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ELEVATOR FOR FRUIT GRADERS AND OTHER PURPOSES.

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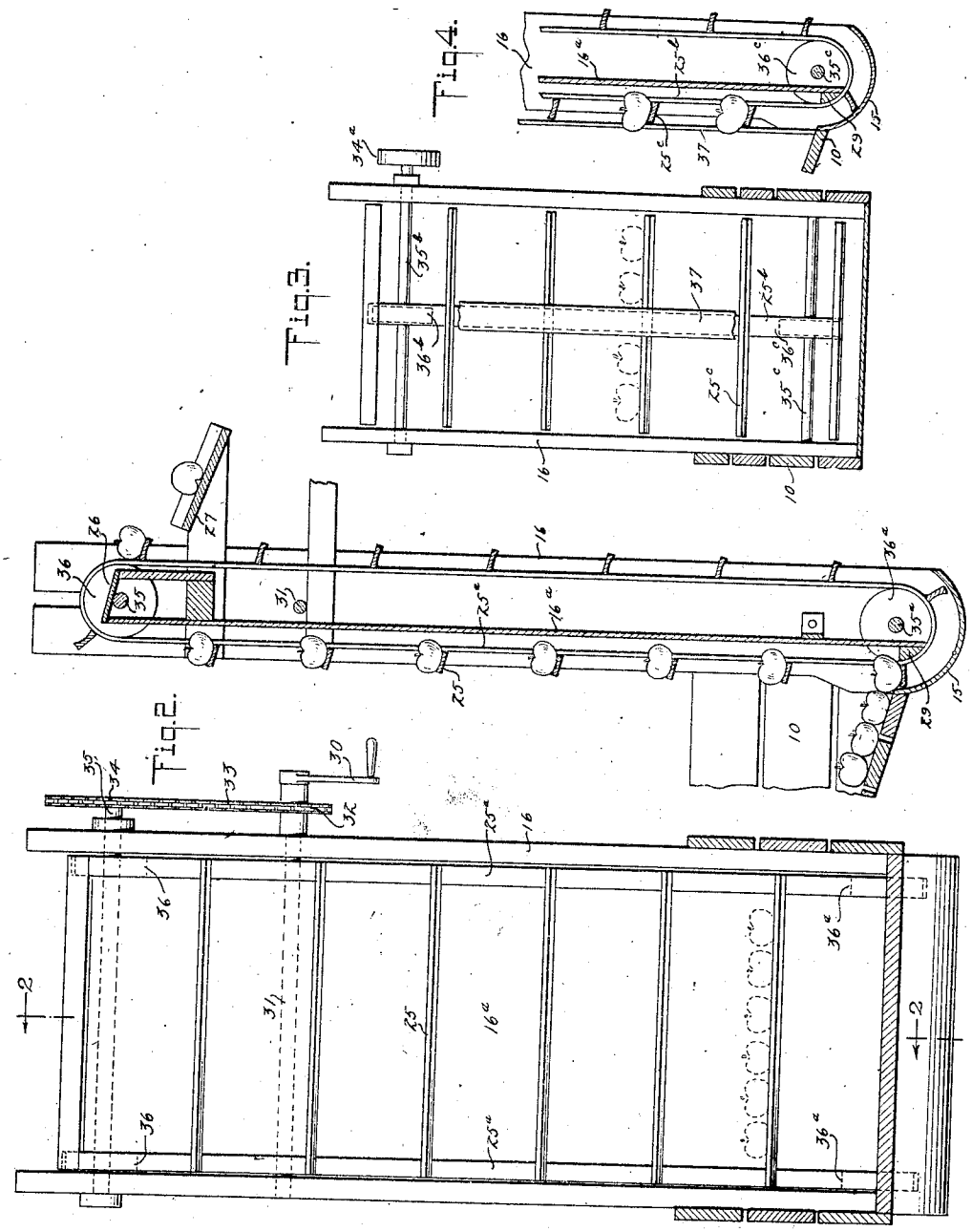


Fig. 4.

