

No. 668,971.

Patented Feb. 26, 1901.

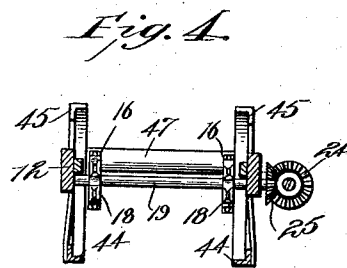
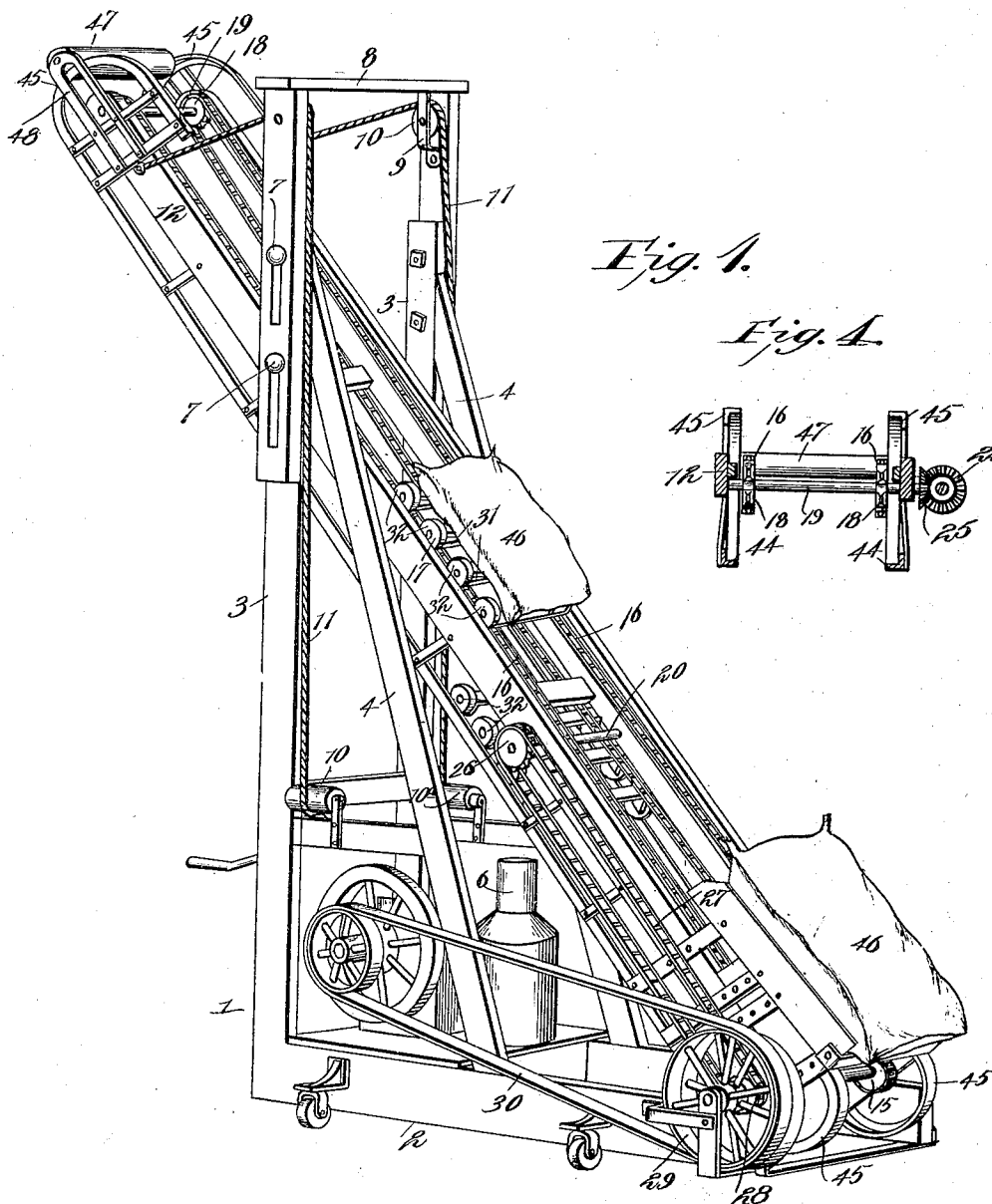
E. BROWN.

