Nov. 27, 1945. R. H. BLANK ET AL 2,389,759

PORTABLE CONVEYER AND LOADER

Filed Dec. 18, 1944 2 Sheets-Sheet 1

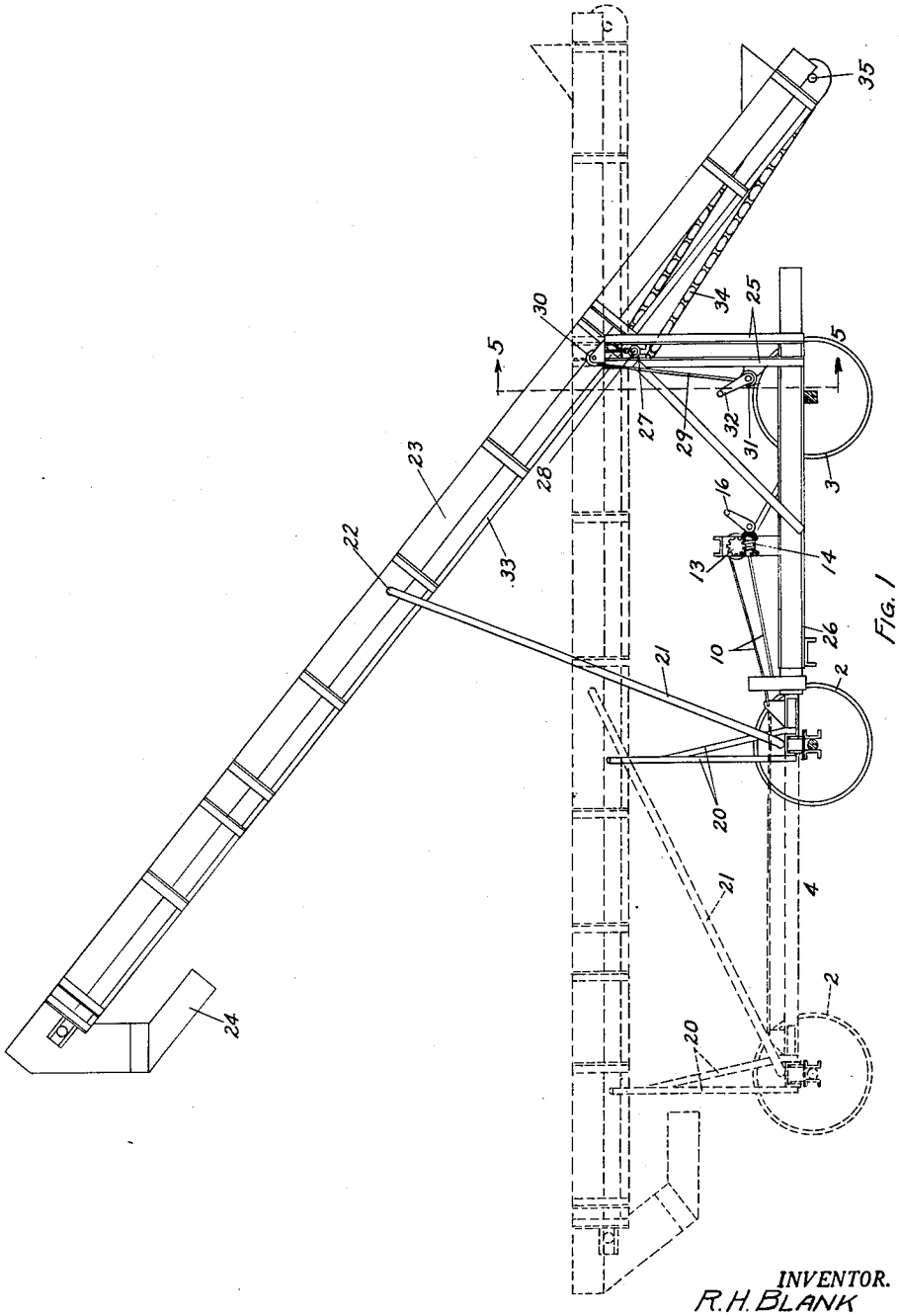


FIG. 1

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PORTABLE CONVEYER AND LOADER

