(No Model.) 2 Sheets—Sheet 1.

H. H. HUTCHINS.

FRUIT AND VEGETABLE ASSORTER.

No. 465,856. Patented Dec. 29, 1891.

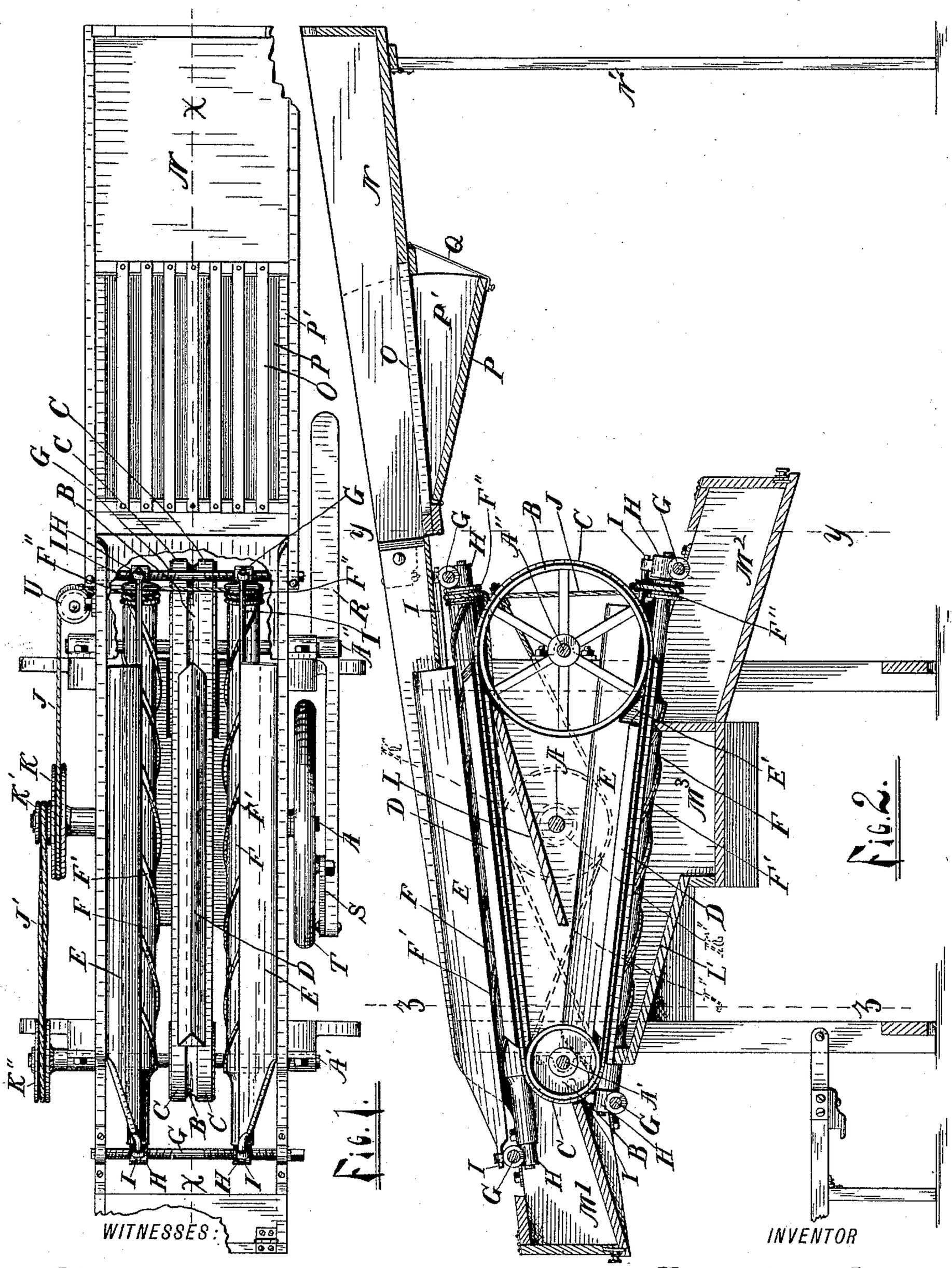

Fig. 1.

Fig. 2.

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Fig. 2.

