

April 8, 1924.

A. E. CALDWELL

1,489,927

FRUIT GRADER

Filed July 11, 1923

2 Sheets-Sheet 1

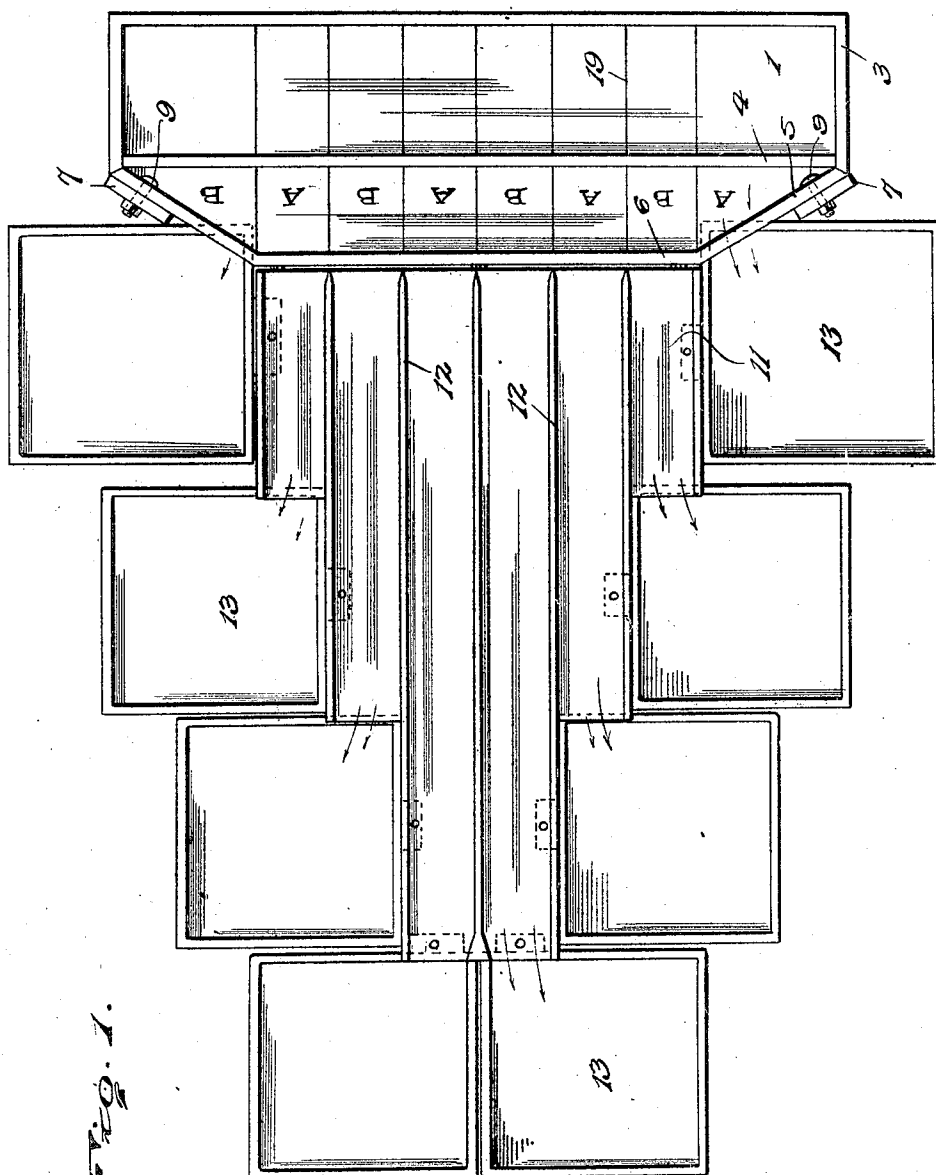


Fig. 1.

Inventor

A. E. Caldwell.

By

Larry Lacey, Attorneys

April 8, 1924.

