

Sept. 6, 1932.

H. D. CLUTE

1,875,562

VEGETABLE GRADING MACHINE

Filed Oct. 29, 1930

4 Sheets-Sheet 1

Fig. 1.

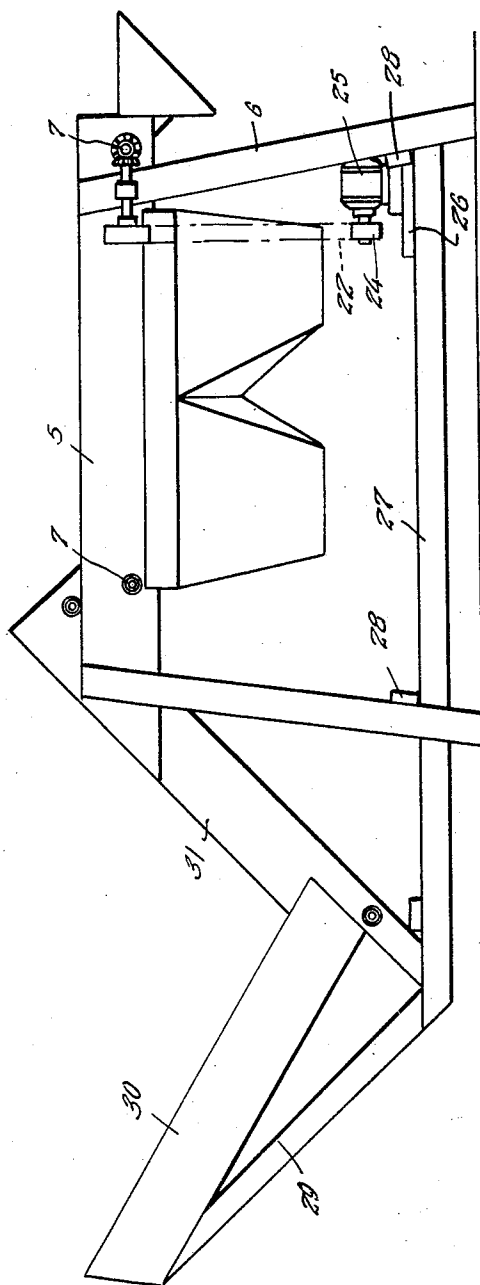
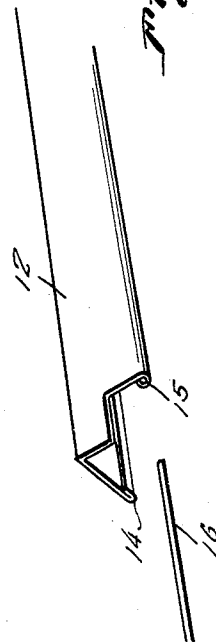


Fig. 10.



Inventor

H. D. Clute

By *Charles A. Brien*
Attorney

Sept. 6, 1932.

H. D. CLUTE

1,875,562

VEGETABLE GRADING MACHINE

Filed Oct. 29, 1930

4 Sheets-Sheet 2

Fig. 2.

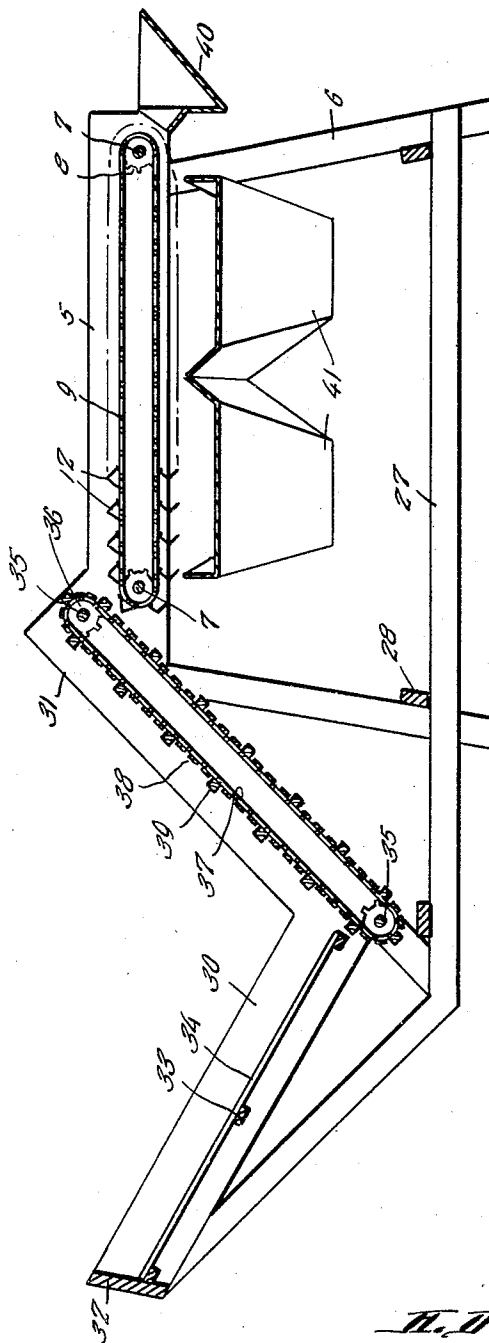
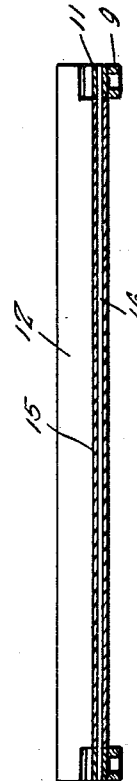


Fig. 9.

