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2,106,878

PORTABLE ELEVATOR

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2 Sheets-Sheet 2

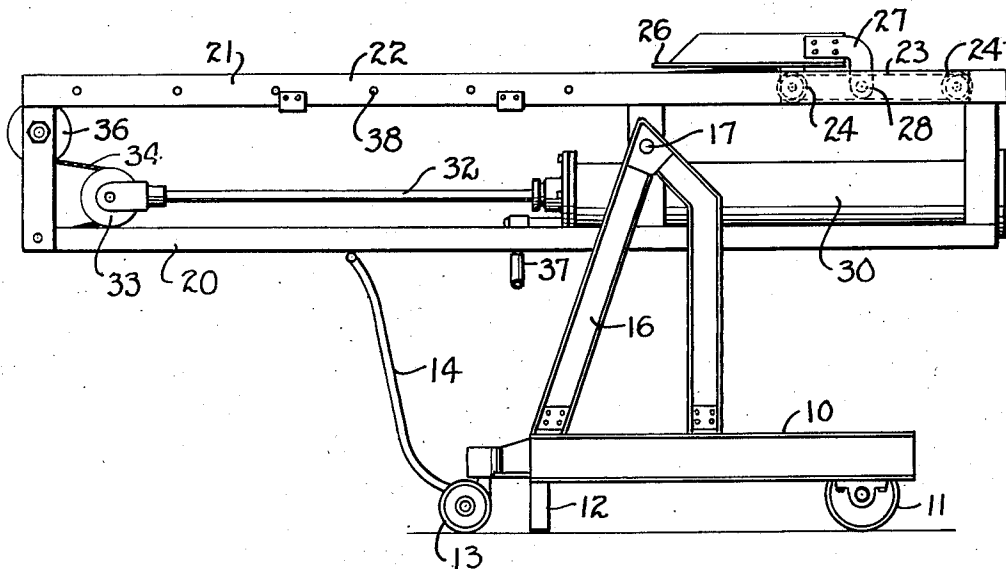


Fig. 5.

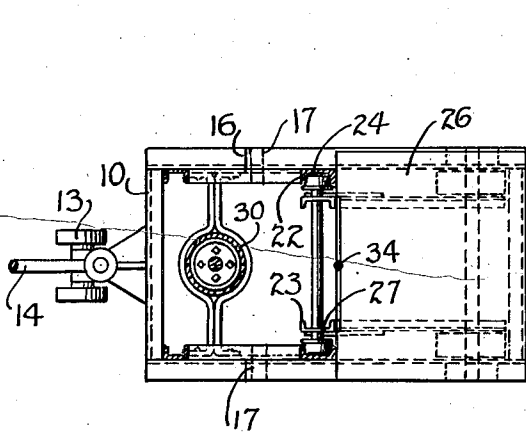


Fig. 3.

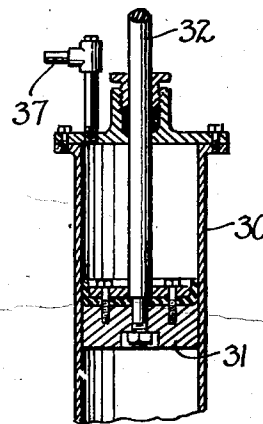


Fig. 4.

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PORTABLE ELEVATOR

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1 Claim. (Cl. 187—9)

The invention relates to a portable bale hoist, and is particularly directed to a hoist which may conveniently be collapsed to reduce the over-all height thereof so that it may be moved about.

5 An object of the invention is to provide a portable hoist in which the entire hoisting mechanism is carried on a movable base and is pivoted thereon near its center of gravity so that it may be operated in a vertical position to hoist articles, and may be tilted to a generally horizontal position to reduce the over-all height to permit passage under obstructions.

10 It is an object of the invention to provide a hoisting carriage adapted to be moved along a vertical trackway and having laterally extending platform pivotally secured thereto so that the platform may be folded to lie along the trackway.

15 It is another object of the invention to provide a hoisting device in which the entire elevator unit may be tilted to reduce the over-all height and wherein the extending platform is collapsible to further reduce the over-all height of the device.

20 Further objects and advantages will appear to one skilled in the art when the following description is considered in connection with the accompanying drawings wherein:

25 Fig. 1 is a side elevation of a hoist constructed in accordance with the invention and seen in operative position.

30 Fig. 2 is a front elevation of the device shown in Fig. 1.

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 1 and looking in the direction of the arrows.

35 Fig. 4 is a broken sectional view of a portion of the actuating cylinder.

Fig. 5 is a side elevation of the device shown as tilted and collapsed to provide the minimum over-all height.

40 As seen in Figs. 1 and 2 the device may be built upon a truck having a base 10 and wheels 11. The front wheels 13 are arranged on an axle which is in turn fulcrumed with the handle 14 so that the front end of the base may be raised and lowered by movement of the handle. In this manner the legs 12 may be raised or lowered depending on whether the truck is to be moved or remain stationary.

