

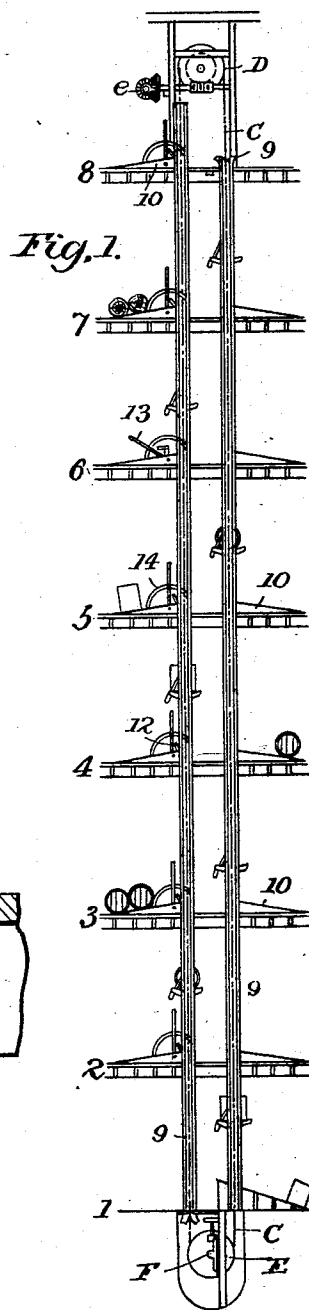
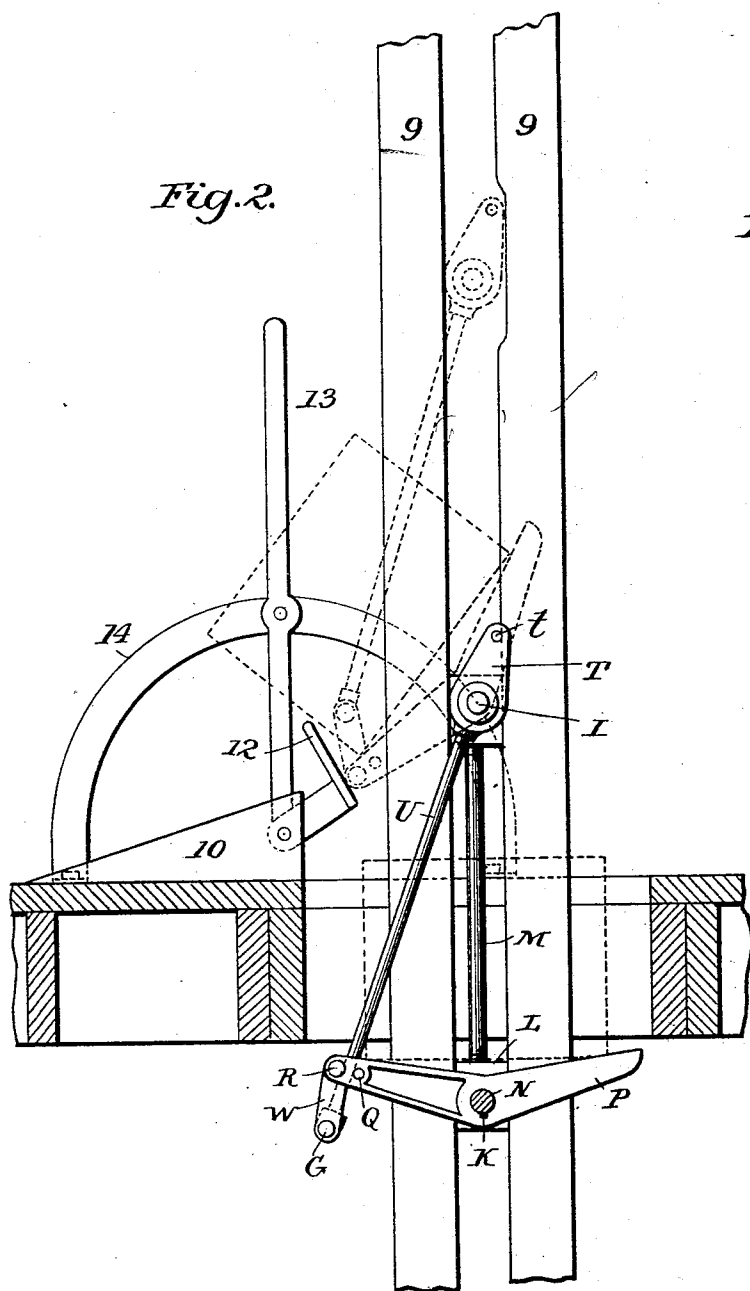
(No Model.)