Inventor

H. D. Clute

By *Clarence A. O'Brien*
Attorney

Sept. 6, 1932.

H. D. CLUTE

1,875,562

VEGETABLE GRADING MACHINE

Filed Oct. 29, 1930

4 Sheets-Sheet 3



Inventor

H. D. Clute

By *Clarence A O'Brien*
Attorney

Sept. 6, 1932.

H. D. CLUTE

1,875,562

VEGETABLE GRADING MACHINE

Filed Oct. 29, 1930

4 Sheets-Sheet 4

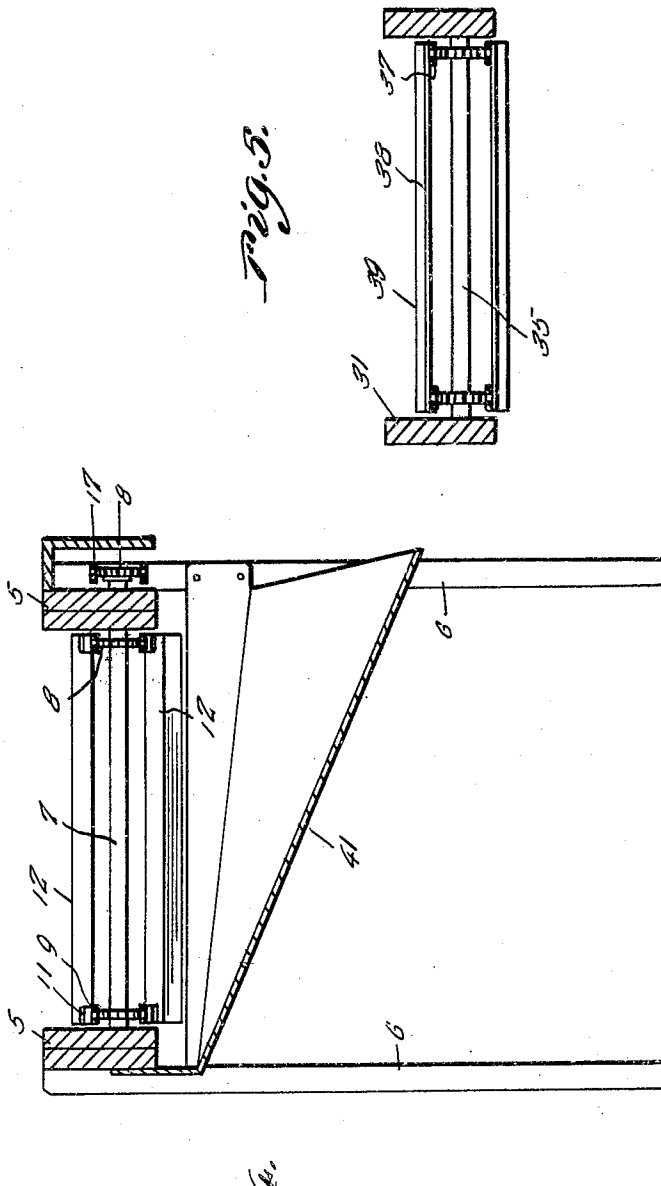


Fig. 3.

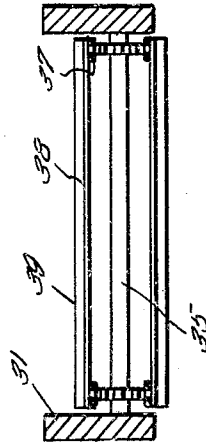


Fig. 6.

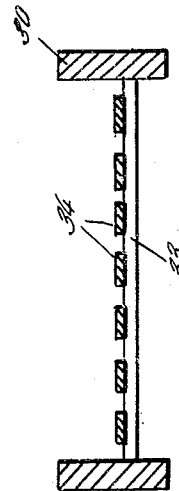


Fig. 4.

Inventor

H. D. Clute

By Clarence A. Brown
Attorney

UNITED STATES PATENT OFFICE

HARVEY D. CLUTE, OF ROCKY FORD, COLORADO

VEGETABLE GRADING MACHINE

Application filed October 29, 1930. Serial No. 492,019.