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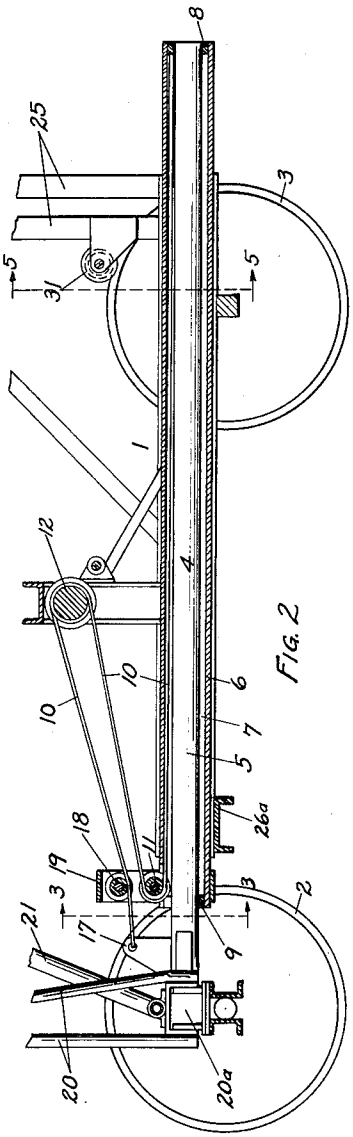


FIG. 2

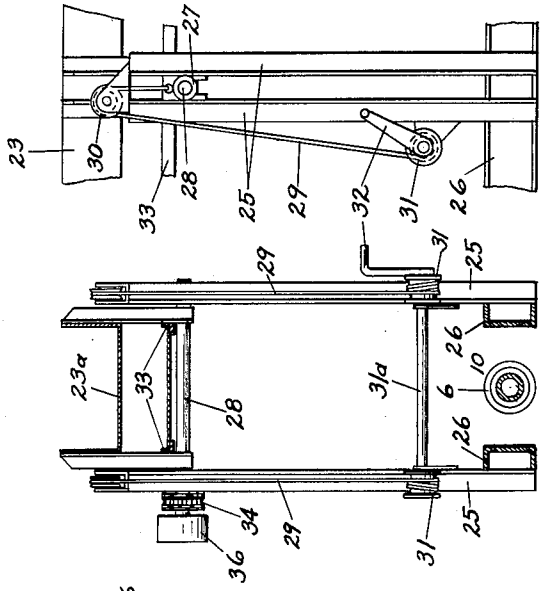


FIG. 6

FIG. 5

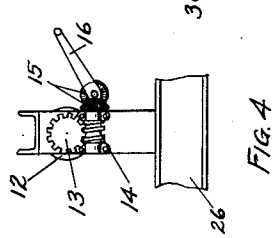


FIG. 4

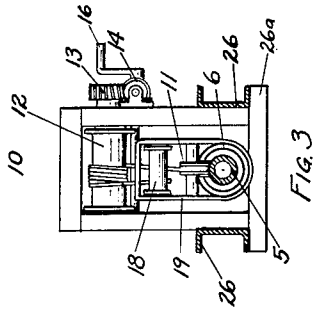


FIG. 3

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PORTABLE CONVEYER AND LOADER

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Application December 18, 1944, Serial No. 568,699

4 Claims. (Cl. 198—233)

The present invention pertains to improvements upon structures of the type shown in Patent No. 2,343,133, issued February 29, 1944, and comprises among its objects the provision of a conveyer of the type indicated which is more readily usable inside of buildings, particularly corn cribs which are provided through the middle with a driveway; the provision of a conveyer which is set up for use by one man; the provision of a structure of the character indicated which is inexpensive to manufacture; the provision of a structure of the type indicated which can be elevated to make delivery at various heights and which can have its lower end adjusted to occupy a position near the ground for convenient use; and such further objects, advantages, and capabilities as will hereafter appear and as are inherent in the construction disclosed herein. While we have disclosed herein what is now regarded as the preferred embodiment of this invention, we desire the same to be understood as illustrative only and not to be interpreted in a limiting sense.

