Feb. 12, 1924. 1,483,092

P. C. KRASKA

PEA SEPARATOR AND GRADER

Filed April 19, 1923 2 Sheets-Sheet 1

Fig. 1.

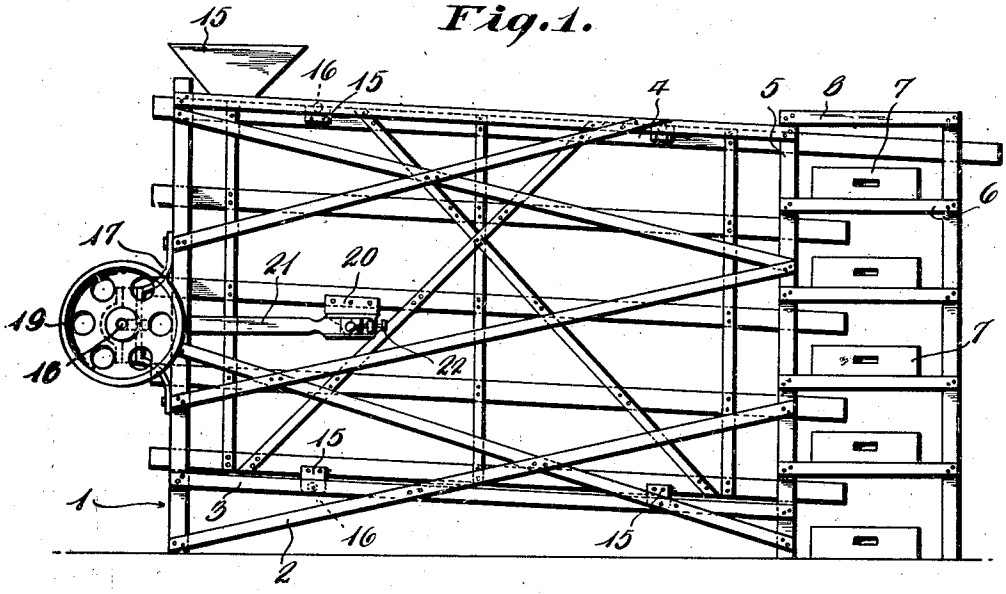
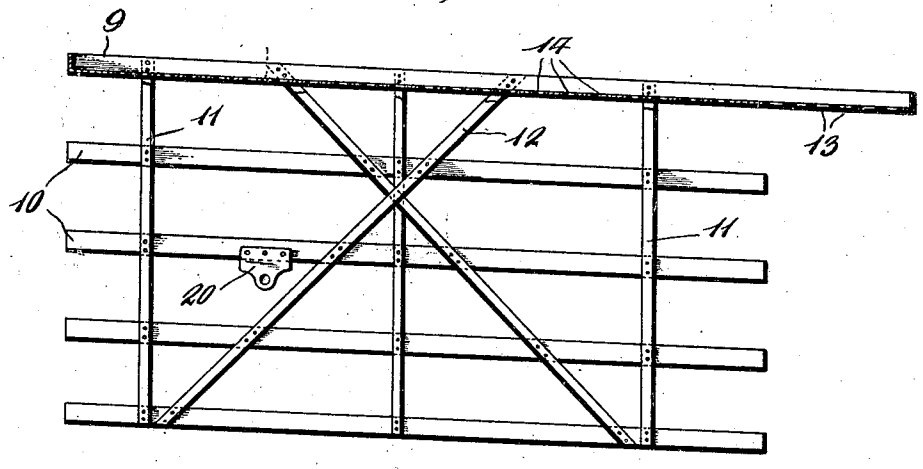


Fig. 2.



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Fig. 3.

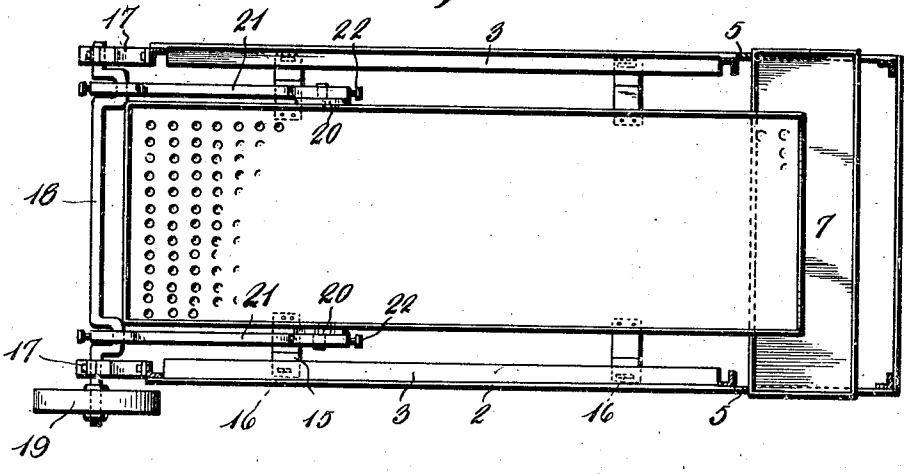


Fig. 4.