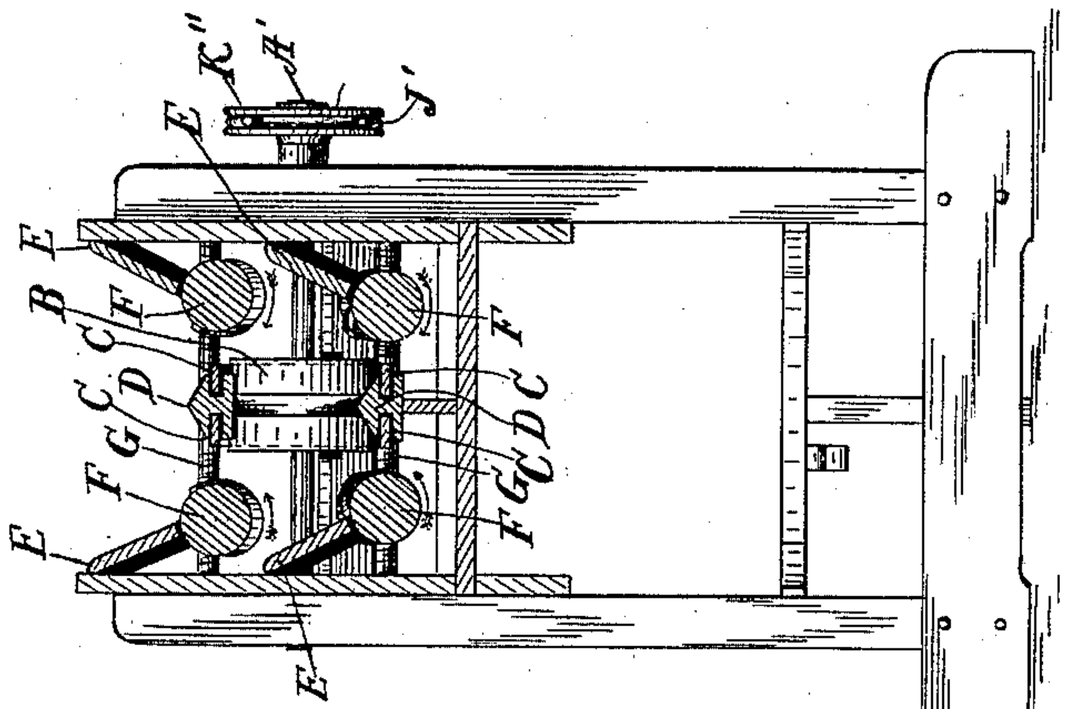
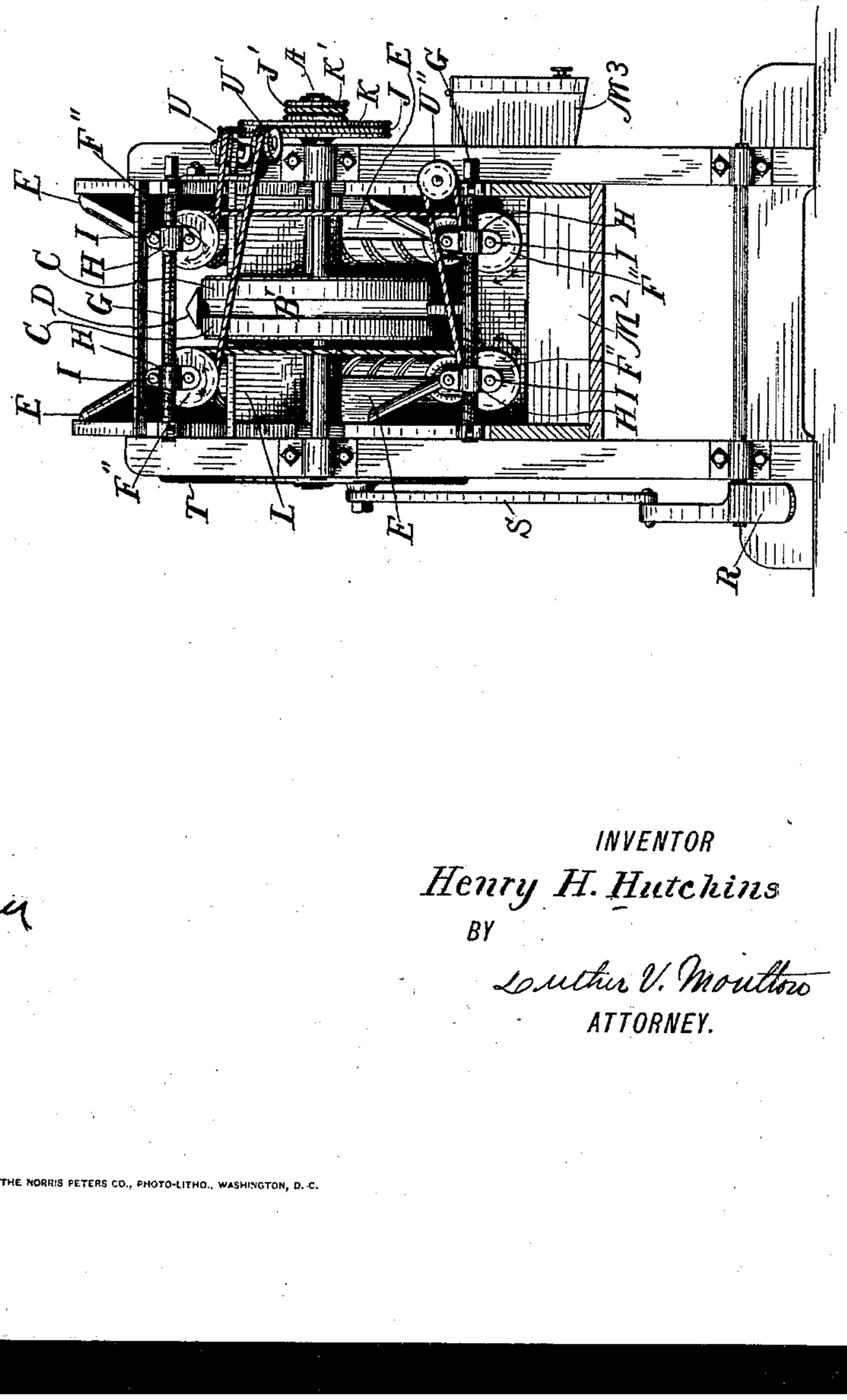