In the drawings annexed hereto and forming a part hereof,

Figure 1 represents this conveyer in two positions, the position of use being shown in solid lines and the transport position in broken lines;

Fig. 2 represents a fragmentary longitudinal section of the truck or transport section shown at the middle of Fig. 1;

Fig. 3 represents a transverse section approximately along the plane indicated by the line 3—3, Fig. 2;

Fig. 4 represents a fragmentary side elevation of the structure shown in Fig. 3;

Fig. 5 represents a transverse section substantially along the plane indicated by the lines 5—5, Figs. 1 and 2; and

Fig. 6 represents a side elevation of the structure shown in Fig. 5.

The truck or transporting mechanism is indicated, in general, by the numeral 1, and the front and rear wheels thereof by the numerals 2 and 3, respectively. The front and rear axles are connected by a reach 4 which comprises a pair of interfitting tubular members 5 and 6. Between these tubular members is a space 7 which is utilized for a purpose to be presently disclosed. Secured to the rear end of the tube 5 is a ring 8 which slides inside of the tube 6 and guides the reach sections in their relative sliding movement. A ring 9, which is similar to the ring 8, is secured inside of the forward end of the tube 6 and furnishes a guide for the tube 5 as it slides in the tube 6. This construction furnishes a reach which is adjustable in length and which is very rigid when extended.

A cable 10 is secured at its rear end to the inner tube 5 and passes forwardly between the tubes and out through an opening in the outer tube 6, near the forward end thereof. It then passes around a pulley 11 and back to a drum 12 about which it is wound so that it will have driving connection therewith. The drum 12 is equipped with a worm wheel 13 which meshes with a worm 14, and this is driven by bevel gears 15. A crank 16 is provided for operating the gearing to cause rotation of the drum 12. From this drum 12 the cable 10 goes forwardly and is connected to the bracket 17 which is attached to the forward end portion of the pipe 5. A small drum or pulley 18 is mounted within a frame 19 and serves, in a sense, to guide the cable 10 and hold it down so that the pull thereof will be substantially longitudinally of the reach.

A supporting frame 20 rises from the front axle and serves as a support for the front end portion of the elevator element 23 when it is in lowered position, as shown in broken lines in Fig. 1. Props 21 are pivotally connected to the front axle through a bolster 20a, upon opposite sides of the center of the structure, and these props are also pivotally connected to the elevator element 23 at 22, as shown in Fig. 1. From what has been said it will be understood that, when the crank 16 is turned, the cable 10 will be wound on the drum 12 at one end thereof and unwound from the other end, and that, when this happens, the front wheels and reach section 5 will be moved forwardly or backwardly. If the structure is in full line position, as shown in Fig. 1, and the crank is turned to pull the tube 5 out of the tube 6, the forward wheels 2 will be moved forwardly and the props 21 will move toward the position shown by the broken lines in Fig. 1. As this happens, the elevator element 23 moves downwardly toward the horizontal position shown in this figure and eventually rests on the supporting frame 20 which moves with the forward axle from the solid line position to the broken line position of this figure. When the crank 16 is turned in the opposite direction, the pipe 5 is pulled back into the pipe 6 and this causes the props 21 to raise the elevator element 23 toward the full line position shown in Fig. 1.

If this machine is to be used in a corn crib which has cross beams connecting the cribs upon opposite sides of the driveway, as is often true, the machine can be run into the crib and the

elevator element 23 raised so that it will go up between two of these beams, the machine being moved to get the element 23 to deliver into a bin at one side or the other of the driveway, as desired. After the machine has been so positioned that the upper end of the elevator element 23 will miss the cross beams, the crank 16 is turned enough more to get the delivery spout 24 above the top of the side of the bin so that the grain will be sure to be delivered into the bin.

As shown in the patent mentioned above, the lower end of the conveyer or elevator element 23 may be provided with a hopper into which grain or other material may be shoveled or dumped. Such is very useful, if one has a dump truck or wagon so that he can back up to the hopper and open the end gate so as to let his load slide into the hopper and be conveyed quickly by the conveyer to the bin.