Fig. 3.

Fig. 2.

Fig. 1.

WITNESSES

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ELEVATOR FOR FRUIT-GRADERS AND OTHER PURPOSES.

1,365,565. Specification of Letters Patent. Patented Jan. 11, 1921.

Application filed October 10, 1919. Serial No. 329,710.

To all whom it may concern:

Be it known that I, WION P. THOMAS, a citizen of the United States, and a resident of Kent, in the county of Orleans and State of New York, have invented a new and Improved Elevator for Fruit-Graders and other Purposes, of which the following is a description.

My invention relates to an elevator and more particularly to an elevator employing an endless conveyer involving a belt or belts and slats or flights carried thereby.

Although I have shown the same as it will be arranged for elevating fruit as for example to a grader and sizer, it is to be understood that the invention is useful for other purposes for which elevators of the same general type are available.

The general object of my invention is to provide an elevator of the indicated character improved in various particulars to possess certain distinctive characteristics and advantages among which are the following: The elevator slats and coacting parts of the elevator are so formed as to minimize in the case of a fruit elevator the possibility of the fruit falling therefrom while being elevated; and the elevator at the top is so arranged that as a loaded slat approaches the top and starts to turn, the fruit or other elevated material falls from the slat and passes over the surface of a transverse incline to the opposite or descending side of the elevator, the slats being relatively so arranged that as the material passes over the incline the next preceding slat which is descending will bridge the space between the elevator structure and a delivery board, chute, or the like so as to pass the material from said incline to said feed board or the like.

The nature of the invention and its distinctive features will more clearly appear as the description proceeds.

Reference is to be had to the accompanying drawings forming a part of this specification, it being understood that the drawings are merely illustrative of one example of the invention.

Figure 1 is a front elevation of an elevator embodying my invention, part of a hopper adjacent to the boot of the elevator being in vertical section;

Fig. 2 is a transverse vertical section on the line 2—2, Fig. 1;

Fig. 3 is a fragmentary view similar to Fig. 1 showing an elevator embodying my invention and employing a single belt instead of two belts to carry the slats, the view including means employed at the front of the slats when the latter is thus carried by a single belt; to prevent contact of the fruit or the like with the belt;

Fig. 4 is a transverse vertical section of the lower portion of the elevator constructed as in Fig. 3.

Figs. 1 and 2 of the drawing in the present application were disclosed in an application filed by me July 1st, 1919, Serial Number 307,971, and the present application therefore is a continuation in part of the previous application above referred to.

In carrying out my invention in practice any suitable hopper structure or the like partially indicated at 10 is provided adjacent to the lower end of the elevator whereby fruit or other material being handled may pass to the boot 15 of the elevator designated generally by the numeral 16. The elevator 16 may employ a single belt as shown in Figs. 3 and 4 and hereinafter more particularly referred to, or two side belts as in the form illustrated in Figs. 1 and 2, in which two endless belts 25^a are employed at the sides of the elevator and provided with slats 25 on the face thereof, the slats being hollowed out or troughed and at an angle to the belt to present a transverse rearward dip in ascending, whereby the trough form and the inclination serve to dispose the fruit, as will be clear from Fig. 2, in a manner that will prevent the seated fruit from falling from a slat over the front edge thereof. To further decrease the possibility of the fruit falling in case one should be carried upward resting upon another seated on a slat, an upright wall 16^a is provided on the elevator at the back of the ascending run of the belt against which wall fruit may lean in ascending. At the top of the elevator the fruit rolling from a slat 25, as the latter starts to turn, passes transversely across the elevator to the opposite side, there being provided at the top of the elevator a transverse incline 26 dipping toward the descending run of the elevator. The slats are so spaced that as one starts to turn and assumes a position so that the fruit rolls therefrom to the incline 26, the preceding slat which has started to descend will be in a position to receive the fruit rolling from said incline, said descending slat in effect bridging the space between

