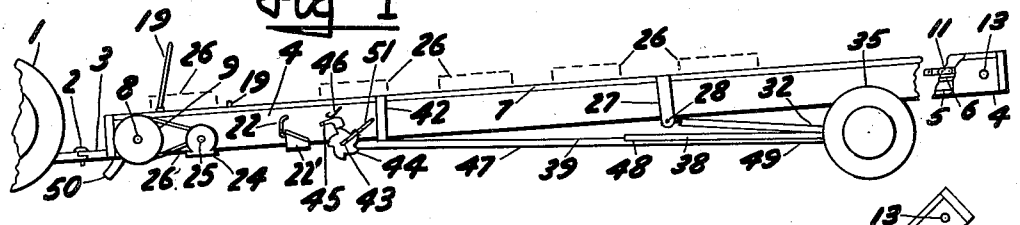
Aug. 3, 1948. L. A. GRAF 2,446,472

ADAPTABLE CONVEYER

Filed March 5, 1945

Fig 1



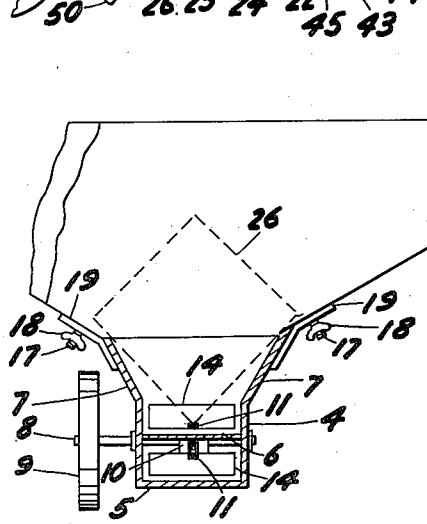


Fig 3

Fig 2

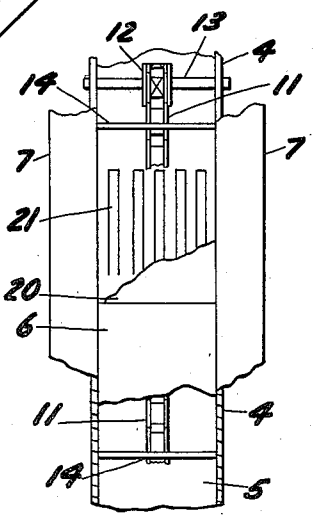


Fig 4

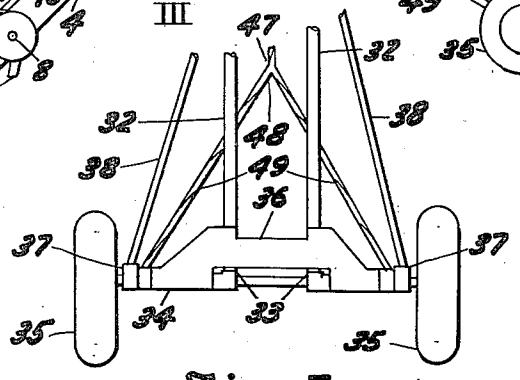


Fig 5

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ADAPTABLE CONVEYER

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1 Claim. (Cl. 209—241)

1

This invention relates to handling bulk and package materials as a continuous process, whether laterally or for elevation or descent.

This invention has utility when incorporated in a power actuated endless conveyor or flight providing device in conjunction with a mounting and directing carrier trough therefor, readily portable for multiple ranges of set-up and use.

Referring to the drawings:

Fig. 1 is a side elevation, with parts broken away, of an embodiment of the unit connected to a tractor for shifting its location for use; while also disclosing a position for use as a conveyor either toward or from the haulage means or tractor;

Fig. 2 is a side elevation of the device in an adjusted elevation position;

Fig. 3 is a fragmentary view on the line III—III Fig. 2, showing the hopper as mounted on the conveyor;

Fig. 4 is a fragmentary plan view of the upper portion of the conveyor and trough therefor, showing the grid or screen for taking out fines, or say shelled corn, when ear corn be the material elevated; and

Fig. 5 is a fragmentary view from the line V—V, Fig. 2, showing the carrier mounting for the device.

A tractor 1 is shown provided with a haulage means or hitch 2 for a trailing connection 3 to a trough 4. The trough 4 has a bottom floor 5 and parallel thereto an intermediate floor 6. From above the floor 6, the trough 4 has flaring side wall or guide portions 7, desirably of an outward flare of approximately 30° from the upward direction of the trough sides.

Adjacent one end of the trough 4 is a shaft 8 just at or below the level of the floor 6. Outward from the trough 4, this shaft 8 has fixed therewith a flat face driving pulley 9.

Fixed with the shaft 8 medially of the trough 4 is a sprocket wheel 10 about which extends a sprocket chain 11 with a reach upward therefrom over the floor 6 to pass about a sprocket wheel 12 on shaft 13 near the remote or upper end of the trough 4. Therefrom the chain 11 has a downward reach in the trough box formed between the floors 6, 5, to the sprocket wheel 10. At intervals, fixed with the chain 11, are transverse plates or flights 14 adapted to ride in the trough above the floor 6 to shift material therealong. The lower or reverse reach of the chain 11, has the flights 14 move the material to be conveyed over the floor 5. Say from a power take-off of a tractor, a belt 15 may drive the pulley 9. Clockwise direction of rotation of the pulley 9 (Fig. 2) would cause the unit to be operated as an elevator, while the reverse direction of drive would control descent, or the load on the pull reach of the chain 11.