A pair of angle irons 25 are secured to each of the channel members 26, cross-connected at their forward ends by a channel 26*a*, and constituting a part of the frame of the machine. The flanges of the angle irons furnish guiding means for runners 27 which have a shaft 28 pivotally mounted therein. This shaft 28 furnishes a vertically adjustable support for the conveyer trough 23*a*. The runners 27 can be adjusted vertically by means of the cables 29 which are secured thereto and pass over pulleys 30 mounted upon the tops of the angle irons 25, as shown most clearly in Figs. 5 and 6. These cables 29 pass downwardly around winding drums 31 on a shaft 31*a* provided with a crank 32 by means of which the cable may be wound around the drums to raise the runners or unwound therefrom to permit lowering of the conveyer 23. This is useful in locations where it is undesirable to raise the conveyer to the fully elevated position shown in Fig. 1 and yet it is desirable to have the rear end of the conveyer down close to the ground. A pawl and ratchet or other latching means, not shown, are provided for holding the conveyer against undesirable lowering when it has been raised above its lowermost position. The worm gearing 13, 14 constitutes a self-locking means to prevent inadvertent lowering of the front end of the conveyer.

A pair of angles 33 at the two sides of the conveyer and below the conveyer trough 23*a*, as shown in Fig. 5, normally serve as supporting means for the lower run of the conveyer belt, the upper run of which runs in the trough 23*a*, and then returns on the angles 33, passing around a roller on the shaft 35 which has a sprocket or belt pulley to be engaged by a chain 34, or its equivalent, utilized in driving the conveyer belt. At its upper end, this chain passes around a sprocket mounted on the shaft 28, which shaft carries a belt pulley 36 at its outer end. A belt passing around this belt pulley also passes around a comparable pulley on the drive shaft of a power unit, such as the power take-off of a tractor. Further details of the conveyer element 23 are not regarded as essential since they are not involved in the annexed claims. It will be seen from what has been described that this structure is very simple and inexpensive to manufacture and that it is capable of use in locations where prior constructions were not adapted to be used.

It will of course be understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as set forth herein and in the appended claims.

Having now described our invention, we claim:

1. In a structure for the purpose indicated having front and rear wheels, axles connecting them in pairs, and an extensible reach connecting the axles; a frame supported by the rear axle including uprights rising some distance thereabove, a conveyer pivotally supported by said uprights to be moved from a horizontal to an inclined position and returned, said conveyer extending at its lower end well beyond its pivotal connection to the upright, props connected to the front axle and to a point approximately midway of the length of said conveyer, and means for moving the front axle backwardly and forwardly, whereby to raise and lower the conveyer.

2. A machine of the type indicated comprising front and rear transporting trucks, interengaging reach sections connected to said trucks, said sections being relatively slidable to permit the trucks to separate and approach each other, elevator means having its rear end portion supported on the rear truck for vertical adjustment relative thereto, operable means connecting the rear truck and the elevator means for adjusting vertically the rear end portion of the elevator means, operating means whereby the trucks may be caused to separate and approach, and means connecting the front truck and elevator means for raising and lowering of the front end of the elevator means as the trucks are caused to approach or recede one from the other.

3. A machine of the type indicated comprising front and rear transporting trucks, interengaging reach sections connected to said trucks, said sections being relatively slidable to permit the trucks to separate and approach each other, elevator means having its rear end portion supported on the rear truck for vertical adjustment relative thereto, operating means whereby the trucks may be caused to separate and approach, means connecting the front truck and elevator means for raising and lowering of the front end of the elevator means as the trucks are caused to approach or recede one from the other, and means for raising and lowering the rear end portion of the elevator means relatively to the rear truck.

4. In a structure of the type indicated having front and rear axles, supporting wheels therefor, and an elevatable conveyer; a transporting truck provided with means for supporting and actuating said conveyer, said means and conveyer being operatively connected, said truck comprising, in part, an extensible and retractible two-section reach, means for relatively shifting the reach sections longitudinally whereby to lengthen and shorten the reach, the last mentioned means comprising a winding drum, a cable partially wound thereon and having one end extending forwardly to the forward end of the forward section of the reach and its other end extending forwardly to the forward end of the rear section of the reach and then rearwardly within the rear section of the reach to the rear end portion of the front section of the reach where it is secured to said front section, and props pivotally connected to the front axle and to the conveyer, whereby to cause raising and lowering of the front end of the conveyer when the reach is shortened or lengthened.

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