freight, merchandise, &c., from one level to another, and in which endless chains are arranged to carry platforms which pass upward on one side and downward at the opposite side of a suitable hoistway; and my invention consists in certain novel means for carrying over the platforms from the ascending to the descending side, whereby economy of space at the top of the hoistway is secured, and whereby provision is made for reversing the apparatus without danger of disarranging any of the parts at the top of the hoistway.

Figure 1 is a vertical longitudinal sectional view taken in the line *x x* of Fig. 2, representing an apparatus constructed according to my said invention. Fig. 2 is a front view of said apparatus. Fig. 3 is a detail side view representing certain parts not fully shown in Figs. 1 and 2. Fig. 4 is a vertical section view taken in the line *z z* of Fig. 3. Figs. 5 and 6 are detail views corresponding to Fig. 1, but representing the parts in positions different from that represented in Figs. 1 and 2. Figs. 7 and 8 are respectively a plan view and transverse sectional view of certain other parts of said apparatus, Fig. 8 being taken in the line *v v* of Fig. 7.

A A, &c., are the several posts of the hoistway, at the top and bottom of which respectively are the sprocket-wheels B B and C C, the former being secured on the inner end of the short shafts or axles D, so that a clear space is afforded between them. These short shafts or axles D are journaled, as shown at *d* in Fig. 4. The sprocket-wheels carry the two endless chains E, from one to the other of which extend the usual pivotal shafts F, upon which swing the platforms G, the latter having at their inner or rear ends downwardly-extending arms H, the extremities of which rest upon the guide H′, secured in fixed relation with the endless chains. These arms, resting against the guides H′, retain the platforms G in the position required for transferring freight or lading of any description upward or downward, as the case may be, the level or inclination, as the case may be, of each platform being regulated by the action upon its downwardly-projecting arms H of the fixed guides H′, upon which the arms rest, as described. These guides H′ may be recessed at suitable intervals—as, for example, opposite the floor of the building shown in dotted outline in Fig. 1—these recesses *a* permitting the backward swing of the arms to bring the platforms to a strongly-inclined or dumping position opposite the floors of the warehouse. These recesses *a* may be fitted each with a hinged door *b*, which may be swung into the recesses on occasion to present a straight surface flush and continuous with that of the main portion of the guide, so as to permit the platforms to pass without being inclined or brought to the dumping position.

Motion may be given to the sprocket-wheels B B by gear-wheels *a′*, attached to the outer ends of the shafts D, and to these gear-wheels motion may be given by other gear-wheels *b′* provided on the shaft I, which has also a worm-wheel B′, actuated by a worm F′ on the shaft G′, which may be rotated by any suitable means. Any other desired means may be employed for giving the requisite motion to the sprocket or driving wheels.

It is of course to be understood that the term "sprocket-wheel" as applied to these driving-wheels B C is employed in its broadest sense, and that other wheels arranged in any suitable way to simultaneously move the two endless chains are the equivalents of those shown in the drawings.

It is to be observed, as aforesaid, that there is a clear space between the two driving or sprocket wheels. Above the space between the said wheels—in other words at the top of the frame-work of the apparatus—is a plate or bar K, which may be composed of a casting having integral therewith the bearings for the shaft I. Said plate or bar may be of any suitable construction so long as it serves the purpose hereinafter set forth. As repre-

sented in the drawings, it has two slots *c*, the office of which is to provide fixed bearings *c'* opposite each other.

Extending upward from the inner end of each platform are arms L, which swing with the motion of said platforms around their shafts or axes. The arms L correspond in number with the slots *c*, and, to conduct them to and into the said slots as the platforms rise to the top of the hoistway, there is provided an inclined plate M, which provides a guide to the several arms as they pass upward and directs them into the slots, as aforesaid. As the pivotal shaft F of each platform is carried around over the upper sprocket-wheels B, the arms L pass upward into the slots and bear first against the shoulders or bearing-surfaces *c'*, provided at their adjacent ends, as indicated in the drawings. As this motion is begun the platform swings downward between the upper sprocket-wheels, as indicated in Fig. 5. As the motion is further continued the arms come in contact with the shoulders or bearing-surfaces at the opposite ends of the slots, and the continued movement of the chains carrying along the pivotal shaft of the platform causes said arms to act as levers to bring the platform to a substantially horizontal position at the opposite or descending side of the hoistway, as indicated in Fig. 6. A further movement of chains causes the rollers F'' of the platform to rest upon the guides H'', bringing the elevator in position to receive a load to be carried downward.

It is of course to be understood that the guides H' and H'' are not permitted to extend upward to a degree which would interfere with the vertical or tilted position of the platforms while being carried through the space between the upper sprocket-wheels, as described. By this construction, moreover, the movement of the apparatus may be reversed, the platforms swinging downward and passing between the upper sprocket-wheels in whichever direction the motion of the endless chains may be.

A further improvement also comprised in my said invention is represented in Figs. 7 and 8 and relates to the construction of the platforms. The platform itself consists substantially of a frame-work having side pieces *f* connected by cross-bars *g*. As thus constructed the platform is especially available for barrels and other substantially-cylindrical bodies, the ends of which rest upon the side pieces of the frame-work of said platforms. In order, however, to enable the platforms to be more conveniently used with boxes, bales, &c., I provide a detachable floor-piece *h*, provided at one end with hooks *i*, which catch over the outermost of the cross-bars *g*, said floor-piece resting upon the other cross-bars of the elevator. To the under side of this floor-piece I provide downwardly-projecting guides *m*, through which plays the sliding bolt *n*, which latter is provided with a stud or handle *r*. A spring *s* is provided to the bolt *n* to hold the latter in position when the floor-piece is fastened to the platform. When the floor-piece is placed in position, as described, the bolt *n* catches under one of the cross-bars *g* of the platform and holds the floor-piece down upon said platform. Said floor-piece is provided with rollers *t*, which project up through slots in the floor-piece and have their shafts or journals suitably provided to the under side thereof. The office of these rollers is to enable boxes, bales, &c., to be moved with greater ease upon or from the platforms.

What I claim as my invention is—

1. The sprocket-wheels B B, mounted upon separate shafts at the top of the hoistway, whereby a clear space is left between them, in combination with bearings *c'*, arms L, a tilting platform, and endless chains E, actuated by said sprocket-wheels, substantially as and for the purpose set forth.

2. The sprocket-wheels B B, mounted upon separate shafts, whereby a clear space is left between them, bearing *c'*, and an inclined guide M, in combination with the arms L, a tilting platform, and the endless chain E, actuated by said sprocket-wheels, substantially as and for the purpose herein set forth.

3. In a hoisting apparatus, the platform G, composed of side pieces and the cross-bars *g*, in combination with a movable floor-piece *h*, having hooks *i* and a latch or bolt *n* for holding said floor-piece in place, substantially as and for the purpose herein set forth.

4. In a hoisting apparatus, the platform G, composed of side pieces and the cross-bars *g*, in combination with a movable floor-piece *h*, having hooks *i*, rollers *t*, and a latch or bolt *n* for holding said floor-piece in place, substantially as and for the purpose herein set forth.

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