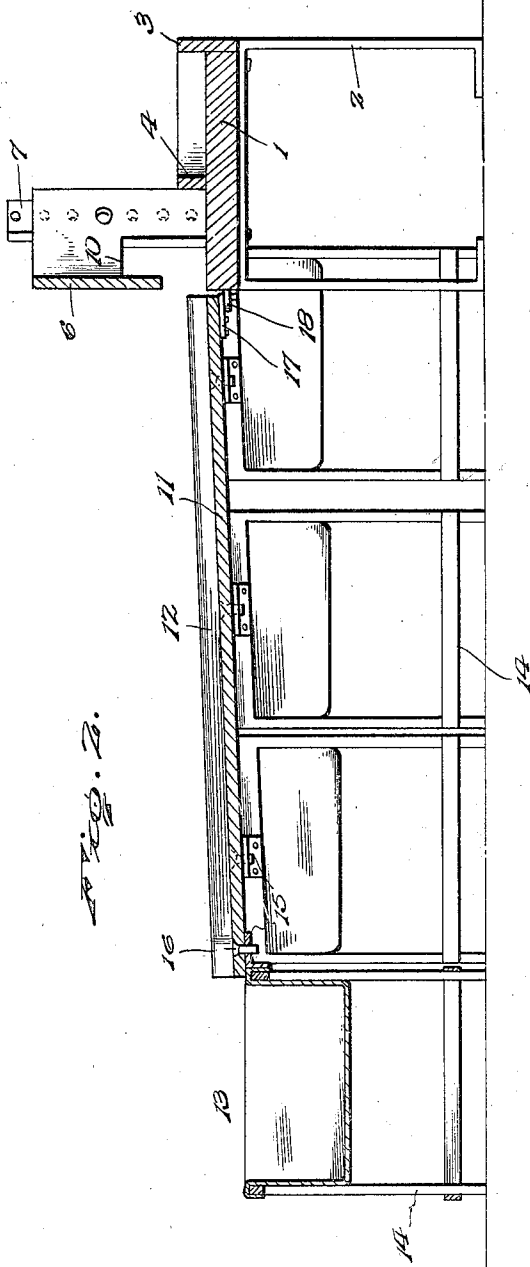
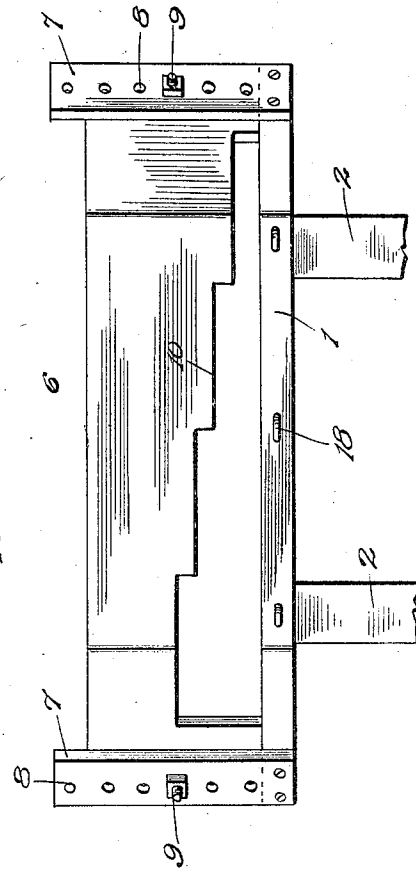
A. E. CALDWELL

1,489,927

FRUIT GRADER

Filed July 11, 1923

2 Sheets-Sheet 2



Inventor

A. E. Caldwell.

By

Lacy & Lacy Attorneys

UNITED STATES PATENT OFFICE.

ARCHIE E. CALDWELL, OF COLUMBIA, CALIFORNIA.

FRUIT GRADER.

Application filed July 11, 1923. Serial No. 650,848.

To all whom it may concern:

Be it known that I, ARCHIE E. CALDWELL, a citizen of the United States, residing at Columbia, in the county of Tuolumne and State of California, have invented certain new and useful Improvements in Fruit Graders, of which the following is a specification.

This invention is an apparatus for use in grading fruit and its object is to provide an inexpensive device by the use of which fruit may be easily assorted according to size so that substantial uniformity in the fruit delivered in one crate will be attained. The invention provides an apparatus which will support the fruit to be graded in such position that it may be conveniently inspected by the operator so that the fruit having no marketable value may be discarded and the other fruit quickly graded. The invention is illustrated in the accompanying drawings and will be hereinafter fully set forth.

In the drawings:

Figure 1 is a plan view of an apparatus constructed according to my invention;

Fig. 2 is a vertical longitudinal section, and

Fig. 3 is a rear elevation of the gage or measuring board.

In carrying out my invention, I employ a table 1 which may be supported upon legs or a frame 2 of any convenient form. The table is provided with an upstanding rim 3 whereby the fruit placed upon the table will be prevented from rolling off the same, and extending from side to side of the table is a rail or partition 4 which is similar in form and dimensions to the rim. In rear of the rim, the end portions of the table are preferably disposed obliquely, as indicated at 5, and extending along and rising from the rear edge of the table is a gage or measuring board 6, the said gage or measuring board being supported by posts or standards 7 rigidly secured to the table at the ends of the same, as shown and as will be readily understood. The standards or posts are provided with vertical series of openings 8 therethrough in any one of which the securing bolts 9 may be engaged to secure the gage at the proper elevation. The lower edge of the gage or measuring board is of a stepped formation, as shown at 10, whereby a series of horizontally extending shoulders is produced and a space is formed