2 Sheets—Sheet 1.

S. B. PECK.
PACKAGE ELEVATOR.

No. 570,562.

Patented Nov. 3, 1896.



Witnesses

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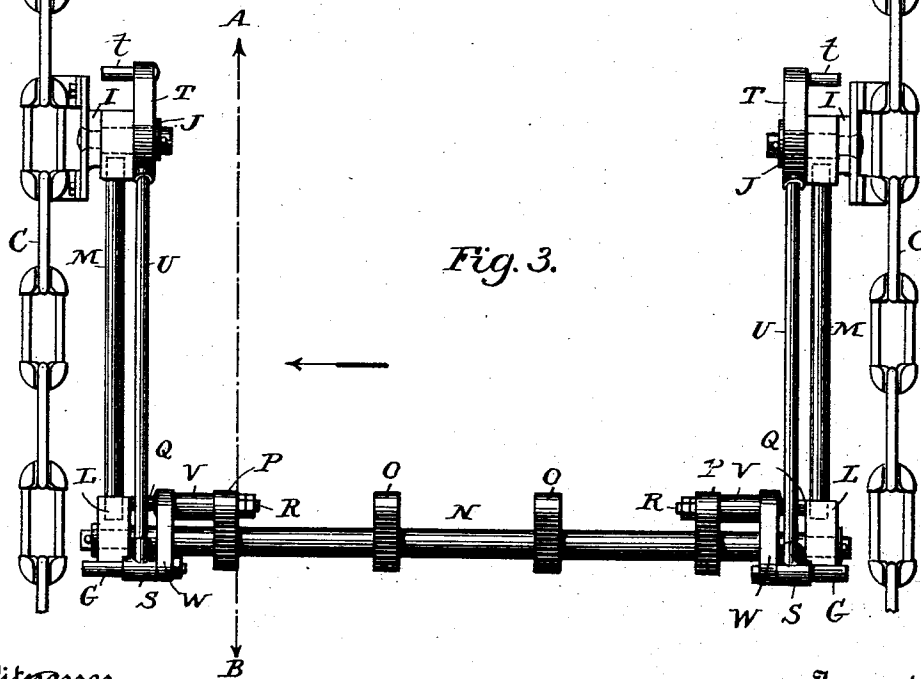
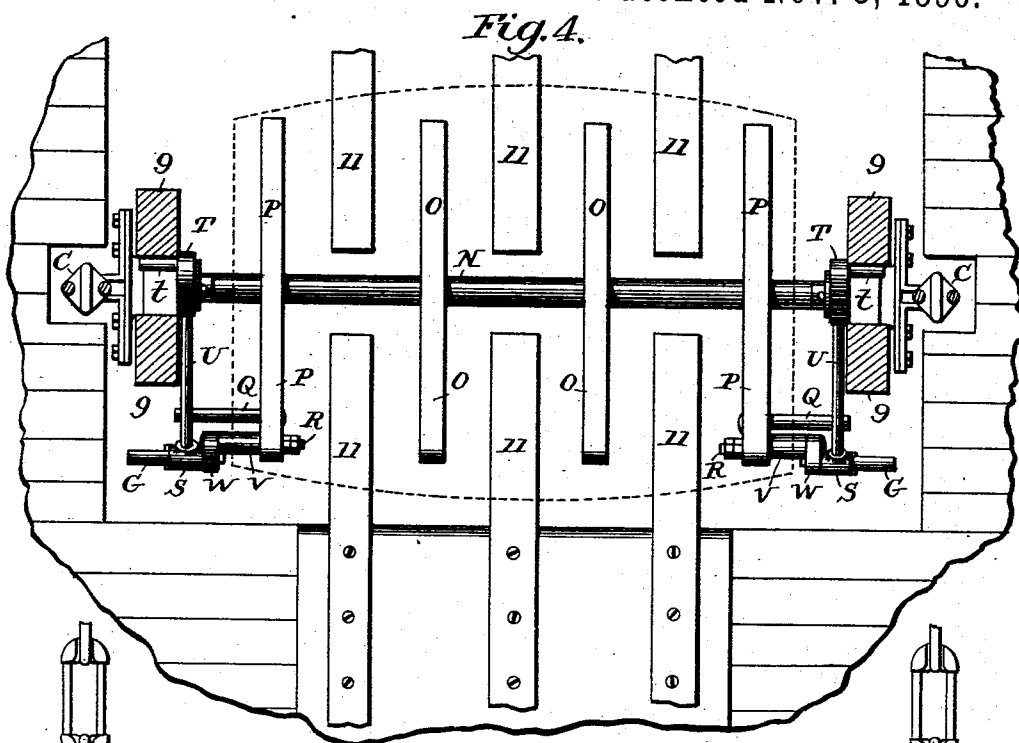
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UNITED STATES PATENT OFFICE.

