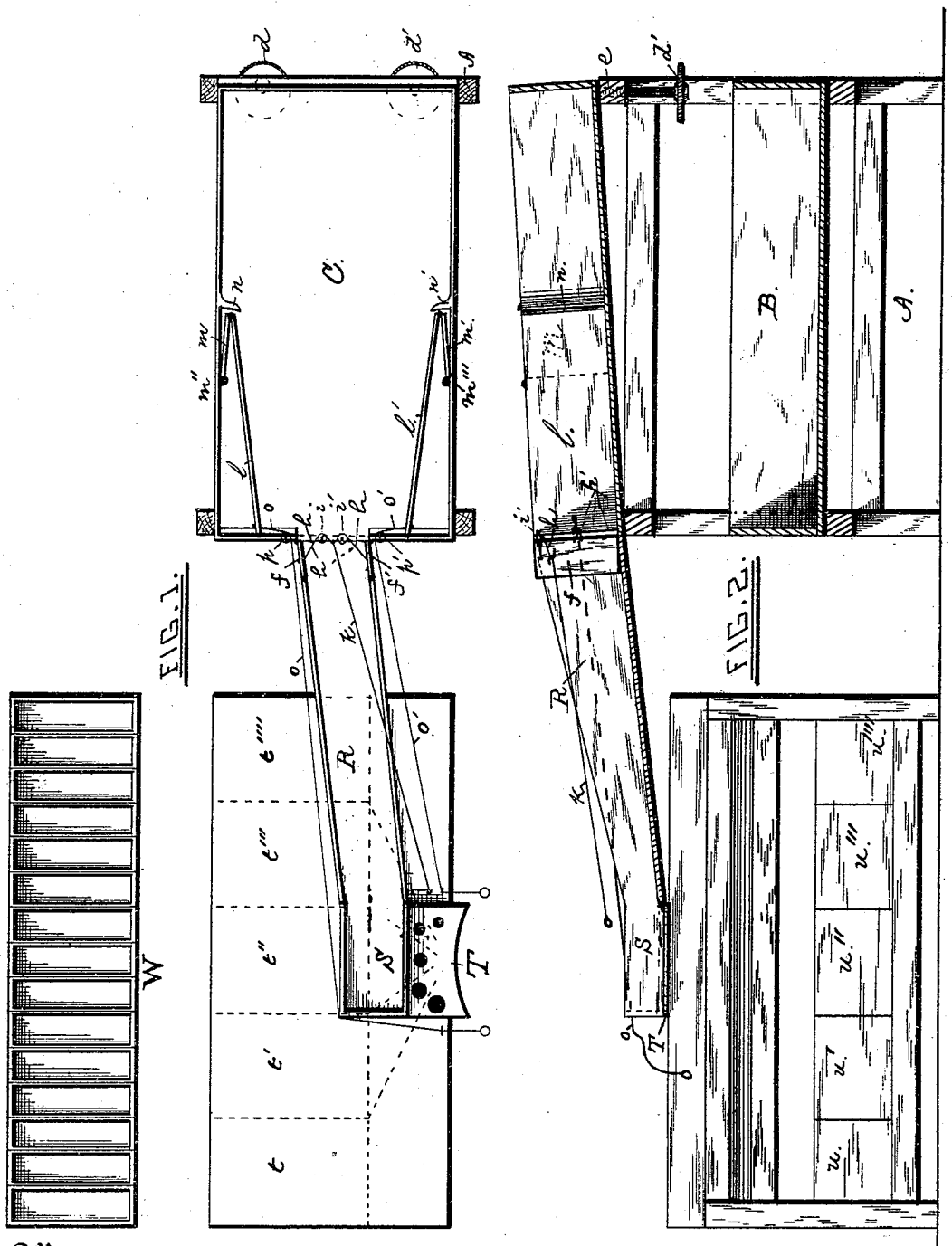
(No Model.) 2 Sheets—Sheet 1.

J. S. McKENZIE.

ORANGE SIZER AND BIN.

No. 352,421. Patented Nov. 9, 1886.



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(No Model.) 2 Sheets—Sheet 2.