between the lower edge of the measuring board or gage and the upper surface of the table, which space is of greater vertical extent at one side of the table than at the other side, as will be readily understood upon reference to Fig. 3. Connected with the rear edge of the table and extending rearwardly therefrom at a slight downward inclination is a guide table 11 having upon its upper surface a plurality of ribs 12 extending longitudinally of the guide table so as to form a plurality of runways or chutes through which the fruit may roll to be received in baskets or other receptacles 13 disposed at the rear end and along the sides of the guide table. By referring to Fig. 1, it will be noted that the guide table is substantially triangular in form, the outermost runways or chutes being shorter than the intermediate runways or chutes and the intermediate runways or chutes being, in turn, shorter than the central runways. The several baskets or receptacles 13 are so disposed that each runway delivers into one receptacle so that all the fruit passing through any one runway will be caught in the same receptacle and consequently all of the fruit in any one receptacle will be of substantially uniform diameter. The receptacles are carried by supporting frames 14 of any convenient construction and each frame is provided at its upper end with a bracket 15 to be engaged by a pin or stud 16 on the guiding table whereby the receptacles will be maintained in proper relation to the respective runways. In the present illustration, the measuring board or gage 6 is formed with four horizontally extending shoulders along its stepped edge 10, and the table 11 is provided with six runways on its upper side. The ends of the stepped edge of the gage or measuring board are disposed in the inclined portions 5 of the main table and the foremost receptacles or baskets are so disposed that each has a corner projecting under the table 1 in such position that the extreme grades of fruit may be passed directly into the baskets. The guiding or runway table is supported by the frames 14 which support the baskets 13 and is also supported at its front end by brackets 17 engaging eyes 18 on the table 1 so that the runway table will be held in fixed relation to the main or assorting table.

In use, the fruit to be assorted is dumped upon the table 1 between the rim 3 and the

rail 4 and is spread upon the table so that
 the different fruits may be readily grasped
 by the workmen. To facilitate the opera-
 tion, measuring lines 19 may be marked up-
 5 on the surface of the table 1 and extend from
 the front rim 3 to the rear edge of the table,
 and these lines will, of course, be in aline-
 ment with the several rails 12 of the run-
 ways. Fruit is required to be assorted ac-
 10 cording to its diameter, and the law permits
 only a specific variation in the diameters of
 all the fruits marketed within a single re-
 ceptacle. The workmen will grasp the
 single fruits and by turning the same so
 15 that the greatest diameter is presented to the
 measuring board or gage will quickly de-
 termine under which of the stepped shoul-
 ders the fruit may pass and will deliver the
 fruit under said shoulder into the runway
 20 alined therewith or it will pass under the
 lowest shoulder or can pass only into one
 of the foremost receptacles 13. The fruit
 delivered onto the guiding table will roll
 down the same and will be kept to a straight
 25 path by the several ribs or rails 12 so that
 it will be delivered positively into the proper
 receptacle. By vertically adjusting the
 gage, the apparatus may be set for use in
 grading small fruits, such as apples, peaches
 30 or oranges, or larger fruits, such as melons,
 and it has been found that by the use of the
 apparatus fruit of all kinds may be very
 rapidly graded so that its shipment and
 marketing will be facilitated. It will be
 35 noted that each shoulder 10 bridges the front
 ends of two runways and the designations
 "A" and "B" are marked upon the table
 at the ends of the respective runways. The
 workman inspects each fruit to determine
 40 its quality and feeds it under the gage board
 into the proper runway accordingly as it
 is in "A" or "B" grade of a given diam-
 eter. The fruit is thus easily and quickly
 graded or assorted according to both size

and quality. The apparatus is exceedingly 45
 simple and may be produced at a very low
 cost and as there are no moving parts it
 is not apt to get out of order but will be
 found exceedingly durable.

Having thus described the invention, what 50
 is claimed as new is:

1. A grading apparatus comprising an
 assorting table, and a vertically disposed
 gage extending over said table from side
 to side thereof and having a stepped lower 55
 edge in vertical spaced relation to the sur-
 face of the table.

2. A grading apparatus comprising an
 assorting table having an upstanding rim
 along its edges and a rail extending from 60
 side to side on its upper surface between its
 front and rear edges, a vertically disposed
 gage supported over the rear edge of the
 table and having a stepped lower edge
 spaced from the surface of the table, and 65
 means in rear of the table to receive fruit
 passed over the table and under a defined
 portion of the stepped edge of the gage.

3. A grading apparatus comprising an
 assorting table, a plurality of frames dis- 70
 posed in rear of the table in rearwardly con-
 verging relation, receptacles carried by the
 several frames, and a series of runways
 each supported at its rear end by one of
 said frames and at its front end by the rear 75
 edge of the assorting table, and each ar-
 ranged to deliver into the receptacles by
 which its rear end is supported.

4. A grading apparatus comprising an
 assorting table, posts erected on said table 80
 at the sides of the same, and a gage secured
 to and extending between said posts and
 adjustable vertically thereon, said gage hav-
 ing a stepped lower edge in spaced relation
 to the surface of the table. 85

In testimony whereof I affix my signature.

ARCHIE E. CALDWELL. [L. S.]