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY H. HUTCHINS, OF GANGES, MICHIGAN.

FRUIT AND VEGETABLE ASSORTER.

SPECIFICATION forming part of Letters Patent No. 465,856, dated December 29, 1891.

Application filed August 6, 1891. Serial No. 401,844. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. HUTCHINS, a citizen of the United States, residing at Ganges, in the county of Allegan and State of Michigan, have invented certain new and useful Improvements in Fruit and Vegetable Assorters; and I do hereby declare the following to be a full, clear, 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.

My invention relates to improvements in machines for assorting or grading fruits and vegetables, and more particularly to improvements in the style of machines for which I have made application for Letters Patent, filed January 30, 1890, Serial No. 338,693.

The object of my invention is to provide such machines with certain new and useful features hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a device embodying my invention; Fig. 2, a longitudinal vertical section of the same on the line *x x* of Fig. 1; Fig. 3, an end elevation, partly in section on the line *y y* of Fig. 2; and Fig. 4, a transverse vertical section on the line *z z* of the same figure.

Like letters refer to like parts in all the figures.

Journaled within a suitable frame-work and near the center of the machine is the driving-shaft A, having the fly-wheel T at one end and the pulley K K′ at the other end and rotated by the pitman S and treadle R.

Journaled near each end of the machine and in the same horizontal plane are two shafts A′ and A″, each having at the middle a pulley B, around which are two parallel belts C C a short distance apart, said belts having their adjacent edges running in grooves in the opposite sides of a middle guide D, the upper side of which is oppositely inclined toward the respective rolls F, which rolls are parallel to and opposite the outer edges of said belts. These rolls are provided with spiral ribs F′ and journaled in hangers H, which hangers are mounted upon transverse rods G, each having right and left threads engaging corresponding threads in the respective hangers.

E are side boards arranged parallel to the rolls F, having their lower edges above the same, and pivoted to the hangers H by the rods I, their upper edges being inclined outward and resting against the inner sides of the frame.

K″ is a pulley on the shaft A′, which is connected to K′ on the driving-shaft by a belt J′ to drive the belts C C. The pulley B on the shaft A′ is smaller than the corresponding pulley on A″, whereby the upper and lower linear parts of the belts C C are oppositely inclined, the upper parts descending from the larger to the smaller pulley and the lower parts descending from the smaller to the larger pulley. The respective upper and lower guides D D, rolls F, and side boards E are also inclined to correspond with the portion of the belts C with which they coact.