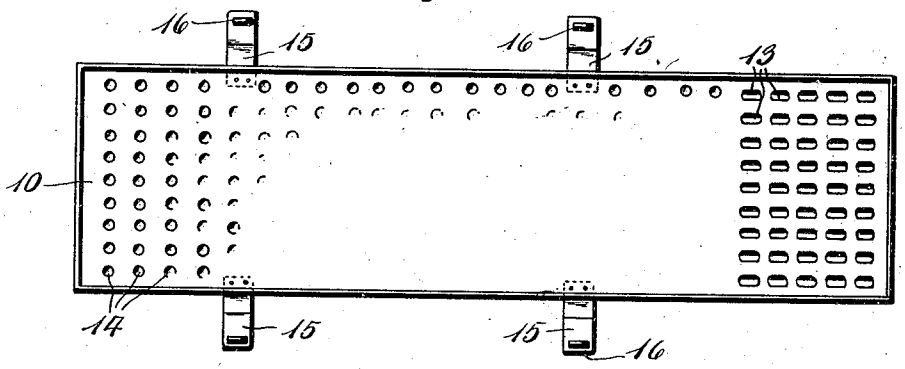
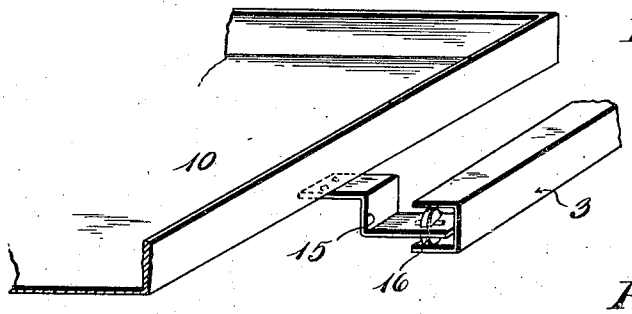


Fig. 5.



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Patented Feb. 12, 1924. 1,483,092

UNITED STATES PATENT OFFICE.

PAUL CARL KRASKA, OF AMERY, WISCONSIN.

PEA SEPARATOR AND GRADER.

Application filed April 19, 1923. Serial No. 633,297.

To all whom it may concern:

Be it known that I, PAUL CARL KRASKA, a citizen of the United States of America, residing at Amery, in the county of Polk and State of Wisconsin, have invented certain new and useful Improvements in Pea Separators and Graders; and I do hereby declare that the following is a full, clear, concise, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in separating or grading machines, having for an object to provide a machine for separating and grading green peas, in order that the different grades or sizes of peas may be separated for canning purposes, the machine including a novel arrangement and construction of vibratory sifting or grading trays into which the different sizes or grades of peas are passed in sequential order and delivered into suitable receiving receptacles whereby they may be then removed for canning.

It is likewise an object of the invention to provide a machine of the character mentioned wherein means are provided certain of the sifting trays for removing refuse matter such as pods, or particles of vines therefrom, immediately subsequent to the discharge of the peas into the machine, thus, permitting only clean peas to be delivered to the receiving receptacles.

Other objects will be in part obvious and in part pointed out hereinafter.

In order that the invention and its mode of operation may be readily understood by persons skilled in the art, I have in the accompanying illustrative drawings, and in the detailed following description based thereon, set out one possible embodiment of the same.

In these drawings:

Figure 1 is a side elevation of the improved machine;

Figure 2 is a side elevation of the novel form of sifting or grading trays, the upper tray being shown in section;

Figure 3 is a top plan view of the improved machine;

Figure 4 is a top plan view of the uppermost sifting or grading tray; and,

Figure 5 is an enlarged fragmentary detail in perspective showing the manner in which the trays are movably supported upon the machine frame.

