Oct. 10, 1950 E. P. VON DOEHREN 2,525,006

HYDRAULIC HOIST ELEVATOR

Filed June 21, 1948 3 Sheets-Sheet 1

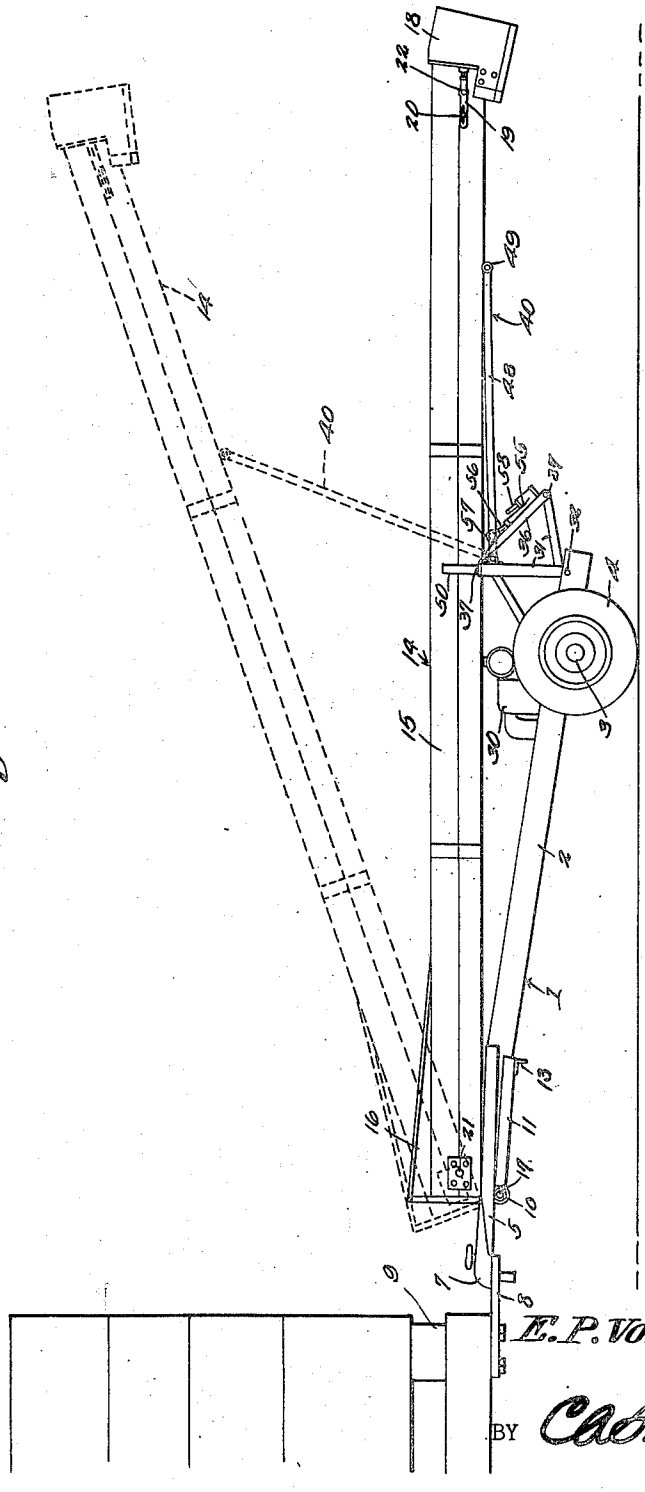


Fig. 1.

