H. H. & W. J. C. ZENGE.

PICKLE GRADING MACHINE.

APPLICATION FILED APR. 24, 1915.

1,190,067.

Patented July 4, 1916.

2 SHEETS—SHEET 1.

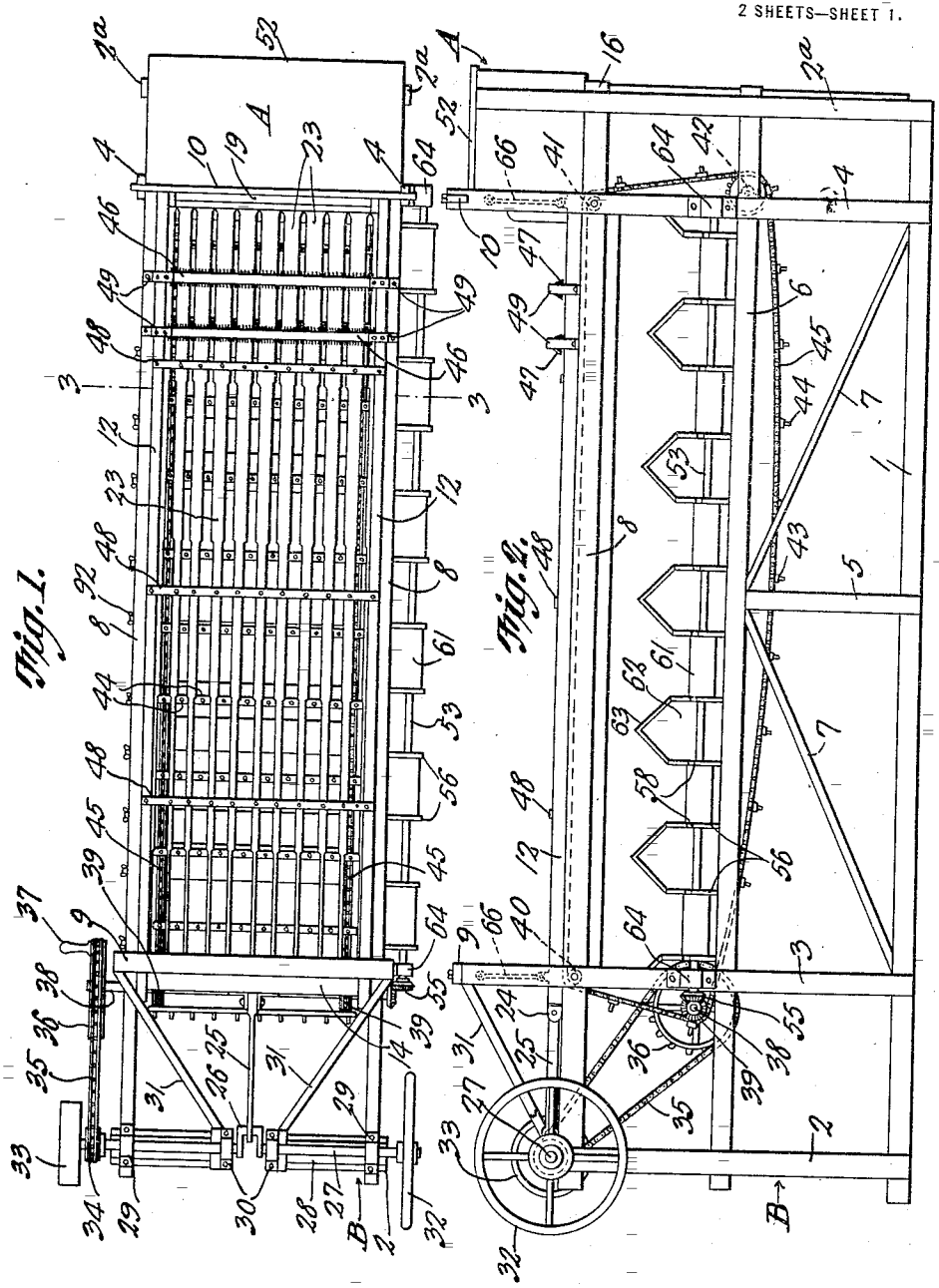


Fig. 1.

Fig. 2.

Witnesses

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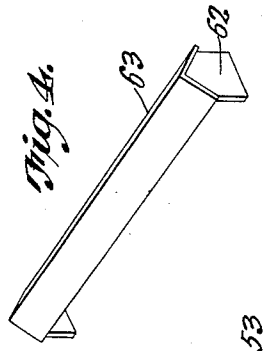


Fig. 4.

