(No Model.) 2 Sheets—Sheet 1.

O. N. EATON.

ENDLESS PACKAGE CARRIER OR ELEVATOR.

No. 252,931. Patented Jan. 31, 1882.

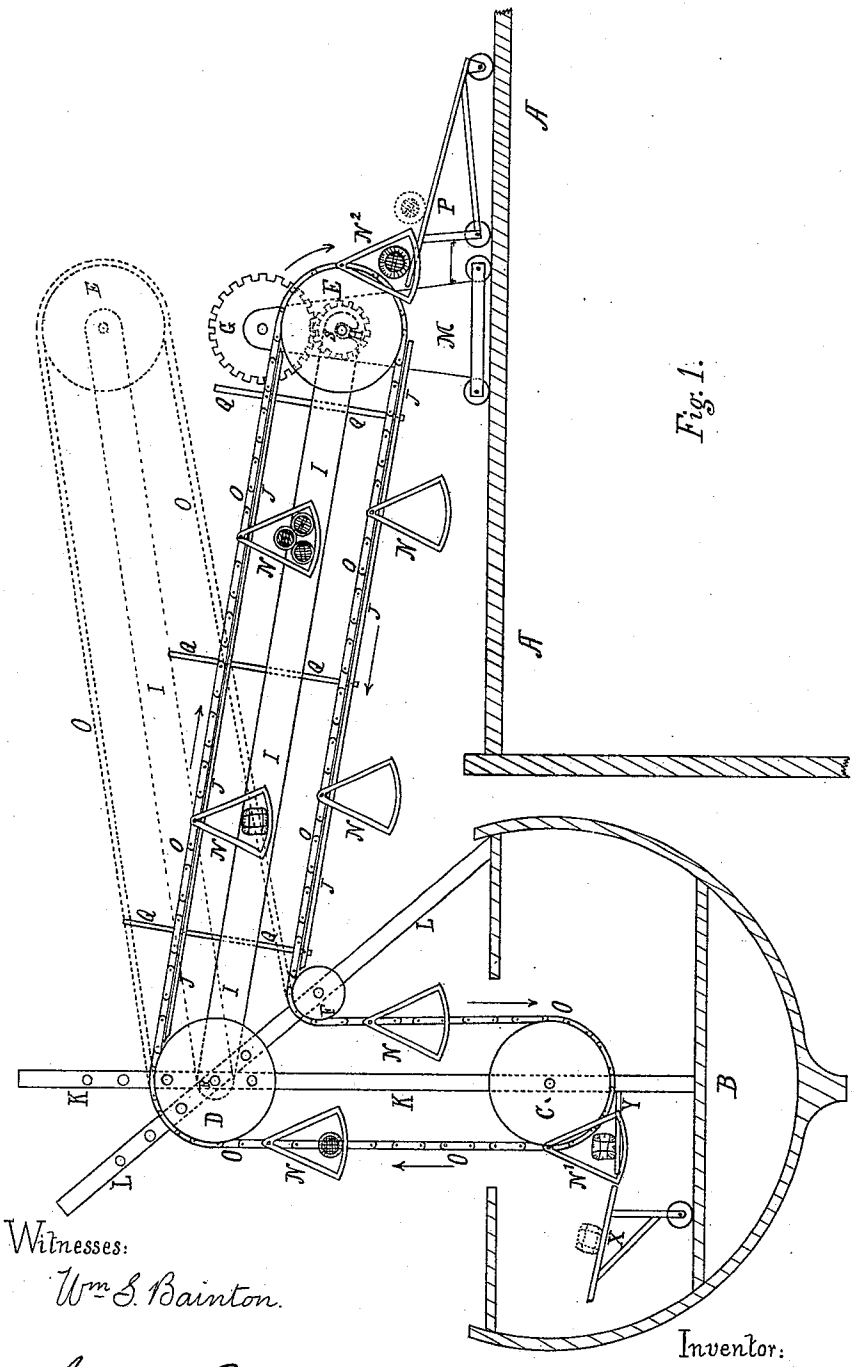


Fig. 1.