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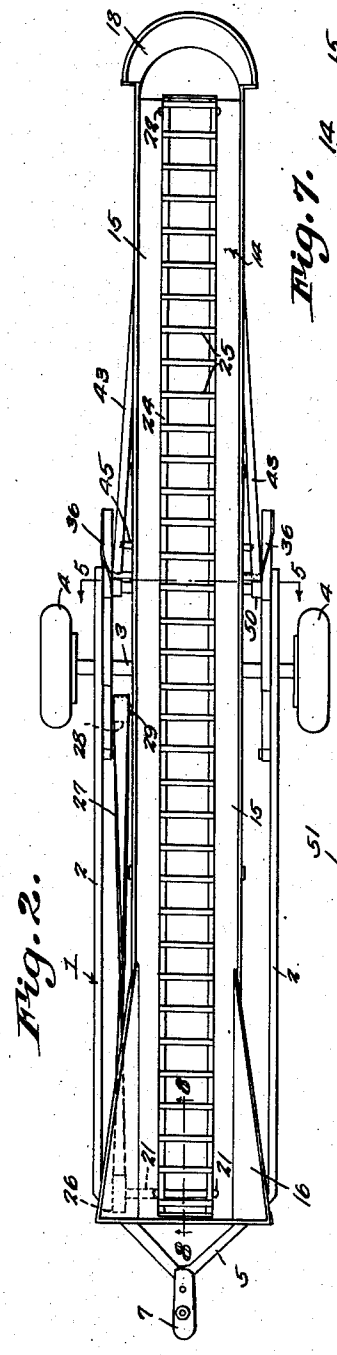


Fig. 2.

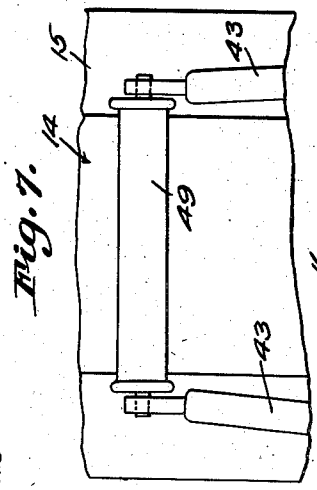


Fig. 7.

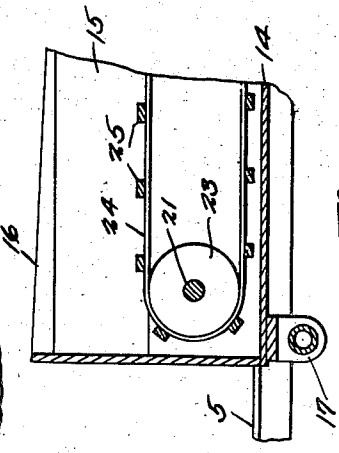


Fig. 8.

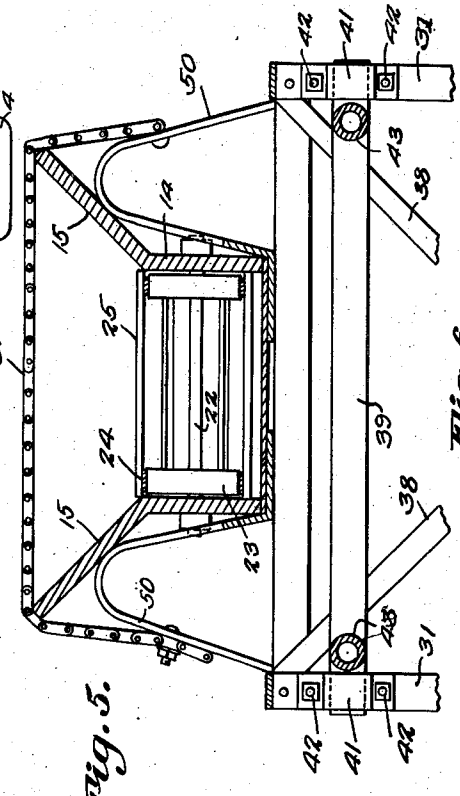


Fig. 5.

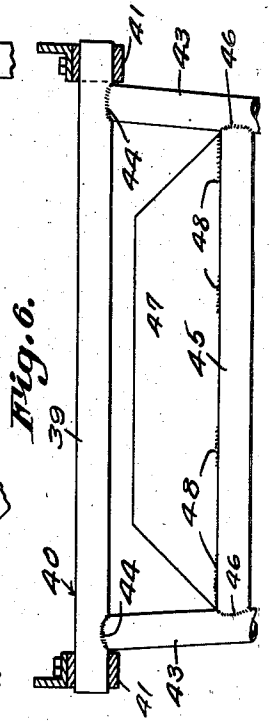


Fig. 6.

