

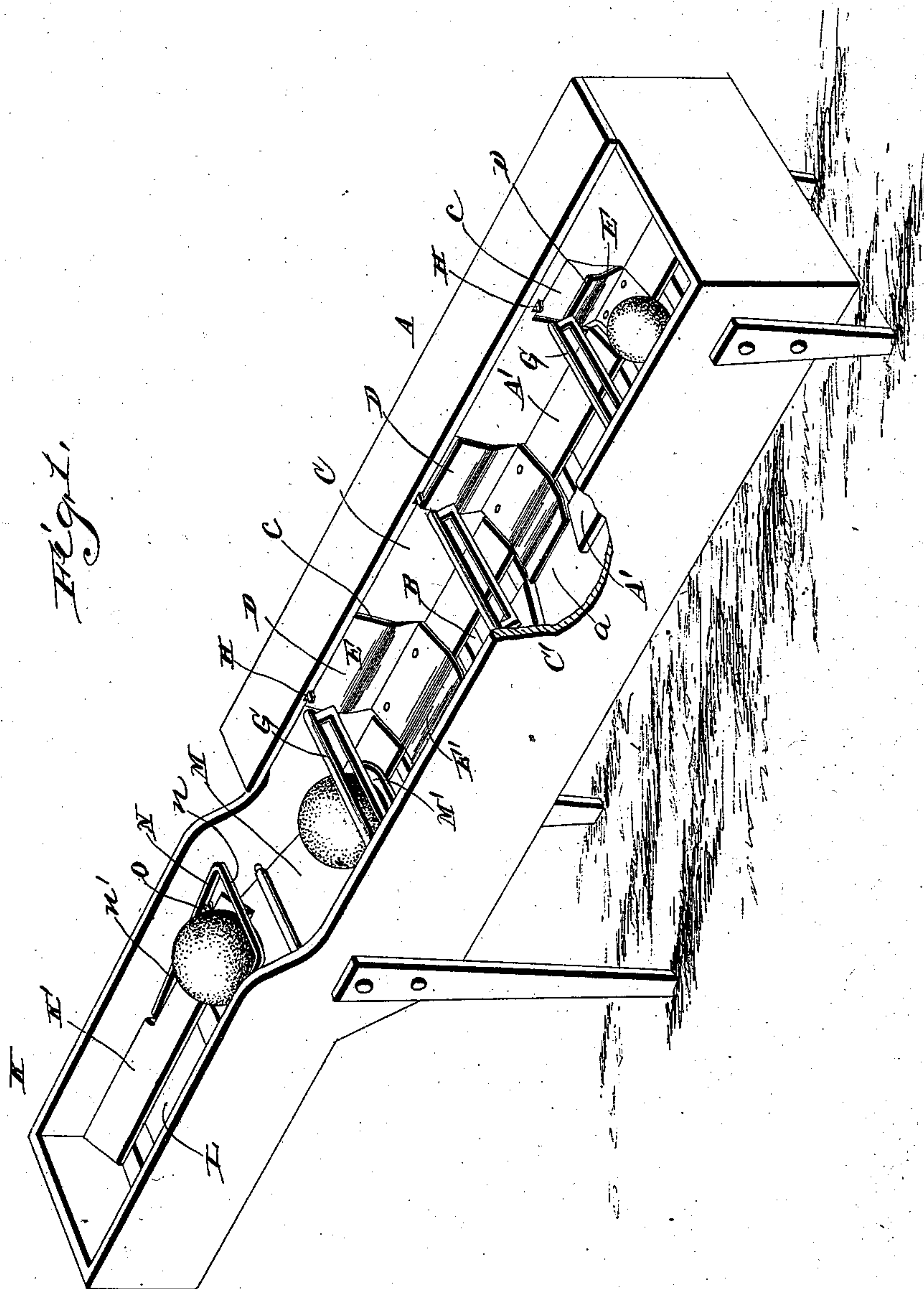
(No Model.)

2 Sheets—Sheet 1.

T. HIATT.
AUTOMATIC FRUIT ASSORTER.

No. 381,241.

Patented Apr. 17, 1888.



Witnesses

C. B. Taylor,
C. E. Doyle

Inventor.

Thomas Hiatt
by *C. A. Howden*
Attorneys.