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Inventor:
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

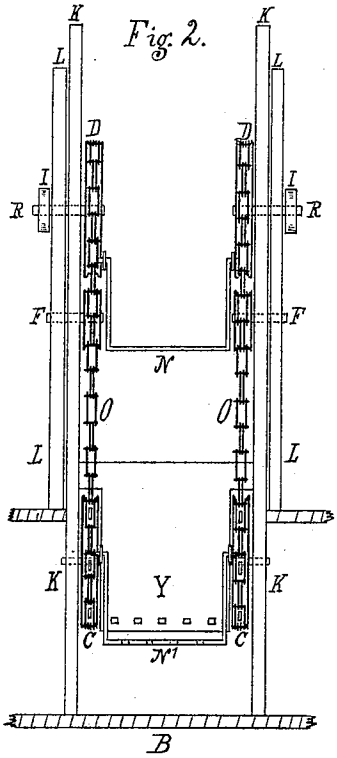


Fig. 3.

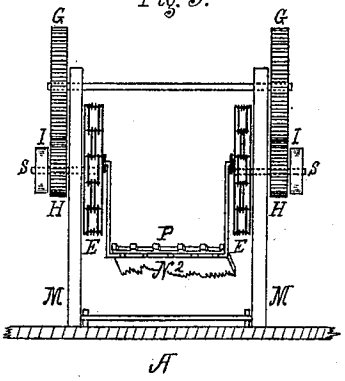
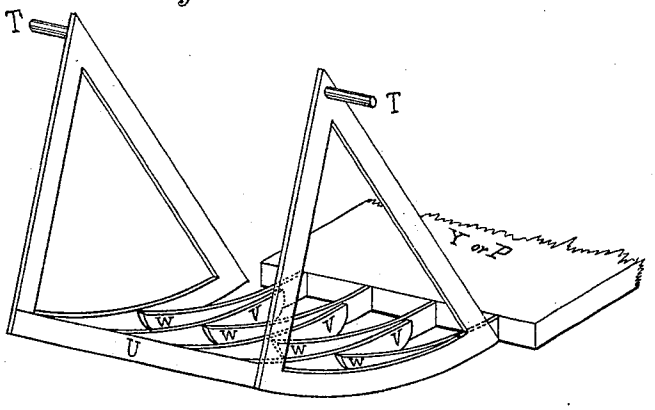


Fig. 4.



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UNITED STATES PATENT OFFICE.

OLIVER N. EATON, OF NEW YORK, N. Y.

ENDLESS PACKAGE CARRIER OR ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 252,931, dated January 31, 1882.

Application filed October 31, 1881. (No model.)

To all whom it may concern:

Be it known that I, OLIVER N. EATON, of the city of New York, in the county and State of New York, have invented a new and useful Endless Package Carrier or Elevator, of which the following is a specification.

The object of my invention is to provide suitable means for taking packages, bales, barrels, boxes, &c., from the holds of vessels or similar situations, continuously carrying them to their destination on the wharf or into the warehouse, and depositing them at such destination without dumping or otherwise disturbing their equilibrium or their contents during transit. To this purpose I have adapted parallel endless chains or ropes traveling on pulleys or guides suitably located, as hereinafter set forth, and carrying suspended between them one or more cradles capable of taking up, carrying, and setting down a load in the manner and with the construction hereinafter set forth at length. Such devices enable me to unload a vessel and deposit the load at its destination in a continuous delivery, thus losing no time in idle intervals, and without any disturbance or injury resulting from handling. The apparatus is adjustable to the varying circumstances of vessel, wharf, storage-warehouse, &c.

My apparatus and devices for accomplishing these objects are illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire apparatus. Fig. 2 is a front and Fig. 3 is a back elevation, and Fig. 4 is an enlarged perspective view of the carrying-cradle and its mode of operation.

Similar letters indicate similar parts throughout the several views.

A is the wharf, and B the vessel.

K K are standards to be placed in the hold of the vessel or a similar situation, and bearing the pulleys C C and D D.

L L are companion standards bearing the pulleys F F and acting to brace the standards K K, and thus form a rigid frame-work. These latter standards rest against the sides of the hatchway or any convenient place of attachment on the vessel's deck, and are respectively pivoted or jointed to the standards K K at R R, whereby the two sets of standards become adjustable, and may be lengthened or shortened by changing the relative location of the joint or pivot.

