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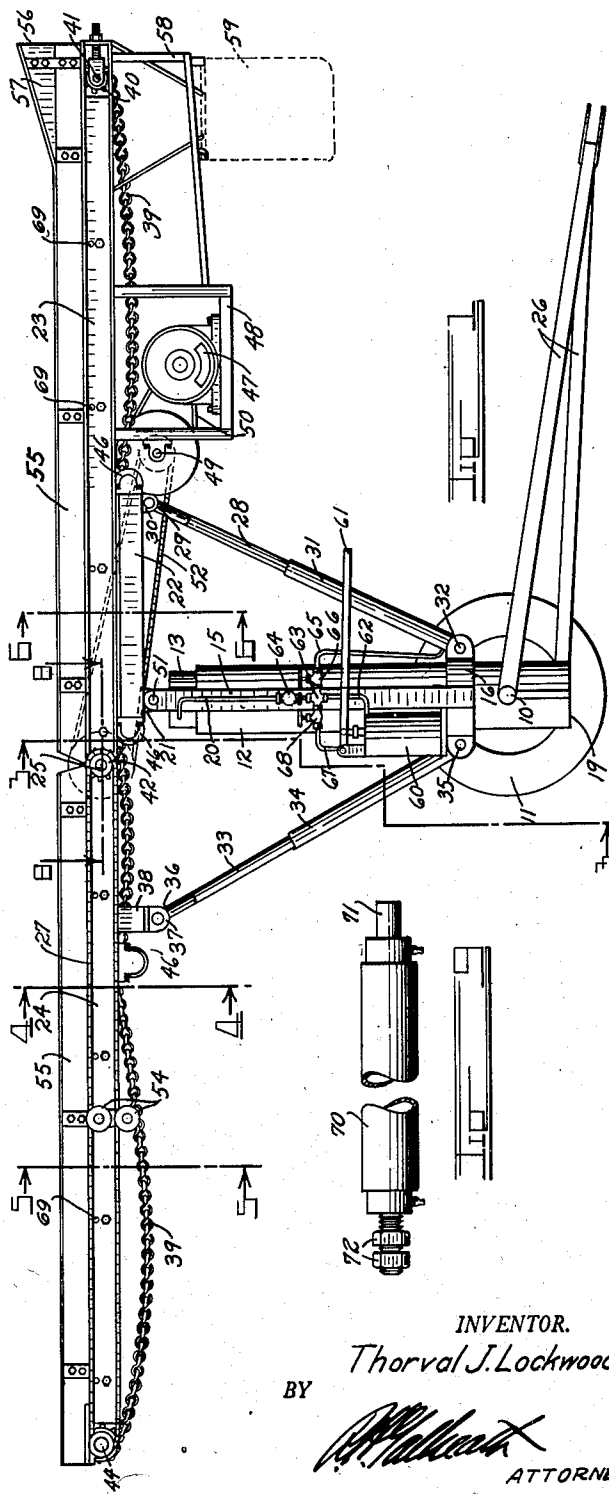
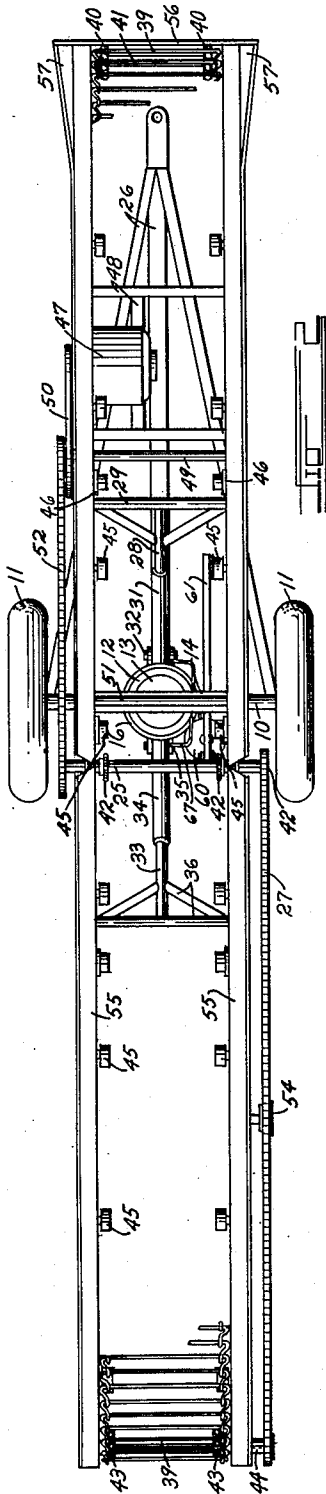
T. J. LOCKWOOD