Having more particular reference to the drawings, in connection with which like characters of reference will designate corresponding parts throughout, the improved machine may be stated to comprise a substantially rectangularly shaped frame, indicated in its entirety by the numeral 1, said frame being formed of metal bars including corner uprights or standards, which are interconnected and relatively braced by diagonally disposed and cross bracing strips 2, such strips, as will be noted upon reference to the Figure 1, being secured at their opposite ends by rivets, screws, or other suitable fastening devices to adjacent portions of the uprights or standards of the frame. Also, angle or channel bars 3 and 4 are arranged longitudinally of the machine frame 1 adjacent the upper and lower portions thereof and are inclined forwardly of the machine for a purpose which will be subsequently described. These tracks 3 and 4, as will be noted, do not extend throughout the full length of the machine frame 1, but only to uprights 5 secured to the opposite sides of one end portion of said frame. Shelves or racks 6 are arranged in the remaining portion of the machine frame 1, as shown in the Figure 1, and are relatively vertically spaced, whereby to removably support a plurality of graded pea receiving receptacles, generally indicated by the numeral 7; the upper end portions of those uprights constituting the rack portion of the frame being interconnected by means of horizontally arranged bracing rods or bars 8.

With a view towards providing means for grading or sifting the peas delivered into the machine, I provide a plurality of superposed relatively vertically spaced substantially rectangular shaped sifting trays indicated by the numerals 9, and 10, said trays being inclined forwardly of the machine frame, as indicated in the Figure 1 and being relatively interconnected and braced as a unit by means of vertically arranged bracing strips 11 and crossed diagonally disposed bracing strips 12, said bracing strips having the adjacent portions thereof securely connected to the opposite side portions of the trays 9 and 10 as indicated in the Figure 2 and in consequence, preventing any possibility of relative vibratory movement as between the same and likewise, causing them to move as a unit with the transmission of vibratory motion thereto, the

manner of which will be hereinafter more fully described.

In this connection, it is to be noted that the tray 9 is of a length slightly greater than the lengths of the lower and remaining trays 10 and that that portion of the bottom of the tray 9 which extends beyond the adjacent ends of said trays 10 is formed with rectangular slots or openings generally indicated by the numeral 13, while the remaining portion of the bottom of said tray is formed with circular openings 14 of a size such as will permit the peas discharged thereinto from the hopper 15 to pass therethrough into the following or next tray 10. Also, it should be noted that that portion or extended end of the tray 9 having the rectangular openings 13 therein directly overlies the uppermost receiving receptacle 7 and in consequence, matter passing through said opening 13 will be directed into the receiving receptacle referred to.

The bottoms of each of the remaining trays 10 have circular openings formed therein, but it is vital to note that the various openings or sets of openings in each of the trays 10 gradually diminish in size so that the grading or separating of the different sizes of peas delivered into the machine may be effected; the smaller peas, of course, passing through the openings of all of the trays 10 with the exception of the last tray. This last tray, if desired, may have the bottom thereof formed solid, since, it represents the last grading stage of the machine, although, if desired, as above indicated, the bottom thereof may be formed with openings of a size sufficient to permit the passage of sand or dirt therefrom, in order that the peas delivered into the particular receiving receptacle 7 for the lowermost tray will be clean.

The interconnected trays 9 and 10 are adapted to have vibratory motion imparted thereto and in order that they may be properly movably supported within the frame 1, metal angle arms 15 are secured to the opposite sides of the uppermost and lowermost trays 9 and 10 and have wheels or rollers 16 mounted in their outer or free extremities, as indicated in the Figure 5, which wheels are adapted to have bearing in the channel bars or track ways 3 and 4 hereinbefore described. These bars or track ways 3 and 4, as will be noted upon reference to the Figure 1, are arranged in parallel relationship to the trays 9 and 10 and in consequence, with reciprocatory or vibratory motion thereof, impulses such as will carry the peas to that end of the machine frame supporting the delivery or receiving receptacles 7 will be effected.

As providing means for imparting vibratory motion to the relatively interconnected superposed separating or grading trays 9 and 10, there are arranged upon one end of the machine frame 1, particularly that end opposite to the end receiving the receiving receptacles 7, bearing brackets 17, which, as will be noted upon reference to the Figures 1 and 3, serve to rotatably support a transversely disposed crank shaft 18 therein having a fly or balance wheel 19 mounted on one end of the same. The crank or off-set portions of the shaft 18 are so disposed as to be arranged adjacent to the opposite sides of the trays 9 and 10 and to effect connection with such trays whereby vibratory motion may be imparted thereto, other bearing brackets 20 are connected to the opposite sides of the intermediate portion of one of said trays 10, as shown in the Figure 1, whereupon the inner ends of pitmen 21 are pivotally connected thereto, the outer ends of such pitmen being pivotally or rotatably engaged with the crank or offset portions of the crank shaft 18, as shown in the Figure 3. Adjustable bearings may be and preferably are provided upon each of the ends of the several pitmen 21 and these bearings, as will be understood, are adapted to be adjusted through the medium of adjusting screws indicated by the numeral 22. Thus, proper connection as between the opposite ends of the pitmen 21 and the off-set portions of the crank shaft 18 and the bearing brackets 20 will be ensured. An endless belt is adapted to be engaged about the fly or pulley wheel 19 and as will be understood, extends to a suitable source of power, whereby rotary motion will be imparted to the crank shaft 18.