45 Extending upwardly from the base 10 and at either side thereof is a support 16 which is formed to receive a suitable pivot pin 17.

50 The truck and supports form a foundation for a hoisting mechanism such as is indicated generally at 20 which may be of any desired construction, but is shown here as including an elongated frame 21 which is pivotally supported on the pivot pins 17 of the supports 16. The frame 21 is of one piece construction and permanently assembled so that the joints may be riveted or welded as conditions may indicate. A very rigid and serviceable structure is thus obtained. Suitable trackways or guides such as 22 are formed on the frame 21, and in Fig. 3 are shown to be channel shaped members adapted to serve as longitudinal guides for the elevator carriage 23. The guide wheels 24 are mounted on the carriage 23 and travel within the channel members 22.

5 A hoisting platform 26 is pivoted to the carriage 23 and is adapted to support the loads being lifted. As seen in Fig. 1 this platform may be provided with suitable hinge members 27 which are in turn pivoted to the carriage 23 by means of the pins 28. This provides a platform which may be folded as seen in Fig. 5 to give the minimum height.

15 In order to raise and lower the carriage, platform, and load, any desired power source may be used. A cylinder 30 has been illustrated within which is the piston 31 fixed to one end of the piston rod 32. The other end of the piston rod is provided with a pulley 33 to receive the cable 34, one end of which is fixed to the frame 21 and the other end after passing over the pulley 36 is attached to the carriage 23. The pulley 36 is fixed on the top of the frame so that a straight line pull will be exerted on the carriage. Compressed air or pressure fluid may be admitted to and discharged from the cylinder 30 by means of the connection 37 and provides motive power for the piston to actuate the carriage. It will be seen that the carriage moves at substantially twice the speed of the piston due to the arrangement of pulleys.

20 When employed as an elevator or hoist the apparatus is positioned as seen in Figs. 1 and 2, but when it is desired to move the device from place to place it may be tilted to the position shown in Fig. 5 so as to pass through doorways, under trolley lines, over rough ground, etc. This allows a material reduction in the over-all height of the device when being moved, yet does not require any alteration, change, or adjustment of the various parts. By making the frame 21 of one piece and tilting the entire frame the rigidity and strength of the frame work are not impaired; joints in the trackway can be eliminated; and hinges and joints in the frame are eliminated. By having the mechanism practically balanced, very little effort will be required to tilt the frame

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when the device is to be moved. Other advantages are thought to be obvious.

Some additional clearance has been gained by providing a folding platform which may be collapsed as seen in Fig. 5.

5 The load being hoisted bears on the platform 26 and gives a sufficient clockwise movement about the axis 17 as seen in Fig. 1, to make a lock or latch unnecessary although one may be provided to hold the frame in a vertical position.

10 A number of holes 38 along the trackways 22 are spaced at desired intervals to receive a stop or bar 39 which may be passed through any pair of holes to give a limit to the upward movement of the carriage. The stop serves two distinct purposes for it assures the operator that the platform 26 will stop at the predetermined height each time it is elevated, it being only necessary for the stop to be placed at the required point.

15 Further, when the actuating pressure medium is a compressed gas the stop keeps the carriage from moving upwardly upon removal of the load. It will be seen that the invention provides a conveniently transportable cotton bale hoist or 25 stacker which is arranged so that by a simple tilting operation the over-all height is materially reduced to clear obstructions, and is further constructed to give additional clearance by the folding of the hoisting platform. These tilting and 30 folding operations may be performed without disturbing the hoisting mechanism, and since the entire trackway and allied structure remains unimpaired the apparatus is easily and quickly collapsed, moved and set up again. No adjustments

are necessary and therefore an economical machine is supplied which is adapted for very efficient use.

The invention contemplates broadly the provision of a portable hoist having a movable base and a unitary hoisting apparatus tiltably mounted thereon whereby the frame or mast of the hoist is in a substantially vertical position during hoisting operations, but may be tilted on the pivots to a more or less horizontal position for passing under obstructions, etc., and in those cases where the elevator platform extends upwardly from the tilted apparatus the invention provides for folding the platform to further reduce the over-all height of the device.

What is claimed is:

A portable hoist including a frame, a trackway longitudinally of said frame, a platform adapted for movement along the trackway, a motor unit comprising a vertically movable plunger in a cylinder mounted in the lower end of said frame, a sheave attached to said motor unit, means for actuating said motor unit to move the sheave longitudinally of said frame, a pulley in the upper end of said frame, a cable attached to the upper end of said frame and having its opposite end attached to said carriage, said cable passing from the carriage over said pulley and through said sheave, and adjustable stop means on said trackway to limit the upward movement of said carriage, whereby the position of said carriage will not be altered by removal of the load therefrom.

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