2,501,448

POTATO ELEVATOR

Filed March 18, 1948

2 Sheets-Sheet 1



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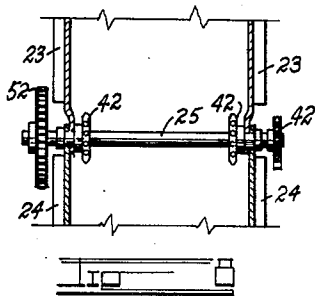
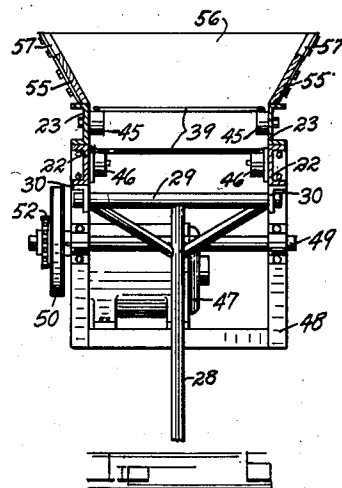
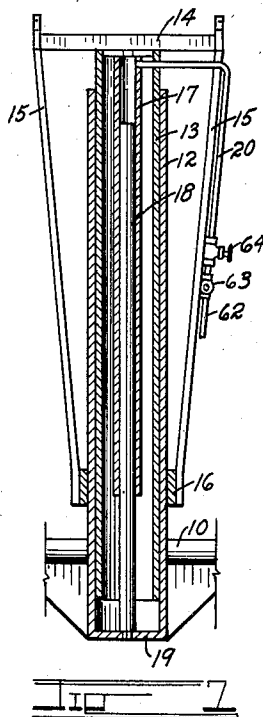
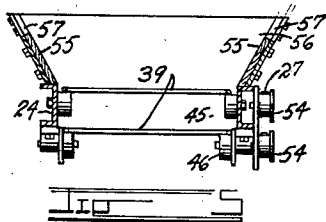
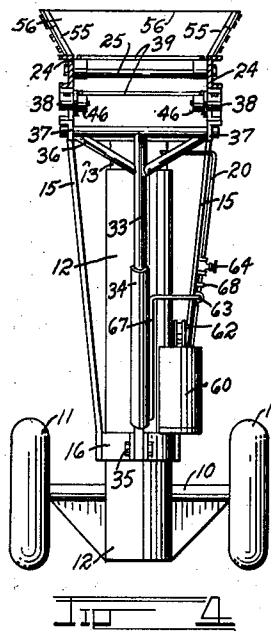
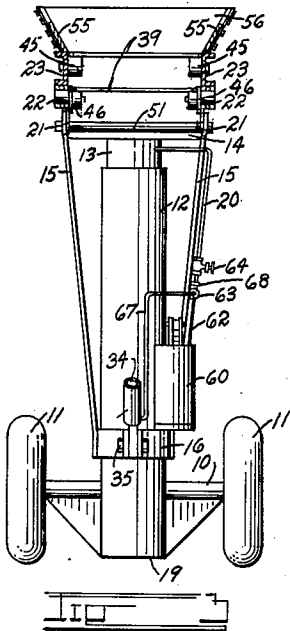
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POTATO ELEVATOR

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2 Claims. (Cl. 198—233)

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This invention relates to a loading conveyor, and while more particularly designed for handling potatoes it could be used wherever it is desired to elevate, pile and load loose articles. The principal object of the invention is to provide a portable conveyor and elevator which can be quickly and easily adjusted by means of fluid pressure to any desired height or incline and which may be rotated about a vertical axis to accommodate the requirements of any desired job such as loading potatoes onto trucks or cars or into piles or into sacks.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawings:

Fig. 1 is a side elevation of the improved loading conveyor illustrating in broken line various positions in which it may be placed;

Fig. 2 is a plan view thereof;

Figs. 3, 4, 5 and 6 are vertical cross sections through the conveyor taken on the lines 3—3, 4—4, 5—5, and 6—6, respectively, Fig. 1;

Fig. 7 is a detail vertical section taken on the line 7—7, Fig. 1;

Fig. 8 is a detail horizontal section through a supporting post upon which the improved conveyor is carried 4—4, Fig. 1.