2

A flare hopper 16 may have threaded stems 17 to be engaged by wing nuts 18 in assembling the hopper 16 with brackets 19 from the flare side wall portions 7 of the trough 4 near an end of the trough, thereby readily to direct loose bulk material into the trough on the floor 6.

In the event the transport items be of dimension, as boxes, crates, or bales, the hopper 16 is surplusage and desirably is removed. Applicant has found efficient directing and propulsion of the rectangular objects is achieved by the flare sides 7 providing slight extent for rubbing contact, and with a corner to be in the trough for positive flight engagement therewith.

Frequently the dumping of bulk material in the hopper 16 may include fines, which it may not be desirable to discharge with the conveyed material. With this purpose in view, a removable floor section 20 (Fig. 4) near the upper end of the trough 4, exposes a grid or screen 21 in the floor 6, so that as the flights 14 urge the elevated material, say ear corn thereover, any shelled portions of the corn may pass thru the grid 21 to the floor 5. The return course of the flights 14 over the floor 5 may then, at the release of a hook 22, for U-shaped section 22' to hang downward from the floor 5 as a discharge spout to collect the shelled corn in a bag or basket 23.

A connection or mounting 24 on the trough 4 may be for a prime mover or electric motor 25 having a V-belt therefrom as a speed reduction connection to the pulley 9. In this set-up, electric power line connection may be made in wide ranges of placement, as about a barn or other agricultural buildings. Transporting of bales 26, or other materials is conveniently cared for.

Trough embracing bracket 27, is shown with pivotal connection 28 with rods 29 having openings 30 to receive pins 31 of tubular sections 32, having hinge connections 33 with axle bracket 34 of ground wheels 35. In addition to this adjustable telescopic section link structure from the axle bracket 34, which bracket 34 provides a seat 36 for the trough 4 when in approximately horizontal position, hinge connections 37 mount converging tubular sections 38 swingably to receive telescopically therein rod sections 39. Pins 40 in the sections 38 may enter holes 41 in the rods 39 and adjust the spacing of the axle bracket 34 from trough bracket 42 with which the rods 39

are pivoted. The bracket 42 is spaced from the bracket 27. Along the trough 4 still farther from the bracket 27 and near the bracket 42 is a shaft 43 having a ratchet wheel 44, normally engaged by a pawl 45 as thrown by a spring 46. The shaft 43 as fixed with the trough 4, has therefrom a cable 47 to a branch 48 with cable sections 49 diverging therefrom to the axle bracket 34.

When the trough 4 be in the saddle or seat 36, the operator who desires to use the unit as an elevator, may lift the trough 4 at the end carrying the shaft 13 to have the rods 29 pulled out of the tubes 32 a desired distance, when the pins 31 may be inserted to lock for such adjusted set-up. This lifting of the end of the trough 4 having the shaft 13, tilts the shaft 8 toward the ground where a ground guard or bail 50 may engage as a support. The operator may then, thru a crank 51 wind the cable 47 on the shaft 43, in drawing the wheels 35 toward the support 50. At the desired elevation, pins 40 may stabilize the cable adjustment, thru the converging telescopic sections 38, 39.

The equipment or unit as herein disclosed, due to its wide ranges of adaptability, provides a tool or working apparatus for extended general use, especially in and about a farm, or places where agricultural work is carried on. Furthermore, due to its flexibility to conforming to the varied transporting problems, its utility extends to warehouses, storage locations, grain elevators, as well as receiving and shipping depots for bulk as well as package materials, even with the latter in departures from uniformity.

The endless belt conveyor is shown as comprising a chain 11 with flights 14 fixed perpendicular to the chain, and when for agricultural use, the flights are spaced sufficiently to allow a bale therebetween. However, the upper edge of a flight 14 is sufficiently rigid to definitely engage a bale corner as lodged thereon.

The endless belt device in its mounting or trough 4 has two reaches, one way over the floor 6, say for ascent, as the drive pulley 9 be actuated clockwise, and the other way for descent over the floor 5, in the event the mounting end carrying the shaft 13 be elevated.

The two pairs of telescopic struts 32, 29, as parallel, and 38, 39, as converging, provide adjustable elevation directing mounting for the conveyor trough 4.

In the operation of the unit as an elevator with the shaft 13 upward, the normal discharge for the material being transported, is to spill clear of such upper end of the trough 4. However, with the floor section or gate means 20 removed,

the grid or screen 21, forms selective means for the removal of fines to be salvaged, say at receiver or bag means 23.

The pair of carrier or ground wheels 35 are available for imparting convenient portability to the unit, as well as responding to placement, even in elevating or lowering, as to anchorage or rest 50, when the crank 51 be operated.

The primary supporting means resides in the axle bracket 34, and it is therefrom that the controls are effective in setting up and taking down the equipment.

What is claimed and it is desired to secure by Letters Patent is:

A conveyor comprising an endless belt device having two reaches, a support for the device having a trough lengthwise thereof for one of the reaches and parallel to the trough a way for the other reach, mounting means for directing the support to incline upwardly, said device having flights coacting with the trough for conveying material to be discharged from the trough upper end, and a screen bottom section for the trough in communication with the way spaced from the trough upper discharge end for delivering material from the trough to the way, discharge means in said way bottom spaced from said screen bottom and disposed farther from the trough upper discharge end than said screen bottom, said device flights in moving downwardly along the way adapted to convey material delivered to the way through the screen bottom downwardly along the way to said way discharge.

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