M M is a suitable frame-work bearing the pulleys E E, which are fitted with teeth or sprockets to engage and drive the endless chains or ropes O O in the direction indicated by the arrows in Fig. 1, and bearing also the motive gearing H H and G G. Power may be applied in the ordinary ways to either the upper or lower gear-wheels. This frame-work may be made movable by means of wheels, to accommodate any movement of the vessel or to facilitate removal or adjustment. Connecting these frame-works or structures in the vessel and on the wharf is another frame-work, I I, composed of parallel sides, and made extensible to suit the varying distances between the two end frames. This last frame-work is also pivoted at R R and S S, and may therefore be raised or lowered at either end—as, for instance, into the position indicated by the dotted lines in Fig. 1. This frame-work has bars Q Q, which bear suitable guides, J J, to support the carrying-cradles and relieve the strain or tension on the endless chains or ropes. These bars Q Q may be extended above to support an awning or covering to protect the goods during transit, or the whole structure may be inclosed for the purposes of complete protection. Friction and wear are prevented by rollers or friction-wheels, placed either in the guides or on the trunnions of the cradles. When these wheels are placed on the trunnions of the cradles they may be so located as to pass between and on the inside of the pulleys, and the guides may be brought out to accommodate them, as shown most clearly in Figs. 2 and 3. In this way the necessity of grooving the face of the pulleys to accommodate these wheels may be avoided. Upon the pulleys thus located the parallel endless chains or ropes O O travel in the manner illustrated, and may be lengthened or shortened by inserting or removing links or by adding or taking away lengths of rope, in order to suit the varying distances between the vessel and the wharf or warehouse. These companion chains or ropes draw during their travel carrying-cradles suspended between them, as shown in Figs. 1, 2, and 3, constructed as shown most clearly in Fig. 4. This cradle may be made of either wood or metal, or both, as best adapted to its uses accord-

ing to the judgment of the mechanic. It consists of two sides, here sector-like and open, having at their angular and upper extremities trunnions T T, adapted to bear in the chains or ropes and suspend like a pendulum the cradle and its load, and having at and connecting its opposite and lower extremities a bar, U, having laterally-projecting fingers or teeth V V, suited to bear a load, and yet allow the passage between of corresponding sets of fingers or teeth, W W, stationary at the points of removal and deposit.

The cradle N′ in Fig. 1 is shown in the act of taking up a load for transportation from the stationary platform Y at the point of removal, and the cradle N^2 is shown in the same figure as just depositing the load at its destination on the stationary platform or slide P, at the point of deposit.

The frame-work M M may be situated on the wharf or on any story of the storage-warehouse and the apparatus adjusted as indicated.

The manner of use and operation of this carrier or elevator is as follows: A package or bale, or more than one, constituting the load to be transported, is placed upon the slide X in the hold of the vessel, and slides down onto the platform Y across the intervening space, which is very small and only sufficient to permit the passage of the finger-bar of the cradle; or the load may be deposited directly on the platform Y. There it rests upon the fingers composing the platform until the arrival of a cradle, whose fingers, passing up between the fingers of the platform, take up and carry the load until the second platform, P, at the point of deposit or destination, is reached, whereon the load is left or deposited as the fingers of the cradle pass down between the fingers of this second platform. From this second platform the load may be removed by hand; or the platform may be declined, as shown in Fig. 1, whereupon the load will slide down out of the way to its place. Throughout its journey each cradle is self-righting or automatically adjustable to the perpendicular, so that the load maintains its equilibrium throughout transportation. This obviates the possibility of injury or disturbance to the load during transit. The load is also taken up and deposited without any jar or dumping, and this is another element of safety to the load. This operation is repeated, and the removal, carriage, and delivery become more or less continuous, according to the number of cradles and the rapidity of revolution.

The vessel may be loaded from the wharf or warehouse by reversing the direction of revolution, and the operation of the apparatus would be the same as in the opposite direction.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An endless traveling carrier or elevator, preferably portable and adjustable, composed of parallel endless chains or ropes, traveling upon properly located pulleys and bearing suspended between such chains or ropes, one or more carriers or cradles adapted to take up, carry, and deposit loads.

2. A movable carrying cradle self-adjusting to the perpendicular and having two sides, with means of suspension at their tops, and at and between their bottoms a connecting-bar, from which project laterally teeth or fingers suited to support a load and to permit the passage between of corresponding stationary sets of teeth or fingers in the taking up and depositing of the loads.

3. A method of removing and transporting loads, substantially as hereinbefore set forth, by placing the loads on a suitable platform, automatically removing and transporting them to their destination by and in movable carrying-cradles adapted to the purpose, and moved by and between parallel endless chains or ropes traveling on properly located pulleys, and automatically delivering such loads at their destination without dumping or otherwise disturbing or injuring them, all continuously.

OLIVER N. EATON.

Witnesses:
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