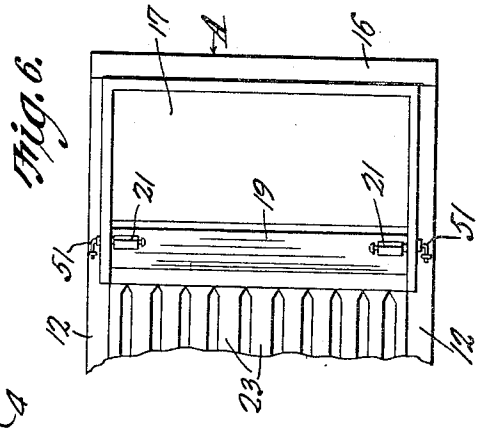


Fig. 6.

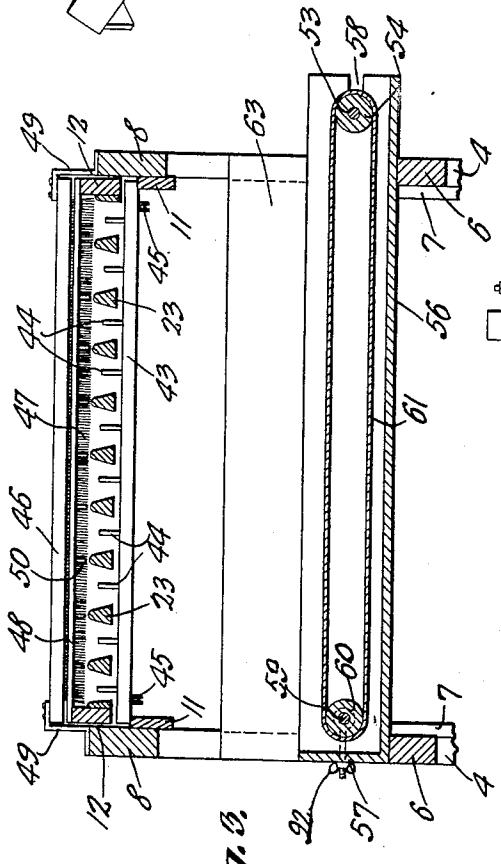


Fig. 3.

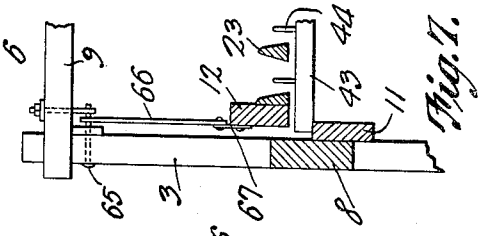


Fig. 7.

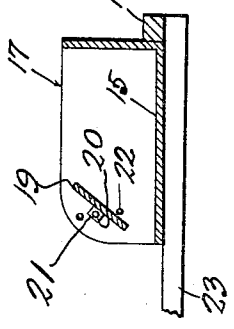


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

HARRY H. ZENGE AND WILLIAM J. C. ZENGE, OF CANTON, MISSOURI.

PICKLE-GRADING MACHINE.

1,190,067. Specification of Letters Patent. Patented July 4, 1916.

Application filed April 24, 1915. Serial No. 23,747.

To all whom it may concern:

Be it known that we, HARRY H. ZENGE and WILLIAM J. C. ZENGE, citizens of the United States, residing at Canton, in the county of Lewis, State of Missouri, have invented a new and useful Pickle-Grading Machine, of which the following is a specification.

The device forming the subject matter of this application is adapted to be employed for grading according to size, pickles and other objects of a like character.

The invention aims to provide novel means for initially sorting the pickles, and to provide a coöperating means adapted to separate the sorted masses of pickles from each other as they drop downwardly, novel means being provided for carrying away the sorted pickles laterally out of the machine.

The invention aims to improve the construction of the reciprocating sorting screen and to provide novel means for operating the same.

It is within the scope of the invention to provide novel means for coupling up with the driving mechanism, the conveyers whereby the pickles are carried laterally out of the machine.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:—Figure 1 shows the invention in top plan; Fig. 2 is a side elevation; Fig. 3 is a cross section on the line 3—3 of Fig. 1; Fig. 4 is a perspective showing one of the deflectors; Fig. 5 is a fragmental longitudinal section, the cutting plane being passed through one end of the reciprocating screen; Fig. 6 is a top plan of the structure delineated in Fig. 5. Fig. 7 is a fragmental transverse section showing primarily the means for suspending the screen.