STAUNTON B. PECK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE LINK-BELT MACHINERY COMPANY, OF SAME PLACE.

PACKAGE-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 570,562, dated November 3, 1896.

Application filed January 26, 1892. Serial No. 419,321. (No model.)

To all whom it may concern:

Be it known that I, STAUNTON B. PECK, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Package-Elevators, of which the following is a specification.

My invention relates particularly to the class of elevators employing endless chains or cables which are provided with pivotally-suspended carrying arms or cradles at intervals suitably arranged to hoist or lower packages of various shapes, sizes, &c., and has for its principal object the ready discharge of the packages at desired points along the elevator.

My invention consists in certain details of construction and arrangement of the carrying-arms and the mechanism associated therewith, all as more fully described hereinafter, and more specifically defined in the claims.

To enable those skilled in the art to which my improvements relate to understand and practice the same, I will now proceed to describe my invention more fully, referring to the accompanying drawings, which form part of this specification, and in which similar letters and numbers of reference designate similar parts throughout the several views.

Figure 1 is a side view of a package-elevator employing my improvements. Fig. 2 is a partial sectional view, on a larger scale, showing details of arrangement of carrier relative to tripping mechanism, the view being somewhat similar to a sectional view of Fig. 3 on the line A B, looking in the direction of the arrow. Fig. 3 is a front detail view of one of my carriers. Fig. 4 is a top view of one of my carriers and some of its surroundings, as more fully explained hereinafter.

C is a special cable-chain which I generally use for this class of elevators, banded about wheels D and E. Wheels E are usually mounted on a shaft which is journaled in take-ups F, while wheels D are mounted on separate gudgeons or short shafts which do not extend across the elevator, as a shaft across at that point would require excessively large wheels to avoid being in the way of the carriers, which are adapted to swing between the wheels in passing around the head. This

arrangement necessitates two separate synchronously-moving sets of driving mechanism, one for each wheel. In Fig. 1 I have shown the driving mechanism for one of the wheels as worm-gearing driven by bevel-gearing. The other wheel is driven by a duplicate set having its driving-pinion on the same shaft as that which carries pinion e.

1, 2, 3, 4, 5, 6, 7, and 8 are different floors through which the elevator-well is cut.

9 are guide-strips running most of the distance between head and foot of elevator to hold the carriers steadily in position.

10 are discharging-skids.

11 are skids or fingers in Fig. 4, arranged for loading or unloading, as more fully explained hereinafter.