PORTABLE WAREHOUSE ELEVATOR.

(Application filed Apr. 3, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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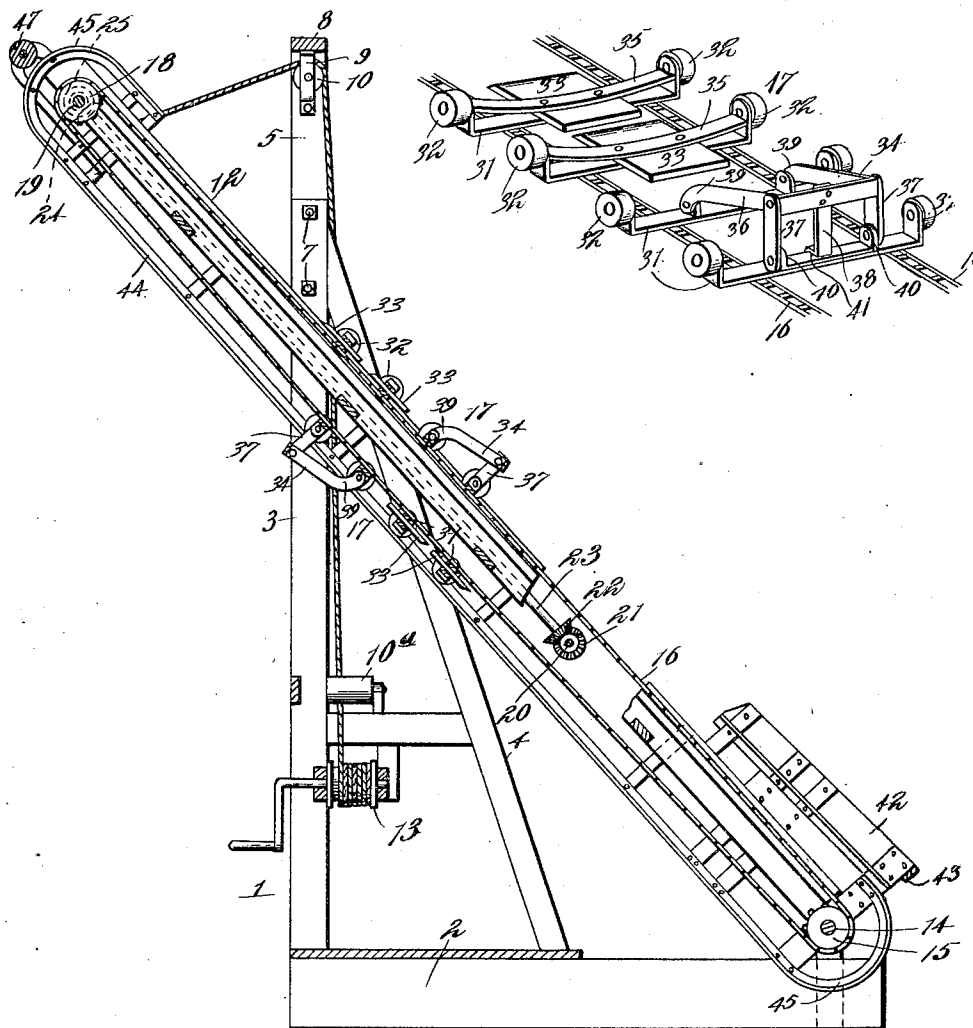
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2 Sheets—Sheet 2.

Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

EUGENE BROWN, OF COLFAX, WASHINGTON.

PORTABLE WAREHOUSE-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 668,971, dated February 26, 1901.

Application filed April 3, 1900. Serial No. 11,377. (No model.)

To all whom it may concern:

Be it known that I, EUGENE BROWN, a citizen of the United States, residing at Colfax, in the county of Whitman, State of Washington, have invented a new and useful Portable Warehouse-Elevator for Elevating all Commodities in Sacks, Bales, Boxes, Barrels, and other Packages, of which the following is a specification.

The invention relates to improvements in portable elevators.