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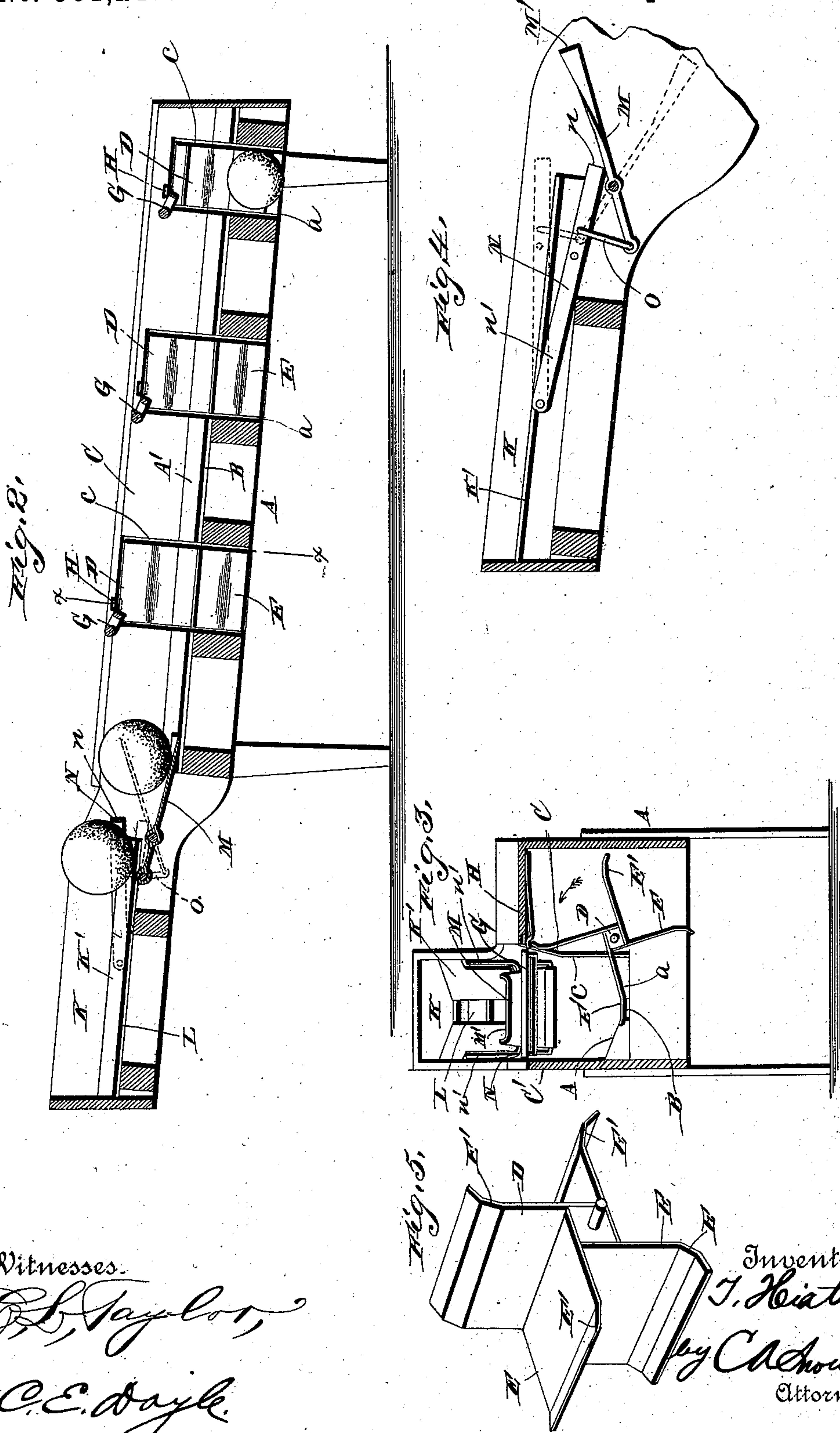
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By C. A. Howard & Co.
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UNITED STATES PATENT OFFICE.

THOMAS HIATT, OF LEESBURG, FLORIDA.

AUTOMATIC FRUIT-ASSORTER.

SPECIFICATION forming part of Letters Patent No. 381,241, dated April 17, 1888.