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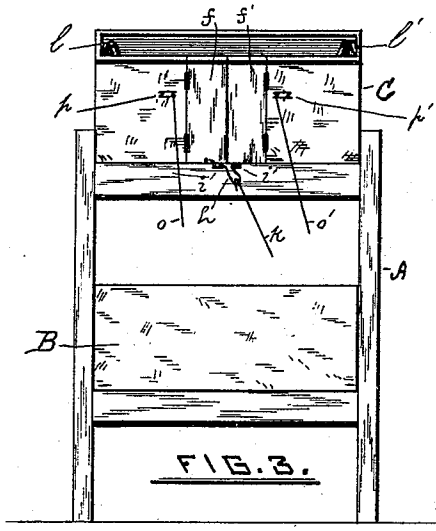


FIG. 3.

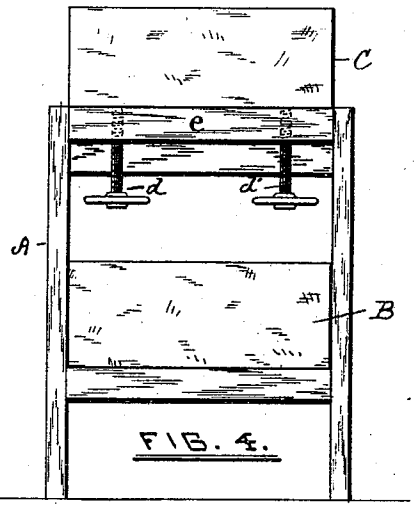


FIG. 4.

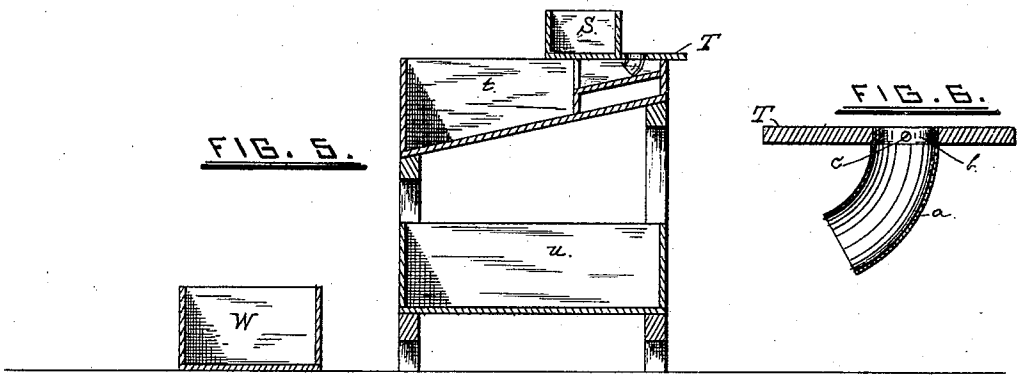


FIG. 5.

FIG. 6.

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UNITED STATES PATENT OFFICE.

JAMES S. McKENZIE, OF FRUITLAND, FLORIDA.

ORANGE SIZER AND BIN.

SPECIFICATION forming part of Letters Patent No. 352,421, dated November 9, 1886.

Application filed April 22, 1886. Serial No. 199,761. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. McKENZIE, a citizen of the United States, and a resident of Fruitland, county of Putnam, State of Florida, have invented new and useful Improvements in Orange Sizers and Bins, of which the following is a full and exact description, reference being had to the accompanying drawings, making part of this specification.

In the drawings, Figure 1 is a top view or plan of my machine. Fig. 2 is a side elevation of the sizer and bins connected therewith, together with a vertical longitudinal section of the receiving and delivery bins, and the trough connecting the latter with the tray of the sizer. Fig. 3 is a rear view of the receiving and delivery bins. Fig. 4 is a front view of same. Fig. 5 is a vertical transverse section of the sizer and its frame, a bin, and also one of the assorting-boxes. Fig. 6 is an enlarged section of the sizer or gage-plate, and of a flexible tube connected with one of the apertures thereof.

The invention relates to a machine composed of a series of bins for containing oranges or other spherical fruit, and to means connected therewith for transferring, sizing, and assorting the said fruit, as will be hereinafter more fully set forth and claimed.

The letter A designates a frame, within which is supported a receiving box or bin, B, from which the fruit is transferred in any desired manner to an upper box or delivery-bin, C, which is supported at an incline by reason of the front of the frame being made somewhat higher than the rear thereof.