The object of the present invention is to improve the construction of portable elevators and to provide one designed especially for use in warehouses for elevating commodities in sacks, bales, boxes, barrels, and other packages and adapted to be readily moved to the different portions of a warehouse and to be readily adjusted for delivering the goods to the desired point.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a portable elevator constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail perspective view of one of the cars. Fig. 4 is a transverse sectional view of the endless carrier.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a main frame composed of a horizontal portion 2 and a vertical rear portion 3, supported by inclined braces 4 and provided with an adjustable top 5, which is adapted to be raised and lowered to enable the elevator to be adjusted to the desired height and to permit the same to readily pass beams or other elevated obstructions. The base, which is mounted upon suitable casters or wheels, is composed of longitudinal side pieces and suitable connecting cross-pieces and is provided at the back with a platform, upon which is mounted a suitable engine 6 for operating the endless carrier of the elevator.

The upper portion or section 5 of the sup-

porting-frame is composed of vertical side pieces, which are longitudinally slotted for the reception of bolts 7 or other suitable fastening devices for securing the top or section at the desired adjustment, and the said slotted side pieces are connected by a horizontal top piece 8. The side pieces of the adjustable section or top of the supporting-frame have secured to their upper ends brackets 9, in which are mounted pulleys or sheaves 10, over which pass hoisting-ropes 11, secured at their upper ends to a pivoted frame 12 of an endless carrier. The lower ends of the ropes pass beneath lower pulleys or sheaves 10^a and are wound around a drum or winch 13, which is adapted to be operated to raise and lower the pivoted frame.

The pivoted frame 12 of the endless carrier is composed of longitudinal side pieces suitably connected and braced by cross-pieces, and the side pieces may be arranged any desired distance apart in constructing the pivoted frame to adapt it for elevating sacks, bale-hay, barrels, boxes, or other packages or material. The lower end of the frame 12 is pivoted on a transverse shaft 14, which also carries sprocket-wheels 15 for the reception of endless chains 16, and the latter are connected with a series of cars 17, which may be of any desired number. The endless sprocket-chains also pass around upper sprocket-wheels 18, mounted on a transverse shaft 19, which is located at the upper ends of the side bars of the pivoted frame. An intermediate transverse shaft 20 is journaled in suitable bearings of the sides of the pivoted frame and is connected at the right-hand side of the same by bevel-pinions 21 and 22 with the lower end of a longitudinal or line shaft 23, located on the exterior of the pivoted frame and extending to the upper end thereof. The upper end of the longitudinal or line shaft 23 is connected by upper bevel-pinions 24 and 25, secured, respectively, to the upper end of the longitudinal or line shaft and to the adjacent end of the top transverse shaft. The left-hand end of the intermediate transverse shaft carries a sprocket-wheel 26, which is connected by a sprocket-chain 27 with a lower sprocket-wheel 28 of the bottom shaft 14. This sprocket-gearing is located on the exterior of the pivoted

frame, at the left-hand side thereof, and the said bottom shaft 14 also carries a pulley 29, which is connected by a belt 30 with the engine 6; but any other suitable means may be employed for operating the endless carrier, and the adjustment of the pivoted frame does not interfere with the operation of the gearing for transmitting motion from the engine to the endless carrier. Any suitable means may be employed for tightening or adjusting the sprocket-chains, and the bearings may be provided with balls, rollers, or any other suitable antifriction devices.

The cars 17 are flexible and are provided with a series of axles 31, connected by the endless chains and provided with wheels 32. The axles are angularly bent at their ends, and all of them, with the exception of the rear one, are provided with rectangular plates or supports 33. The flexible catch 34 is mounted on the rear pair of axles, and the front pair are provided with curved straps or bars 35 to center the load on the car and prevent the same from coming in contact with the wheels. The catch 34, which forms a rest for the load, consists of a top frame 36, a pair of links 37, and a brace 38, and the top frame consists of a transverse rear bar and side bars, having their front ends 39 curved and hinged or pivoted to the axle in advance of the rearmost one. The links are pivoted at their upper ends to the side bars of the top frame 36 and are similarly connected to perforated ears 40 of the rear axle, such perforated ears being preferably formed by a strip of metal secured to the rear axle and having its terminals bent upward. The brace, which is fixed at its upper end to the transverse portion of the frame 36, is provided at its lower end with an angular bend, forming a step 41 and adapted to rest upon the rear axle, as clearly shown in Fig. 3.