Application filed November 2, 1887. Serial No. 254,094. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HIATT, a citizen of the United States, residing at Leesburg, in the county of Lake and State of Florida, have invented new and useful Improvements in Automatic Fruit-Assorters, of which the following is a specification.

My invention relates to improvements in automatic fruit-assorters adapted to size and separate oranges or any other fruit which will roll down an incline plane.

My present invention is an improvement upon the device shown in Letters Patent No. 369,939, and bearing the date September 13, 1887, having for its object the provision of a feeding device which is simpler and will allow of a more compact arrangement of the parts of the machine.

A further object of the invention is to provide means whereby the fruit will be more surely and steadily guided from the feed to the sizing-openings than when merely a trough is used, as in the previous invention.

A further object of the invention is to provide means to allow the escape from the sizing table or board of the dirt, water, &c., which is carried by the fruit.

With these objects in view my invention consists in a certain novel construction, arrangement, and combination of devices, clearly set forth hereinafter in connection with the drawings, and specifically pointed out in the appended claims.

In the accompanying drawings, wherein similar letters of reference denote corresponding parts in all the figures, Figure 1 is a perspective view of the apparatus embodying my improvements. Fig. 2 is a side elevation, partly in section, of the same. Fig. 3 is a transverse sectional view on the line *x x* of Fig. 2. Fig. 4 is a detail sectional view of the feed mechanism. Fig. 5 is a detail view of the escapement.

Referring by letter to the drawings, A designates the sizing-board, which is inclined transversely from both sides toward the center to form the groove A', and B represents a slot formed at the center of the sizing-board at the bottom of the said groove. The groove is designed to guide the fruit accurately down the center of the sizing-board, and the slot is

designed to allow the dirt which may be sticking to the fruit to drop through. The said sizing or assorting board A is inclined longitudinally, and is provided at opposite edges with the similarly-inclined side extensions, C C'. The side C is provided with a series of openings, *c*, which diminish gradually in size toward the lower end of the board, and the board A is provided with a similar series of graded openings, *a*, which are respectively aligned with the openings *c*.

D D designate escapements, which are pivoted in the aligned openings *a c*, with their centers in line with the angle between the board A and the side C. The said escapements are provided with the wings E E, four in number, which are arranged in the form of a cross, whereby when one of the wings is in the horizontal position and closing the opening *a* in the sizing-board another wing is in the vertical position and closing the opening *c* in the side C. The wings E are also provided with grooves E' to correspond with the groove A' in the board A, so that when one of the said wings is in the horizontal position (closing the opening *a*) the groove in the sizing-board will be continuous from one end to the other, thereby offering no obstruction to the passage of fruit. As an orange passes over one of the wings E, the escapement will, if not prevented, revolve and allow the said orange to pass through the opening *a*. To prevent this revolution of the escapement, I provide the gages G, which are pivoted between the upper edges of the sides C C' above the openings in the sizing-board and normally drop down in the path of the upper wing of the escapement. The engaging edge of this gage may be raised and the escapement may then be revolved to allow the fruit to drop through the opening *a*; but unless the gage is first raised the said fruit may pass freely over the horizontal wing of the escapement. These gages are placed at varying elevations above the assorting or sizing board, the gage near the upper end of the board being at the greatest elevation, while the elevations of the succeeding gages diminish gradually toward the lower end of the board. The width of each opening *a* in the board is somewhat greater than the distance from the board to

the gage immediately above the said opening. Therefore, as an orange rolls down the inclined board A it will pass over the horizontal wings of the escapements as long as it does not raise one of the gages; but as soon as it arrives at a gage under which it cannot pass without raising it the escapement to which said gage belongs will be released, and the weight of the orange on the horizontal wing will be depressed and allow the fruit to drop through the opening *a* into a proper receptacle. When an orange has dropped through one of the openings *a*, thereby turning the escapement, the wings of the latter change positions—that is, the previous horizontal wing is depressed, the previous vertical wing is in the horizontal position, and the gage G now engages the present vertical wing. It will be understood that as an orange drops through the opening *a* the gage G drops into its normal position in the path of the approaching wing, thereby allowing only a quarter-revolution of the escapement.