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Fig. 3.

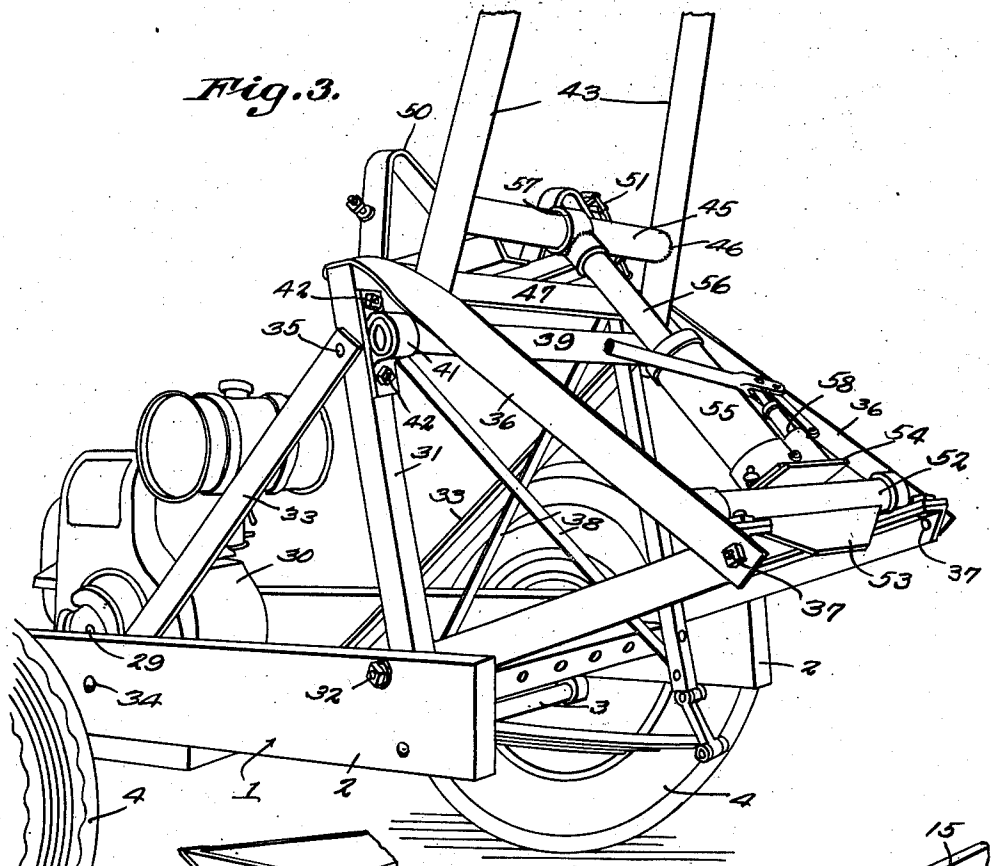
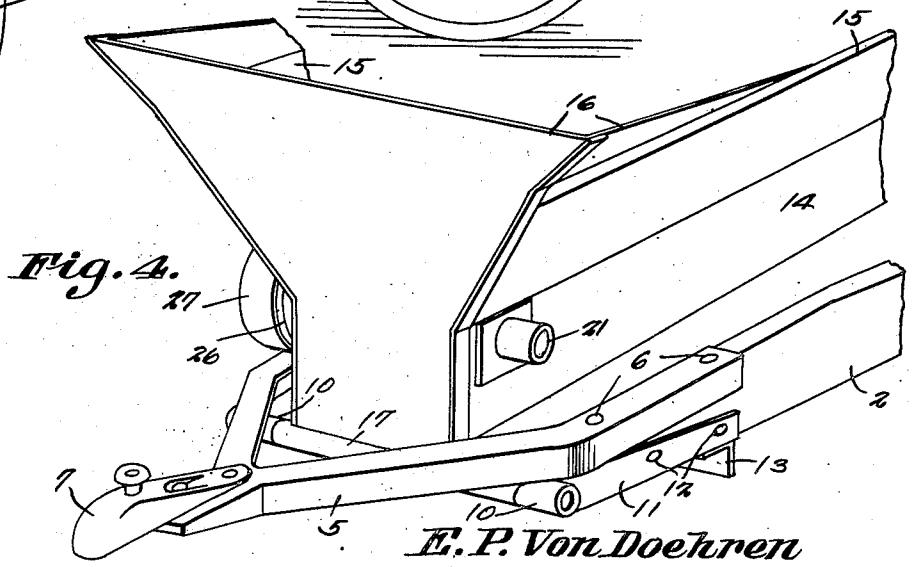