Beneath the upper system is the inclined floor L, with its lower end near and above the upper end of the lower system, and beneath the lower system another inclined floor leading to the discharge-chute M^3. Beneath the respective lower ends of each system are other similar discharge-chutes M′ M^2. On the lower end of the lower guide E is an inclined guard E′, which deflects the stock away from the pulley B and prevents it from being caught between said pulley and the belts C C. All of the rolls F are provided with pulleys F″ on their adjacent ends, said pulleys being substantially in the same vertical plane and rotated in the direction indicated by the arrows by a single belt J, which runs from the upper side of the pulley K to the idler U, thence around the upper right-hand pulley, thence downward to and around the lower right-hand pulley, thence laterally to the idler U″, thence returning across to and around the lower left-hand pulley, thence upward to and around the upper left-hand pulley, thence across to the idler U′, and thence to the lower side of the driven pulley K, being led around the various pulleys, as indicated by the arrows, and crossed, as indicated in the drawings.

N is the inclined feed-hopper, pivoted at its lower end to the frame of the machine and supported at its upper end by the pivoted leg N′. A portion of the floor of said hopper is grated, as shown at O, and beneath the same is an inclined chute P, having segmental sides P′, pivoted at its upper end beneath the lower end of the grating and adjustably supported by one or more straps Q at its lower end.

The operation of my device is as follows: The fruit, vegetables, or other stuff to be assorted is put into the upper end of the hopper N, and, passing over the grating O, all sticks, leaves, and portions too small to be of value fall through upon the chute P, and, sliding down, fall to the ground or into a suitable receptacle. When out of use, the hopper N is turned over upon the top of the machine. P then incloses and protects the bars O from accidental damage. Passing down upon the upper system the fruit, &c., is divided by the inclined upper surface of the guide D, all but the largest falling through between the belts C and the rolls F, which rolls are adjusted relative to said belts by turning the rods G. These larger ones, resting on the outer edges of the belts, are carried forward by the same, and, aided by the spiral form of the ribs of the rolls, pass down and are discharged at M′. All those that pass through the upper system fall upon the upper end of the lower system, where they are again taken up by the inner surface of the same belts C C. These lower rolls, being properly adjusted to the said belts, take out another smaller grade, and the residue, passing through, is discharged at M^3, while the middle grade is discharged at M^2. It will be observed that by the construction shown the rolls are equally and simultaneously adjusted by turning the rods G and that the side boards are at the same time automatically maintained in proper relation to the rolls; also, that the stuff passing through the screen O is discharged from the machine and the screen protected from accidental breakage when out of use.

What I claim is—

1. In combination with an inclined feed-hopper pivoted at one end, having a grated portion and adapted to fold upon the top of the machine, an oppositely-inclined chute pivoted to the lower end of said hopper at one end and adjustably attached to said hopper at its opposite end, said chute also adapted to cover and protect said grated portion of said hopper, substantially as described.

2. The combination of two shafts in substantially the same horizontal plane, each having a pulley, one of which is larger than the other, two parallel belts around said pulleys, a guide having oppositely-inclined upper surfaces above the adjacent edges of said belts, and rolls parallel with the outer edges of said belts, substantially as described.

3. The combination of parallel rolls adapted to rotate in opposite directions, grading-belts between said rolls, oppositely-inclined pivoted side boards above said rolls, said side boards and rolls being journaled in hangers mounted on transverse rods having right and left screw-threads engaging corresponding threads in said hangers, substantially as described.

4. The combination of two shafts in the same plane, having pulleys of different sizes, two parallel belts around said pulleys, grooved guides engaging the inner edges of said belts, said guides having oppositely-inclined upper surfaces, and rolls parallel to the outer edges of said belts, substantially as described.

5. The combination of two shafts in the same plane, pulleys of unequal diameters on said shafts, parallel belts on said pulleys, guides having grooves engaging the adjacent edges of said belts and oppositely-inclined upper surfaces, and rolls opposite the outer edges of said belts, journaled in hangers mounted on rods having right and left hand screw-threads engaging corresponding threads in said hangers, and side boards above said rolls pivoted to said hangers at their lower edges and outwardly inclined at their upper edges, substantially as described.

6. In a fruit-grading machine, parallel belts, a guide having grooves engaging the adjacent edges of the same and oppositely-inclined upper side above the same, and rolls adjacent to the outer edges of said belts, adapted to rotate in opposite directions and having oppositely-inclined spiral ribs, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY H. HUTCHINS.

Witnesses:
DENNIS L. ROGERS,
LOIS MOULTON.