Fig. 9 is a detail view of a conveyor roller which may be used in the improved potato elevator, if desired.

In Fig. 2 the bar chain employed in the improved conveyor is broken away to reveal the construction therebelow.

The improved elevating conveyor is carried on an axle 10 supported on two rubber-tired wheels 11. A tongue frame 26 is fixed to and projects forwardly from the axle 10. A tubular outer post 12 having a closed bottom plate 19 is fixedly mounted on the axle 10 so as to arise vertically therefrom when the tongue frame is resting on the floor.

An inner post 13 is telescopically mounted within the outer post 12. The inner post 13 carries a cross beam 14 which is welded or otherwise fixedly secured across the top of the inner post 13 to form a T-shaped head thereon. A brace rod 15 extends downwardly from each extremity of the beam 14 to a sliding collar 16 which surrounds the outer post 12 and is vertically movable therealong.

The inner post 13 may be elevated vertically in the outer post 12 by means of a hydraulic cylinder

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17, which is secured to and extends downwardly from the cross beam 14 within the inner post 13. The cylinder 17 is slidably mounted on a plunger 18 which is secured to the bottom 19 in the outer post 12. Fluid pressure can be conducted to the cylinder 17 from any suitable source of pressure through a pressure tube 20.

It can be seen that fluid entering the cylinder 17 will lift the latter on the plunger 18, causing the inner post 13 to elevate relative to the outer post 12.

The upper extremities of the brace 15 extend above the cross bar 14 and are drilled to receive a hinge shaft 51 by means of which they are hinged to hinge ears 21 extending from two channel frame members 22. The frame members 22 are secured to the bottoms of a pair of first conveyor beams 23 which are mounted in parallel relation to form the sides of a first conveyor section, extending to the right in Fig. 1.

The upper extremity of the first conveyor section carries a hinge shaft 25 from which a pair of second conveyor beams 24 hingedly extend to form the sides of a second conveyor section which is shown extending to the left in Fig. 1.

The outer extremity of the first conveyor section can be raised by means of a hydraulic plunger 28 which carries at its upper extremity a T-shaped head frame 29 which is rotatably mounted in ears 30 formed on the extremities of the frame members 22. The plunger 28 operates in a hydraulic cylinder 31, the lower extremity of which is hingedly mounted on a hinge pin 32 carried by the sliding frame 16.

The second conveyor section can be raised and lowered by means of a second hydraulic plunger 33 which is slidable within a hydraulic cylinder 34 extending from a hinge bolt 35 on the sliding collar 16. The plunger 33 extends upwardly to a T-head bar 36 which is rotatably mounted in hinge bearings 37 carried by bearing blocks 38 from the second conveyor beams 27.

It can be seen that fluid entering the cylinder 17 will lift the latter on the plunger 18 causing the inner post 13 to elevate in the outer post 12.

A take-up shaft 41 is adjustably mounted between the beams 23 of the first conveyor section at the outer extremity thereof. The take-up shaft carries idler sprockets 40. A pair of chain sprockets 42 are mounted on the hinge shaft 25. A drive shaft 44 is rotatably mounted between the extremities of the beams 24 of the second conveyor section and carries a pair of drive sprockets 43. An endless bar chain 39 is trained around the sprockets 40 and 43, the upper reach of the chain being supported by the sprockets 42.

The upper reach of the chain 39 is supported intermediate the shafts 41, 25, and 43 by means of rubber-tired idler rollers 45 mounted on the inner faces of the beams 23 and 24. The return

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reaches of the chain 39 are supported upon flanged supporting rollers 46, there being one of the supporting rollers 46 mounted at each extremity of each frame member 22 and others beneath each of the beams 24.

The shaft 25 is driven from any suitable driving motor 47 carried in a motor frame 48 below the beams 23. The motor 47 drives a countershaft 49 mounted on the motor frame 48 through the medium of V-belts 50. The counter-shaft 49 drives the shaft 45 through the medium of a drive chain 52. The power from the shaft 25 is communicated directly to the bar chain 39 by means of the sprockets 42 and is also communicated to the drive shaft 44 through the medium of a transmission chain 53, extending between suitable sprockets on the shafts 24 and 45, respectively. The slack in the chain 53 may be supported by means of suitable idler rollers 54 mounted on the outside of one of the beams 24. The rotation of the motor 47 is such as to drive the upper reach of the chain 39 to the left in Fig. 1.