The load is placed upon a frame or stand 42, constructed of any suitable material and adapted to hold the load in position for enabling the same to be automatically taken by the car. The frame or stand is composed of opposite sides connected at the back by a transverse portion 43 and secured to the pivoted frame by suitable bars or arms.

The flexible cars, which are adapted to elevate the packages or material, as clearly illustrated in Fig. 1 of the accompanying drawings, are adapted to pass around the ends of the pivoted frame, and they are guided by flanged rails 44, spaced from and connected with the bottom of the pivoted frame and having their end portions 45 curved upward and extending inward over the pivoted frame at the upper and lower ends thereof. These rails are connected by suitable transverse bars, which have their terminals extended upward and secured to the sides of the pivoted frame. The wheels of the cars roll upon the upper edges of the sides of the pivoted frame when the said cars are loaded and when they move upward, and the rails receive the

wheels when the cars arrive at the top of the pivoted frame. The sack 46 or other load will be projected over a top transverse roll 47 by the cars, and the attendants draw the sack over the rod, which greatly facilitates the removal of the load. The transverse roll is journaled in suitable bearings of brackets or supports 48, which project beyond the curved ends of the rails.

It will be seen that the portable warehouse-elevator is simple and comparatively inexpensive in construction, that it is adapted to be moved from one portion of a warehouse to another and to be raised and lowered for discharging the goods or material at the desired point, and that the flexible cars are adapted to take up the load automatically and similarly discharge it over the top roll, so that the operators may readily remove it from the carriers.

What I claim is—

1. A portable elevator comprising a frame having an adjustable top portion adapted to be raised and lowered to permit the elevator to pass obstructions, a sheave or pulley mounted on the top portion of the said frame, a pivoted frame mounted on the said frame and provided with an endless carrier, and a hoisting rope or cable passing over the said sheave or pulley and connected with the pivoted frame, substantially as described.

2. A portable elevator comprising a supporting-frame provided with a vertically-adjustable top portion, and having upper and lower sheaves or pulleys, the upper sheaves or pulleys being arranged on the adjustable top portion, a pivoted frame mounted on the supporting-frame and provided with an endless carrier, hoisting ropes or cables connected with the pivoted frame and passing over the upper sheaves or pulleys and under the lower sheaves or pulleys, and a windlass located beneath the lower sheaves or pulleys and connected with the ropes or cables, substantially as described.

3. A portable elevator comprising a supporting-frame, a pivoted frame mounted on the supporting-frame and provided with upper and lower shafts, an endless carrier arranged on the pivoted frame and connected with the said shafts, an intermediate transverse shaft located between the ends of the pivoted frame, a longitudinal shaft arranged on the exterior of the pivoted frame at one side thereof and connected by gearing with the upper and intermediate shafts, sprocket-gearing located at the other side of the pivoted frame and connecting the intermediate shaft with the lower shaft, and means for operating the lower shaft, substantially as described.

4. In an apparatus of the class described, the combination of a supporting-frame having a vertically-adjustable top portion adapted to be raised and lowered to permit the elevator to pass obstructions, a pivoted frame having an elevator or carrier, and hoisting mech-

anism adjustably connecting the pivoted frame with the vertically-adjustable portion of the supporting-frame, substantially as and for the purpose described.

5 5. In an apparatus of the class described, the combination of an inclined carrier-frame, endless chains mounted thereon, guides arranged at the ends of the frame, cars connected with the chains and arranged to be engaged by the guides, and a transverse roll located beyond the upper guides and adapted to receive the load as a car passing around the end of the frame, substantially as described.

15 6. In an apparatus of the class described, the combination of a frame, endless chains, a stand arranged at the bottom of the frame, and a flexible car secured to the chains and composed of sections and provided at its back with a device arranged to engage a load when the latter is placed upon the stand, substantially as described.

7. In an apparatus of the class described, a car comprising a series of flexibly-connected axles having wheels, supports carried by the axles and adapted to receive the load, curved bars arranged at the front portion of the car to center the load thereon, and a device arranged at the back of the car to engage the load and comprising side bars, and links pivotally connected with the side bars, substantially as described.

8. In an apparatus of the class described, a flexible car provided at its back with a device for engaging and supporting a load, said device comprising a frame pivoted at its front, links pivoted to the frame and to the car, and a brace connected with the frame and provided with a step or shoulder for engaging the car, substantially as described.

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Witnesses:

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