The operation of my improved grading machine may be reviewed as follows:

Peas to be separated or graded are discharged by way of the hopper 15 into the uppermost grading or sifting tray 9. The peas so discharged into the tray 9 will pass directly through the circular openings 14 therein into the next or following lower tray 10, whereas the hulls, pods, or particles of vines will be moved forwardly of the machine, due to the vibratory motion of the tray 9 to the end of the same having the rectangular openings or slots 13 therein, whereupon said refuse matter will be passed over the openings 13 and delivered from the end of this tray 9 whereas the peas of this particular size will pass through the openings 13 into the receiving receptacle 7 immediately beneath the same. Thus, the peas will be freed of particles of vines, or pods, or hulls. With continued vibratory motion of the trays, the grading of the green peas will continue until the smallest peas have reached the lowermost tray 10 and have been discharged into the particular receiving receptacle 7 adjacent to and below the lower end thereof. In this connection, it should be noted that the forward ends of the trays 10 are preferably open in order that the par-

ticular grade of peas handled thereby, that is, those peas of a size which will not pass through the openings of the particular tray 10, will pass freely from said open end of the tray into the particular receiving receptacle 7 therefor. With the completion of a grading or separating operation, vibratory motion of the trays 9 and 10 is interrupted, whereupon the receiving receptacle 7 containing the various grades of green peas are removed from the rack portion of the machine frame 1 for canning or other purposes.

From the foregoing, it will be understood that I have provided a simple but efficient form of green pea grading and separating machine, whereby the different sizes or grades of green peas may be readily graded and likewise, the peas freed of pods or other particles of vine which may be discharged thereinto with the initial introduction of the green peas into the machine.

It is of course to be understood that the number of sifting or grading trays may be either increased or decreased, such as conditions or preference may dictate and likewise, that the sizes of the different sets of openings in the various grading or sifting trays may be varied to suit the desires of a user of the machine.

Manifestly, the construction shown is capable of considerable modification and such modification as is within the scope of my claims, I consider within the spirit of my invention.

I claim:

1. A pea grader comprising a supporting frame, a plurality of interconnected collectively movable trays disposed longitudinally of and slidably supported upon said frame, the bottom portions of each of said trays being perforated and the outer end of the uppermost tray being extended beyond the corresponding ends of the lower trays and having said extended end formed with perforations larger than the perforations in the remaining portion of the bottom thereof, means for imparting vibratory movement to said trays, and receiving receptacle supported upon the frame beneath and in proximity to the outer ends of each of said trays, the extended end of the upper tray passing over and being disposed beyond the particular receiving receptacle arranged directly therebeneath.

2. A pea grader comprising a supporting frame, a plurality of receiving receptacles supported in spaced superposed relation upon one end of said frame, a plurality of spaced superposed perforated interconnected trays arranged in said frame, the upper of said trays having an extension projecting across and beyond the upper receptacle, that portion of the extension over said upper receptacle having perforations therein larger than the perforations in the remaining portion of the same and means for imparting a vibratory motion to said trays.

3. A pea grader comprising a supporting frame, pairs of upper and lower inwardly opening inclined channel bar tracks included in said frame, a plurality of perforated trays interconnected to form a unit, upper and lower trays included in said unit and arranged adjacent said tracks, one end of said upper tray being extended for a distance beyond the adjacent end of the remaining trays and having perforations in said extended end larger than the perforations in the remaining portions thereof, laterally extending arms carried at the sides of said upper and lower trays, rollers mounted in the outer ends of said arms and adapted to be received in said tracks, receiving receptacle supported upon said frame in proximity to and below the outer ends of each of said trays, the extended end of the upper tray passing over and beyond the receiving receptacle in proximity thereto and means for imparting a vibratory motion to said trays.

In witness whereof I have hereunto set my hand.

PAUL CARL KRASKA.