In carrying out the present invention there is provided a supporting structure which may be variously formed without jeopardizing the utility of the invention. For convenience, that end of the supporting structure to which the reference character A has been applied will be considered as the front end, the rear end being denoted by the reference character B.

As shown, but not of necessity, the supporting structure comprises base bars 1 from which rise end posts 2 and 2^a, intermediate posts 3 and 4, and central posts 5. The posts 2, 2^a, 3, 4 and 5 uphold lower longitudinal supporting beams 6 which may be united with posts 3 and 4 by braces 7. The posts 2, 2^a, 4 and 3 support upper beams 8 which may be united by a transverse end beam 28 shown in Fig. 1. The upper ends of the intermediate posts 3 are united by a tie 9, the upper ends of the intermediate posts 4 being united by a tie 10. Although the specific supporting structure above described will be found useful for the ends in view, a skilled mechanic may possibly make changes therein without jeopardizing the utility of the invention.

Secured to the inner faces of the upper beams 8 of the supporting structure as shown most clearly in Fig. 3, are longitudinal tracks 11. Above the tracks 11 and suspended from the posts 4 and 3 by hangers 66 to reciprocate in a horizontal plane is a screen which may comprise side bars 12 and a transverse bar 14 connecting the bars 12 adjacent the rear end of the machine. The bars 12 may support a stop cleat 16 against which abuts a hopper 17 comprising a bottom 15 and detachably held to the bars 12 by means of hooks 51, or in any other suitable manner, Fig. 6 being referred to. The hopper 17 may be covered by a removable shield 52 resting on the rails 8 and between the posts 4—4 and 2—2^a. Mounted in the hopper 17 and extended transversely thereof and spaced from the bottom 15 of the hopper is a gate 19 which is adjustably mounted for vertical movement in any desired manner. As shown, brackets 20 are assembled with the gate 19 and receive securing elements 31 adapted to be mounted in selected pairs of openings 22 formed in the side walls of the hopper 17. By adjusting the position of the gate 19 the flow of the pickles out of the hopper 17 onto the screen proper may be regulated. Extended longitudinally of the screen between the hopper 17 and the end bar 14 are grate bars

23, decreased in diameter by successive steps from the forward end of the machine toward the rear end thereof. The construction, therefore, is such that the smallest pickles drop first through the screen between the grate bars 23, the larger pickles subsequently dropping between the grate bars in graded sizes.

A means is provided for imparting a longitudinal movement to the screen, to the end that the same may reciprocate, being suspended by the hangers 66. With this purpose in view, bearing brackets 24 are secured to the end bar 14 of the screen and with the brackets 24 is pivotally assembled one end of a pitman 25, the other end of which is carried by a crank 26 constituting a part of a main shaft 27 journaled for rotation in bearings 29 secured to the upper beams 8 adjacent the rear of the machine, and in bearings 30 held by the end beam 28, the bearings 30 being sustained by upwardly extended braces 31 connected to the tie 9 which unites the upper ends of the intermediate posts 3.

To the end of the main shaft 27 may be attached a fly wheel 32 and the other end of the main shaft may carry a pulley 33 or other suitable means whereby the main shaft may be rotated from a prime mover. Secured to the main shaft 27 is a sprocket wheel 34 about which is trained a sprocket chain 35 engaged with a sprocket wheel 36 secured to an auxiliary shaft 38 journaled on the supporting structure and extended transversely thereof. It is contemplated that the machine shall be operated by means of the pulley 33 or its equivalent, but at times it may be desirable to run the machine by hand, and as shown in the drawings, the sprocket wheel 36 on the auxiliary shaft may be provided with a crank 37.

A primary conveyer preferably in the form of an endless belt travels beneath the reciprocating screen and serves to advance the pickles therealong. The auxiliary shaft 38 constitutes a means for actuating the primary conveyer above alluded to. The auxiliary shaft 38 is provided with sprocket wheels 39. Idlers 40 are mounted on the side portions of the supporting structure adjacent the rear end thereof, as indicated in Fig. 2, and other idlers 41 and 42 are carried by the supporting structure adjacent its forward end. Around the idlers 40, 41 and 42 and around the sprocket wheels 39 of the auxiliary shaft 38 are trained chains 45 constituting a part of the primary conveyer, the chains 45 being connected by transverse bars 43 which traverse the tracks 11, the bars carrying rake teeth 44 which, as shown in Fig. 3, coöperate with the grate bars 23 of the reciprocating screen. It will now be obvious that the primary conveyer embodying the chains 45 and adjacent parts is actuated by a gear train comprising the shaft 38, the sprocket wheel 36, the drive chain 35, the sprocket wheel 34 and the main shaft 27. Therefore, while the reciprocating screen is moving backwardly and forwardly in the direction of its length, the upper run of the primary conveyer will move from the forward end of the machine toward the rear end thereof, the rake teeth 44 coacting with the grate bars 23 of the reciprocating screen in a manner hereinbefore mentioned.