In order to insure a forward movement of the fruit contained in the bin C, its front end is adapted to be elevated above the frame by means of a pair of elevating-screws, *d d'*, which are adapted to operate in screw-sockets formed in the front cross-timber, *e*.

The rear or lower end of the bin C is provided with a pair of doors, *f f'*, having a connecting-cord, *h*, arranged to operate over a pair of intermediate friction-pulleys, *i i'*. The movement of these doors is controlled by means of a rod or rope, *k*, one end of which is connected with the center of the cord *h*, so that by pulling the same the doors will be made to close, the weight of the fruit within the bin causing the doors to be opened the moment the rod or rope *k* is released from pressure.

To prevent accumulations of fruit in the lower corners of the bin C, as well as to insure the movement of the same toward the delivery-doors thereof, each side of the bin is provided with slides *l l'*, having hinged sections *m m'*, the outer ends of which are hinged to the sides of the bin, as shown at *m'' m'''*, thus adapting the slides to operate as if hung on ordinary "double hinges."

The lower ends of the slides *l l'* operate against the lower end of the bin, and are drawn inward, when necessary to guide the fruit to the discharge-doors, by means of a pair of cords, *o o'*, which are connected therewith and arranged to operate over a pair of friction-pulleys, *p p'*, journaled at the sides of the discharge-doors, as shown in Figs. 1 and 3.

To prevent the fruit from coming in contact with or lodging behind the hinged portions of the slides, guards *n n'* are secured to the sides of the bin, as shown in Fig. 1.

The fruit is discharged through the doors of the bin C into the trough R, the lower end of which is connected with a tray, S, secured on top of the sizer-frame, and which should be provided with an open side to allow the fruit to pass freely therein. At one side of the tray is the sizer or gage-plate T, having a series of holes of different diameters, so as to correctly gage the fruit operated upon. Beneath the level of the tray and sizing-plate are a series of compartments or bins, *t t' t'' t''' t''''*, each provided with a separate conduit from one of the holes in the gage-plate, by which the different sizes of oranges or fruit are rapidly and effectually separated. The bottoms of the bins *t t' t'' t''' t''''* are somewhat inclined, as shown in Fig. 5, for the purpose of conveying the fruit toward the sides thereof, from whence it is readily removed to boxes or bins *u u' u'' u''' u''''* below the same, or to the assorting-boxes W at the side thereof.

To expedite the counting of the fruit, each box or bin is made to contain a certain number of given-sized oranges or other fruit, and the assorting-boxes are made to hold exactly the same quantity as a "standard" or "trade" box.

To each bin *u u' u'' u''' u''''* there are three

assorting-boxes, and these are filled by an attendant standing between the bins and boxes, and whose duty it is to separate the different qualities before wrapping the same in paper and packing in the boxes. He is to place the bright and nice-looking oranges in one box, the half-russet in the next, and the russet in the third. The fruit removed from the same bin is of course all equal in size.

To prevent bruising or otherwise injuring the fruit in its passage through the sizer or gage-plate to the bin-conduits, each hole in said plate is provided with a flexible tube, *a*, which is held in position by means of a mouth-ring, *b*, and fastening-screw, *c*, as shown in Fig. 6.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an inclined bin having discharge-doors at the lower end thereof, a trough, a tray, and a sizer or gage-plate formed with holes, as described, with a series of bins provided with conduits for receiving the different sizes of fruit as they are dropped through the holes of the sizer or gage-plate, substantially as set forth.

2. In combination with a sizer or gage-plate and a trough leading thereto, a delivery-bin provided with doors at one end thereof for communicating with the trough, a frame supporting the delivery-bin, and elevating-screws for holding said bin at any desired inclination, substantially as set forth.

3. In combination with a sizer or gage-plate and a trough leading thereto, the delivery-bin C, provided with doors communicating with the trough, and slides *l l'*, having hinged sections hinged to the inner sides of the bin, and the cords *o o'*, substantially as and for the purpose set forth.

4. In combination with a sizer or gage plate formed with holes, a series of bins provided with conduits leading from the different holes, and a trough leading to the sizer, and a bin connected with the opposite end of the trough, said bin being held at an incline, and provided with the discharge-doors at its lower end, and slides *l l*, having hinged sections hinged to the inner sides of the bin, and the guards *n n'*, substantially as described, and for the purpose specified.

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

JAS. S. McKENZIE.

Witnesses:

J. H. GREEN,

S. R. CAUSEY.