Each of the beams 23 and 24 carries a side board 55. The side boards are inclined outwardly from each other to form a trough over the bar chain 39. An end board 56 extends across the extremity of the first conveyor section and the latter is provided with triangular raised sides 57 to form a receiving hopper at the extremity of the first conveyor section. A bag holding frame 58 is supported below the receiving hopper to receive any suitable bag 59.

Let us assume that it is desired to load the potatoes into an elevated truck body. The hydraulic plunger 33 is adjusted to place the second conveyor section over the truck body. The hydraulic plunger is then adjusted to place the desired incline in the second conveyor section. The plunger 28 is then adjusted to lower the receiving hopper to a convenient position to be loaded.

As the potatoes are placed in the hopper the dirt, clods and other debris will fall through the bars of the chain 39 into the bag 59 where it can be conveniently collected. The potatoes will then be elevated by the chain 39 over the shaft 25 and thence delivered over the shaft 44.

Fluid pressure may be applied to the three hydraulic cylinders 17, 31 and 34 in any desired manner. One means for furnishing this pressure is illustrated in the drawings and consists of a hydraulic pump 60 which is manually actuated by means of a pump handle 61. Fluid is conducted from the pump 60 through a supply conduit 62 to a distributing fitting 63. An elevating valve 64 connects the pressure tube 20 to the fitting 63. A second pressure tube 65 controlled by a second valve 66 leads from the fitting 63 to the hydraulic cylinder 31. A third pressure tube 67 controlled by a third valve 68 leads from the fitting 63 to the hydraulic cylinder 34. By manipulation of the pump handle 61 and the three valves 64, 66 and 68 the entire conveyor can be simultaneously raised or lowered or either conveyor section can be swung upwardly and downwardly to any desired position.

It will be noted that the conveyor beams 23 and 24 are provided with holes 69, there being one of the holes 69 above the axle mounting of each of the idler rollers 45. The purpose of these holes is to support rollers 70, see Fig. 1, between the conveyor beams in cases where it is desired to use an endless belt instead of a bar chain. The rollers 70 are provided with mounting studs 71 which may be inserted in the holes 69 in one

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conveyor beam 23, and with lock nuts 72 to lock the rollers in the holes 69 of the opposite conveyor beam 23.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A portable loading conveyor comprising: a wheeled frame; a first tubular post section rising from said frame; a second tubular post section slidable within said first tubular post section and extending thereabove; two conveyor frames; means hingedly mounting the adjacent extremities of said two conveyor frames together on said second post section; an endless conveyor element extending about both conveyor frames and over said post sections; a sliding sleeve about said first post section; means supporting said sleeve from said second post section; hydraulic jacks extending from said sleeve to each of said conveyor frames; a third hydraulic jack connected between said first and second post sections; and means for selectively extending any of said jacks hydraulically.

2. A portable loading conveyor comprising: an axle; wheels supporting said axle; a tongue frame secured to and projecting forwardly from said axle and adapted to rest upon the floor; a tubular outer post affixed to and positioned to rise vertically from said axle when said tongue frame is resting on the floor; an inner post telescopically mounted within said outer post and projecting upwardly therefrom; a cross beam secured to and extending across the top of said inner post to form a T-head thereon; a brace rod extending downwardly from each extremity of said cross beam; a collar surrounding said tubular outer post, said collar being secured to and suspended by said brace rods so that it will be moved vertically on said outer post in consequence of the vertical movements of the inner post therein; a hinge shaft supported from said cross beam and extending parallel thereto; a first conveyor frame hingedly mounted on said hinge shaft and extending outwardly and downwardly therefrom; a sprocket shaft rotatably mounted at each extremity of said first conveyor frame; a second conveyor frame hingedly mounted at its one extremity on the sprocket shaft at the upper extremity of the first conveyor frame; a third sprocket shaft at the free extremity of the second conveyor frame; an endless conveyor trained about all three sprocket shafts; a hydraulically expansible brace extending from said collar to each of said conveyor frames; a hydraulically expansible jack positioned to lift the inner post in the tubular outer post; and means for supplying hydraulic fluid to said expansible braces and said jack.

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