Fig. 4.



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UNITED STATES PATENT OFFICE

2,525,006

HYDRAULIC HOIST ELEVATOR

Edward P. Von Doehren, Fredericksburg, Iowa

Application June 21, 1948, Serial No. 34,161

1 Claim. (Cl. 198—122)

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The invention relates to improvements in hydraulic hoist elevator.

An object of the invention is to provide an improved portable hydraulic hoist elevator.

Another object of the invention is to provide an improved portable wheel supported hydraulic hoist elevator which may be raised and lowered by means of a hydraulic hoist associated therewith.

A further object of the invention is to provide an improved portable wheel supported hydraulic hoist elevator, together with an endless conveyor mounted in said elevator, and a prime mover for operating said endless conveyor.

A still further object of the invention is to provide an improved portable wheel supported elevator having an endless conveyor therein, and a hydraulic hoist connected to said elevator for raising and lowering the same, said device being highly efficient in operation and relatively inexpensive to manufacture and produce.

Other objects will appear as the description proceeds.

In the accompanying drawings which form a part of this application:

Figure 1 is a side elevation of the improved hydraulic hoist elevator shown in lowered position attached to the rear of a truck, and said elevator being shown in dotted lines in raised position.

Fig. 2 is a plan view looking down upon the improved hydraulic hoist elevator.

Fig. 3 is an enlarged perspective view of the hydraulic hoist mechanism for the portable wheel supported elevator.

Fig. 4 is an enlarged perspective view of the front end of the elevator showing its pivotal support and hitch mechanism for attaching the same to the rear end of a truck or trailer for transporting from place to place.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is an enlarged detail view of the elevator raising and lowering boom frame, showing the reinforcing truss therefor.

Fig. 7 is a bottom plan view of the outer end of the elevator raising and lowering boom showing the flanged bearing wheel or roller supported thereby for operatively engaging the under surface of said elevator.

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 2.

Like characters of reference are used throughout the following specification and the accompanying drawings to designate corresponding parts.

In carrying out the invention, there is shown

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and provided an improved form and construction of hydraulic hoist elevator including a main supporting frame 1 comprising spaced parallel longitudinally extending frame members 2, the same being provided with a transverse axle 3 adjacent its rear end upon which the supporting wheels 4 are mounted.

A substantially V-shape angle iron tongue 5 is bolted at 6 to the front ends of the frame members 2 and extends forwardly thereof, and supports the coupling hitch 7 for attaching to a hitch bar 8 on a truck or tractor 9 when the elevator is to be moved from one location to another location.

Transversely extending bearing tubes 10 are disposed at the front ends of the frame members 2, and are provided with the rearwardly extending attaching arms 11 which are affixed to the sides of the frame members 2 by means of the bolts 12. A transversely extending reinforcing angle iron plate 13 is disposed beneath and secured to the frame members 2, and may be formed integrally with the attaching arms 11 if desired.

The elevator 14 is substantially U-shape in cross section and is of any desired length, being provided along its opposite sides with the upwardly and outwardly extending guard rails 15. The front end of the elevator 14 is built up by a U-shape grain flap or guard 16. A hinge pintle 17 is secured to the lower front end of the elevator 14 and is received in the transversely extending bearing tubes 10, for permitting the rear end of the elevator 14 to be raised or lowered by means herein more fully described.