said incline and a feed board 27 that may in practice direct the fruit to a sizing means as described in my aforenamed application or to any equivalent chute, receptacle, or the like. The incline 26 may be of any suitable soft material affording a cushion for the fruit. The boot 15 of the elevator is curved in consonance with the arcuate travel of the elevator belt and slats at the bottom of the elevator and presents a clearance space just sufficient for the slats, the space being insufficient for a better grade of fruit to find entrance thereto from the hopper 10. At the front of the wall 16^a at its lower end is a transverse or equivalent spacing element 29 at the forward edge of the boot 15, the arrangement being such that in elevating fruit the better grades will bridge the boot of the elevator and rest partially on said cleat in position to be properly engaged by the ascending slat.

The construction and arrangement of the moving parts of the machine are such as to permit of an easy operation so that manually operable means adapted to be operated even by a young boy or girl may be employed. In the illustrated example a crank handle 30 is provided on a transverse shaft 31. On the shaft 31 adjacent to one end is a pulley as indicated at 32, over which a belt or chain 33 runs, which runs also over a pulley 34 on a shaft 35 at the top of the elevator. Said shaft 35 has pulleys 36 over which the elevator belts 25^a run, there being similar pulleys 36^a at the lower end of the elevator on a shaft 35^a.

It will be readily appreciated from the foregoing that the particular elevator with the arrangement for transferring the fruit across the elevator at the top and the bridging of the space toward the feed board is incidental to the upright position of the elevator which position contributes materially to the reduced length of the machine and results in compactness as compared with an inclined elevator, the overhang of which provides for the ready discharge of the material from the elevator without the necessity for the transfer of the fruit across the elevator to the down side thereof as in my construction, but the inclined elevator possesses the disadvantage of increasing materially the total length of the machine.

The form and disposition of the slats are especially serviceable with a fruit grader in reducing the possibility of fruit falling from the slats.

The features above described generically and specifically constitute matter which is a continuation in part of my previous application above referred to.

Instead of employing an endless conveyer means involving a double belt composed of the side belts 25^a, I prefer for some purposes to form the conveyer with a single central belt 25^a (Figs. 3 and 4), to which the slats 25^c are centrally secured. The invention is shown embodied in a short elevator such as is employed between separate grading means in apparatus for separating fruit into a large number of grades. As here illustrated the single belt 25^b runs over a pulley 36^b on a shaft 35^b at the top of an elevator and over a pulley 36^c on a shaft 35^c at the bottom of the elevator. The belt may be driven in any suitable manner as by a pulley 34^a on the shaft 35^b, said pulley being driven in practice in any suitable manner. In connection with the single central belt 25^c I employ a fixed dividing strip 37 at the front of the ascending elevator run in front of the belt so that the slats 25^c run upwardly with their front edges close to said strip, the arrangement being such that the strip divides the fruit or the like on each slat 25^c and maintains the same out of contact with the belt 25^d. Such other features as are illustrated in Figs. 3 and 4 and correspond with the first-described construction have been designated by the same numbers as employed in Figs. 1 and 2.

I would state in conclusion that while the illustrated examples constitute practical embodiments of my invention, I do not limit myself strictly to the mechanical details herein illustrated, since manifestly the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim:

1. An elevator including an endless conveyer means provided with carrier slats, and an incline at the top of the elevator adapted to receive articles from an ascending slat adjacent to the upper terminal of the ascending run of the conveyer and conduct the articles across the elevator to the opposite side, said slats being so spaced that when an ascending slat discharges to said incline a preceding slat will be positioned adjacent to the discharge end of said incline to receive the articles therefrom and conduct them outside the path of movement of the descending slats.

2. An elevator including an endless conveyer element having transverse slats and a dividing strip at the front of the ascending run of the conveyer and adjacent to the path of the slats so that the slats present their front edges close to said strip, for causing the latter to divide the articles on the slats and prevent contact of said articles with said endless conveyer element.

WION P. THOMAS.