The particular form of carrier illustrated in the drawings consists of hanger-arms M, pivotally suspended from studs or gudgeons I, which project from chains C, said hanger-arms being provided with castings L at their lower ends, arranged as journals for shaft N, which has dished carrier-arms O and P firmly secured to it, preferably by keys, as at K in Fig. 2. At or near the end of carrier-arm P, I secure a toggle-link W, which in the drawings is shown offset somewhat by sleeve V, through which runs bolt R, making the pivotal connection. The other link of the toggle is the rod or arm U, which is shown fitted with a casting S, through which runs bolt G, making a pivotal connection. Bolt G is extended to form a tripping-pin, whose operation will be more fully explained hereinafter. Stud Q projects from arm P to prevent too great movement of the toggle-arms. Rod U is shown screwed into a casting T, which is journaled on gudgeon I and held in place on same by pin and washer J. From the farther end of casting T projects a stud or pin t, whose use will be explained hereinafter. The tripping mechanism shown in the drawings consists of a flat projecting piece 12 under the control of lever 13, which is held in proper position by semicircular piece 14. Trip 12 is arranged to stand diagonally in the path of pin G when it is desired to discharge the load from the carrier and to be turned entirely out of the way when not required for use.

In the operation of this class of elevators as heretofore constructed a package to be carried from one floor to another was deposited on grating or skids projecting into the elevator well-hole on the ascending side, as at 11 in Fig. 4, picked up by an ascending carrier intermeshing with same, about as shown, and borne to the head of the elevator, from whence it descended on the other side to the desired floor, being left on whatever skids or fingers were placed in its way, such grating being generally arranged with an incline sufficient to roll or slide the package off to the floor. It is evident that where packages were to be handled, for instance, from floor 1 to floor 2 in Fig. 1, or some other short distance upward in a high building, a great deal of time and power had to be wasted in carrying the packages up over the head. This long, inconvenient, and wasteful process is rendered entirely unnecessary by my improvements, for whether the lift is one story or more the application of the tripping mechanism causes the carrying-arms to assume substantially the inclined position shown in dotted lines in Fig. 2, resulting in an immediate discharge of the package at the floor, whatever its shape may be. On floors where boxes or sacks are to be discharged, as at floor 5 or 7, the skids are given a steeper incline than where only barrels or kegs are handled, as the latter will readily roll away from the elevator after the start they receive from the action of the carrying-arms, while the former need the assistance of the incline to free themselves quickly.

In their normal position the dished carrier-arms O and P make a substantially horizontal platform which will hold various shapes of packages centrally over the shaft or cross-rod N, which is journaled in the lower ends L of the hanger-arms M. This centrally-journaled carrier is held in its horizontal position by the locked toggle-arms U and W, which are prevented from moving in one direction by the stud Q and in the other direction by the fact that they are "beyond center," as it is called. When, however, the carrier is borne up by the chains into a position where pin G strikes the under surface of the inclined trip 12 and is thereby drawn forward far enough to disengage itself from the said trip, the toggle is unlocked in the well-known manner of toggles, and as pin G draws the lower end of rod U forward link W, operating through bolt R, draws the front end of carrier-arm P downward, thus tilting the whole carrier and its load and throwing the center of gravity of the load forward, which in turn causes the centrally-journaled carrier to rock on its axis N, permitting the free discharge of the load in a manner similar to that illustrated in dotted lines in Fig. 2. It will be observed that this operation does not cause any appreciable strain on the elevator-chains or loss of power, whereas most of the tripping devices heretofore used have de-

pended on some part of the tripping mechanism being brought forcibly into contact with an obstruction to lift the rear of the carrier rapidly, thus adding to the natural strain of lifting the package an extra strain which is often greater than the original one. Another feature of this construction consists in the fact that the package-carrier when thus arranged is free to rock on its axis in either direction, so that the package thereon can be discharged on either side with equal strain to the parts.