A tubular grain discharge spout 18 is suitably supported at the rear end of the elevator 14. An adjusting link 19 is provided at the outer end of the elevator 14 and cooperates with the axle 22 and adjustment nut 20 for tightening the endless conveyor hereinafter described.

Transversely extending axles 21 and 22 are mounted at the front and rear ends of the elevator 14, and support the pulley wheels 23 upon which the endless conveyor belt 24 with its spaced transverse cleats 25 is supported. The axle 21 is extended laterally of the elevator 14 and supports the driving pulley 26 over which the front end of the driving belt 27 is passed. The rear end of the belt 27 extends over a pulley 28 supported upon the shaft 29 of a small prime mover such as a gasoline engine 30 mounted between and at the rear ends of the frame members 2, thus providing the power for driving the endless conveyor belt 24 positioned within the elevator 14.

A substantially L-shape elevating boom sup-

porting frame 31 is supported between the rear ends of the frame members 2, and is preferably formed of parallel extending angle iron construction, being secured to said frame members 2 by the bolts 32. Metal bracing bars 33 are secured at 34 and 35 respectively to the frame members 2 and the upper ends of the pair of angle iron members forming the L-shape boom supporting frame 31.

Reinforcing straps 36 are secured between the extremities of the L-shape frame 31, being fastened by the bolts 37. Also crossed bracing strips 38 are secured between the upright portions of the frame 31.

The base or cross members 39 of the boom 40 are pivotally mounted in the bracket bearings 41 secured by the bolts 42 to the upper ends of the upright portions of the frame 31, and support the outwardly extending arms 43 of the boom, which are welded at 44 in position. A cross member 45 is welded at 46 between the boom arms 43, and a transversely extending truss plate 47 is welded at 48 to said cross members 45.

A flanged roller 49 is rotatably supported between the outer ends of the boom arms 43 and is adapted to support and have rolling engagement with the bottom surface of the elevator 14 as it is raised and lowered.

Inverted U-shape supporting cradle frames 50 are secured to the upper end of the upright portions of the frame 31 and provide a support for the elevator 14 when in lowered position. A chain 51 will be secured across the elevator 14 when in lowered position to lock the same in fixed position while the elevator is being moved from one location to another location.

A fixed base cross member 52 is secured transversely of the ends of the base portions of the frame 31, and is reinforced by the truss plate 53, and is further provided with the hydraulic jack supporting plate 54, upon which the hydraulic jack 55 is securely fixed. The outer end of the jack piston 56 supports a band or sleeve 57 which is disposed about the cross member 45 connected between the boom arms 43, whereby when the pump 58 of the hydraulic jack 55 is operated, the boom arms 43 will be moved upwardly to raise the elevator 14. When the fluid in the hydraulic jack 55 is released from pressure, the elevator 14 will move by gravity to the lowered position.

While the preferred embodiment of the instant invention has been illustrated and described, it will be understood that it is not intended to limit the scope of the invention thereto, as many minor changes in detail of construction may be resorted to without departure from the spirit of the invention.

Having thus described my invention what I claims as new and desire to secure by Letters Patent of the United States is:

In a hydraulic hoist elevator, a wheel-supported main frame, an elevator having a central longitudinally disposed depressed portion, pivotally connected to the front end of the frame, an endless conveyor operating in said depressed portion of the elevator, an auxiliary jack frame secured at one end of the main frame, said auxiliary jack frame embodying triangular end sections including spaced vertical bars and spaced forwardly extended bars, straps connecting the vertical bars and forwardly extended bars, securing the vertical bars and forwardly extended bars together, a pivoted cross bar connecting said vertical bars, a pivoted cross bar connecting the forwardly extended bars, a hydraulic jack including a piston rod, mounted on the latter cross bar, a boom including arms connected to the first-mentioned cross bar, a flanged roller connecting the free ends of the arms of the boom, said flanged roller adapted to move over the bottom of the depressed portion of the elevator as the boom swings vertically, the piston rod of the jack being connected to a cross member of the boom, whereby said boom is operated raising or lowering said elevator.

EDWARD P. VON DOEHREN.

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