A means is provided for cleaning the pickles and for spreading them out as the pickles move from the hopper 17 beneath the gate 19 and onto the grate bars 23 of the reciprocating screen adjacent the forward end of the machine. With the end in view, brackets 49 are mounted on the upper beams 8 as shown in Fig. 3, the brackets 49 carrying transversely extended bridges 46 provided with depending, flexible brushes 47 adapted to coact with the pickles as the same pass onto the reciprocating screen. In order to secure a proper separation of the pickles as the same traverse the reciprocating screen, bridges 48 connect the side bars 12 of the screen, the bridges 48 carrying depending fingers 50 coöperating with the grate bars 23 of the screen as shown in Fig. 3.

After the pickles have been separated into different sizes by the action of the reciprocating screen and drop between the grate bars 23, each mass of pickles of a specific size is separated from other masses of different sizes, and are carried laterally out of the machine. The means for transporting the pickles laterally and out of the side of the machine embodies a supplemental shaft 53, extended longitudinally of the supporting structure and journaled for rotation in bearing 64. The supplemental shaft 53 is provided with a plurality of pulleys 54 and is rotated through the medium of intermeshing beveled pinions 55 one of which is located on the shaft 53, the other of which is located on the transverse auxiliary shaft 38. Supported on the lower longitudinal beams 6 and extended transversely of the supporting structure are box-like chutes 56, each chute being open adjacent the shaft 53 and being closed at its opposite end as shown at 57, the side walls of the chutes being provided with notches 58 which receive the shaft 53.

Shafts 59 are journaled for rotation in tighteners 92 preferably in the form of eye bolt and wing nut structures which coöperate with the ends 57 of the chutes, the shafts 59 carrying pulleys 60. Trained about the pulleys 60 and 54 are secondary conveyers 61 in the form of belts. The driving train for the secondary belt conveyers 61 embodies the shaft 53, the intermeshing beveled pin-

ions 55, the auxiliary shaft 38, the sprocket wheel 36, the sprocket chain 35, the sprocket wheel 34 and the main shaft 27.

In order to prevent the masses of pickles which have been separated into different sizes by the action of the grate bars 23 of the reciprocating screen from being commingled as they drop downwardly into the chutes 56 and onto the secondary belt conveyers 61, a plurality of deflectors are located beneath the reciprocating screen. Each deflector embodies end walls 62 and a gable 63. The end walls 62 of the deflector lie between the lower supporting bars 6, and thus the deflector is prevented from moving endwise. A dropping movement of the deflector is prevented, because the lower edges of the gable 63 rest on the upright walls of adjacent chutes 56.

The operation of the structure has been dealt with hereinbefore step-by-step, but briefly considered is as follows:—The pickles, having been dropped into the hopper 17, pass beneath the gate 19 and move onto the reciprocating screen, the pickles being spread out and being cleaned by the brushes 47. As the reciprocating screen is moved to and fro, the pickles are separated into masses of different sizes, owing to the specific construction of the grate bars 23 of the reciprocating screen, the pickles being advanced along the screen by the action of the primary conveyer comprising the chains 45 and adjacent parts. The pickels having been separated into masses of different sizes, drop below the grate bars 23 of the reciprocating screen and are received by the gables 63 of the deflectors, the pickles thus being carried into the transverse chutes 56 and being carried out of the chutes, to one side of the machine, by means of the secondary belt conveyers 61.

Having thus described the invention, what is claimed is:—

In a device of the class described, a supporting structure; chutes extended transversely of the supporting structure; conveyers in the chutes and operating transversely of the supporting structure; means for operating the conveyers; removable deflectors disposed between the chutes and discharging laterally in opposite directions on the conveyers, each deflector comprising end walls engaged with the supporting structure to prevent the deflectors from moving longitudinally of the conveyers and engaged with the chutes to prevent the deflectors from moving transversely of the conveyers, the deflectors comprising gables projecting beyond the end walls and resting on the chutes to prevent a downward movement of the deflectors.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

HARRY H. ZENGE.
WILLIAM J. C. ZENGE.

Witnesses:
T. C. YEAGER,
WM. F. GOETZ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."