As an assistance in holding the carrier locked in its normal position in passing from floor to floor the extension T of toggle-rod U is provided with pin t, which generally rests lightly against one of the guide-strips 9. At the discharge-points, however, I notch these guide-strips out, about as shown in Fig. 2, so as to permit the proper movement of rod U, and at the upper end of the notch I provide an inclined surface, against which pin t is pressed by the rising action of the carriers. This, together with the fact that I make the rear of the carrier heavier than the front, restores the carrier to its normal position after the load is discharged. It will be noticed that I recess the front portions of the carrier-arms O and P, while leaving the rear solid, about as shown in Fig. 2, for the purpose of enabling the carrier to right itself by gravity as far as possible. When the toggle is not swung entirely into a locked position by the action of gravity, the pressure of the pin t against strip 9 completes the process and throws pin G beyond the dead-center and causes rod U to rest against stud Q as before the discharge. Stud Q also limits the movement of link W in the discharging operation, about as shown in dotted lines in Fig. 2, thus avoiding danger of the toggle locking the carrier in an inclined position. Of course springs or other mechanism could be used to restore the carrier to its normal position, but I prefer the above-described arrangement as being simple and convenient. The toggle-links may also be so disposed as to bring their joints above studs I, but as this throws the weight of the long links U against the gravity recoil of the discharged carrier the plan shown in the drawings is in that respect preferable.

When the intermeshing fingers 11 in Fig. 4 are used for loading, they are dished toward the center to hold the package in a central position, as shown in case of the barrel whose outline is dotted in. When they are used for unloading, they are generally inclined to roll or slide the packages off out of the way of the next descending carrier, and at floor 1 they are preferably made with a sharp incline which will be sure to discharge any shape of package which may come down that far. The skids at this floor are usually made stationary, but at the other floors they may be made movable or hinged in any well-known manner.

I have shown in the drawings a toggle mechanism at each end of the carrier, but it is evident that with sufficiently strong and rigid parts it will be unnecessary to divide the work up between two sets of toggles, as shown in the drawings, and one for each carrier will answer all practical purposes. If the elevator is not to be used for carrying any packages over the head or down on the rear side, the hanger-arms M can be dispensed with and the shaft N journaled in suitable bearings furnished by chains C.

It is evident that the pivotal suspension of the carriers from the chains and the pivotal connections of the toggle-links with the carriers, hangers, or chains may be made in any convenient manner, and the details of construction of the carrier, relative lengths of toggle-links, &c., may be varied considerably without departing from the spirit of my invention, and I do not wish to be limited to the exact shapes, proportions, &c., which I have illustrated; but,

Having described my invention thus fully, what I claim as new, and desire to secure by Letters Patent, is—

1. In a package-elevator, the combination of two endless chains or cables, suitable wheels about which they are banded, hanger-arms borne by said chains or cables and pivotally suspended between them, a package-carrier borne by said hanger-arms and free to rock in either direction, and tripping mechanism whereby the carrier is partially rotated on its axis to discharge its load, substantially as set forth.

2. In a package-elevator, the combination of two endless chains or cables banded about suitable wheels, hanger-arms pivotally sus-

pended from said chains or cables, a carrier pivotally borne by said hanger-arms, and toggle mechanism connected with said carrier and arranged to tilt the same under the influence of a tripping device, substantially for the purpose set forth.

3. In a package-elevator, the combination of two endless chains or cables banded about suitable wheels, a carrier pivotally borne by said chains or cables, toggle mechanism connected with said carrier and provided with a stud projecting laterally at or near the joint of the toggle-links, and a tripping-surface adapted to be placed at will in the path of the said stud, substantially for the purpose set forth.

4. In a package-elevator, a pivotally-suspended package-carrier provided with toggle mechanism which is arranged to hold said carrier normally in a substantially horizontal position and to tilt the same for discharge when tripped, substantially as set forth.

5. In combination, chains C, hangers M, a package-carrier pivotally borne by said hangers, toggle-links, as U and W, connected with said carrier and a trip adapted to operate the said toggle-links, substantially as and for the purpose set forth.

6. In combination chains C, hangers M, a package-carrier pivotally borne by said hangers, and toggle-links, as U and W, connected with said carrier and provided with a stud, as G, adapted to engage with an inclined tripping-surface, as 12, substantially as shown and described.

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