The present invention relates to a machine for grading vegetables such as onions, potatoes and the like and has for its prime object to provide a structure which is compact and convenient in its arrangement of parts, easy to use, inexpensive to manufacture, strong and durable, thoroughly efficient and reliable in use and operation, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a side elevation of a machine embodying the features of my invention,

Figure 2 is a vertical longitudinal section therethrough, taken on the line 2—2 of Figure 3,

Figures 4, 5 and 6 are transverse vertical sections taken substantially on the lines 4—4, 5—5 and 6—6 respectively of Figure 3,

Figure 7 is an enlarged detail section through one end of the endless grading apparatus,

Figure 8 is a detail view showing one of the bearing links,

Figure 9 is a transverse detail section through the grading apparatus taken substantially on the line 9—9 of Figure 7, and

Figure 10 is a fragmentary perspective view showing particularly one end of one of the grading cross members.

Referring to the drawings in detail, it will be seen that numerals 5 denote a pair of spaced parallel coextensive horizontally disposed side bars supported by legs 6. A pair of shafts 7 are journaled between the side bars 5 in spaced relation to each other and on each shaft is a pair of sprockets 8. Chains 9 are trained over the sprockets 8 and include a plurality of links 10 having bearings 11 formed therein. Grading cross members 12 are V-shaped in cross section and at one edge are formed with beads 14 and at the other end edges with sleeves 15 rockable on pins 16, the

ends of which extend into bearings 11. As will be apparent by the enlarged detail shown in Figure 7 the cross members on the upper runs of the chains are sufficiently spaced to allow a certain grade of vegetable to pass therebetween and in order that the vegetable may fall through the lower runs of these cross members, said cross members swing downwardly as is clearly illustrated in this view as will be seen from Figure 10, the ends of the pivoted limb of each cross member 12 are cut away to form spaces for the projecting ends of the pivot pin 16, these projected ends of course being journaled in the two chains and this construction permits the ends of the free edge of the cross member to rest upon the chains when a cross member is travelling along with the upper runs of the two chains.

A chain and sprocket mechanism 17 operatively connects the shaft 7 to the outside of one of the side bars 6. One of the shafts 7 is operated by suitable gearing 18 in turn operated by a shaft 19 journaled in a bracket 20 projecting outwardly from the other side bar and having a pulley 21 thereon to be operated by a belt 22 from pulley 24 on the armature shaft of an electric motor 25.

This electric motor 25 is mounted on a shelf 26 across braces 27 longitudinally disposed between the legs 6. Other cross braces 28 are also disposed between the legs 6. The braces 27 extend beyond one pair of the legs 6 and have attached thereto upwardly and outwardly inclined extensions 29. Downwardly and inwardly inclined bars 30 are supported by the extensions 29 at their upper ends and their lower ends are supported on downwardly and outwardly inclined side bars 31, the ends of which are attached in a suitable manner to the outer extremities of the braces 27. A cross bar 32 is disposed between the upper ends of the side bars 30.

Cross supports 33 between the side bars 30 have disposed thereon 10 longitudinal spaced parallel coextensive slats 34 which incline downwardly and inwardly. A pair of shafts 35 are journaled between the side bars 31 and have thereon sprockets 36 over which are trained endless chains 37 with relatively

closely disposed slats 38 thereacross intermingled among which are enlarged slats 39 at regular spaced intervals.

A receiving trough 40 is mounted at the ends of the side bars 5 remote from the side bars 31 to receive the larger vegetables. Laterally inclined troughs 41 are mounted below the endless grading mechanism.

From the above detailed description it will be seen that the onions, potatoes or the like are thrown into the frame formed by the side bars 30 on to the slats 34 allowing dirt and foreign matter to fall between the slats and causing the vegetables to roll down on to the endless conveyor having the cross slats 38 and 39. This endless conveyor is operatively connected with the sprocket and chain mechanism by a sprocket and chain mechanism 44 and elevates the potatoes on to the endless grading mechanism. The smaller potatoes, of course, fall between the upper run and the lower run of the grading cross member while the larger potatoes are conveyed over into the collecting trough 40.

It is thought that the construction, operation, utility and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof.

The present embodiment of the invention has been disclosed in considerable detail merely for the purposes of exemplification since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention and the above description.

It will be apparent that the changes in the details of construction, and the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:

1. A grading conveyor comprising a pair of endless members, roller supporting means for the same, a plurality of cross members pivotally connected with the endless members and each cross member being of V-shape in cross section, with the ends of its forward edge pivotally connected to the endless members, said V-shaped members being spaced apart a sufficient distance to form spaces between them and their rear edges resting on the endless members as the cross members are travelling along with the upper runs of the endless members, and said cross members then depending from the endless members when travelling along with the bottom runs of the endless members.

2. A grading conveyor comprising a pair of endless members, roller supporting means for the same, a plurality of cross members V-shaped in cross section and each having the

ends of one limb thereof cut away and said limb having its free edge rolled to form a bearing, a rod passing through the bearing and having its ends connected with the endless members to pivotally connect the cross member with the endless members, the free edge of the other limb of each cross member resting on the endless members as said cross member travels along with the upper runs of the endless members.

In testimony whereof I affix my signature.
HARVEY D. CLUTE.

70

75

80

85

90

95

100

105

110

115

120

125

130