To prevent the escapement from movement in the reverse direction to that indicated by the arrow in Fig. 4, I provide a spring-catch, H, at the upper edge of the opening *c*, which catch is so arranged that the upper wing of the escapement in passing will depress it; but when the said wing has passed, the catch will spring out in the rear of the wing and engage it on the opposite side from the gage G, thus securely locking the escapement from either forward or backward motion. The only direction, therefore, in which the escapement can move is that indicated by the arrow, and it can only move in this direction when the stop-gage G is raised by the fruit.

K designates the feed-board, provided with the groove K' (having sides which are inclined toward the center of the board) and the central slot L, at the bottom of the said groove.

M designates a drop-chute pivoted near the rear end to the sides of the feed-board, and adapted (when in the lowered position) to bear at the lower edge on the assorting or sizing board. The said drop-chute is provided with a central groove, M', corresponding to the grooves in the feed-board F and the sizing-board A.

N designates the stop, comprising the cross-bar *n* and the arms *n' n'*, which are pivoted at their rear ends to the side extensions of the feed-board and operate in longitudinal grooves in the outer edges of the board. The cross-bar *n* is adapted to operate at the lower end of the feed-board directly over the drop-chute. The rear end of the drop-chute is connected by the rods O O to intermediate points of the arms *n' n'*, so that when the free end of the chute is depressed the front or free end of the stop will be raised. The utility of this stop device will be obvious. The oranges or other fruits are placed on the feed-board, where they are held from lateral motion while rolling by the groove in the board, both large and small fruit being thus equally well

guided. An orange presses upon the drop-chute (which is then in the position shown in dotted lines in Fig. 2) and forces it down, thereby raising the stop N, which engages the second orange and holds it on the feed-board until the chute has been freed by the first orange and returns to its normal position. The first orange passes down the grooved board A until it raises one of the stop-gages G and drops through the opening.

The machine is so arranged that one orange is allowed to pass well on its way down the sizing-board before the next is released by the stop, so that there will be no danger of the machine becoming clogged.

The grooves in the board K, the chute M, the board A, and the wings E guide the fruit directly down the center of the machine, and thus guard against the obstruction of the passage by the fruit catching and becoming jammed.

The slots in the center of the board A and K allow the dirt to drop through, and thus prevent an accumulation which would interfere with the passage of the fruit.

The stop and chute device, which connects the lower end of the feed-board to the upper end of the sizing-board, is simple and is not liable to need repair. It is, further, very compact, thereby allowing the feed-board and sizing-board to be arranged very close together, and thus economize space.

I am aware that my previous patent, No. 374,153, shows a stop which is operated by the chute, and I do not, therefore, claim this feature, broadly; but the loop-shaped stop herein described is an improvement upon that previously claimed. The stop in the previous patent is provided with a stud which obstructs the passage of the fruit, and if the fruit is small it will be liable to become jammed between the stop and the sides of the feed-board, whereas the present stop incloses the end of the feed-board, and thus obviates this objection. Further, the loop-shaped stop is lighter, may be made of wire, and is more easily applied to the board.

Having thus described my invention, I claim—

1. In a fruit-assorting device, the combination, with the sizing-board A, having the groove A' therein and the openings *a*, of graded sizes, of the escapements D, journaled in the said openings and having the grooved wings E to close the openings *a*, with the grooves therein aligning with the groove in the sizing-board, substantially as and for the purpose specified.

2. In a fruit-assorting device, the combination, with the inclined sizing-board A, having openings *a* therein, and the inclined side C, with similar adjacent openings *c*, of the revolving escapements journaled in the said openings, having the wings E, the swinging gages G above the said openings and engaging the upper wings of the escapements, and the spring-catches to engage the said upper

wings on the side opposite the gages and prevent the escapements from revolving in the reverse direction, substantially as and for the purpose specified.

5 3. In a fruit-assorting device, the combination, with the feed-board, of the loop-shaped stop N, embracing the lower end of the feed-board and having its arms *n' n'* pivoted to the sides thereof, and the chute pivoted at an intermediate point below the end of the said
10 board and connected at its end to the said

stop, whereby the weight of the latter normally holds the chute raised, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

THOMAS HIATT.

Witnesses:

J. P. FRETWELL,
R. L. FRETWELL.