A. M. O'QUINN.

SIZER AND GRADER.

APPLICATION FILED SEPT. 24, 1918.

1,293,176.

Patented Feb. 4, 1919.

2 SHEETS—SHEET 1.

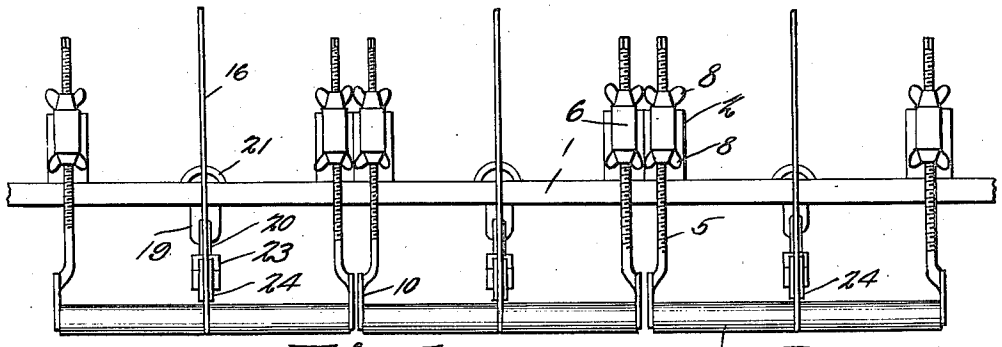


Fig. 1.

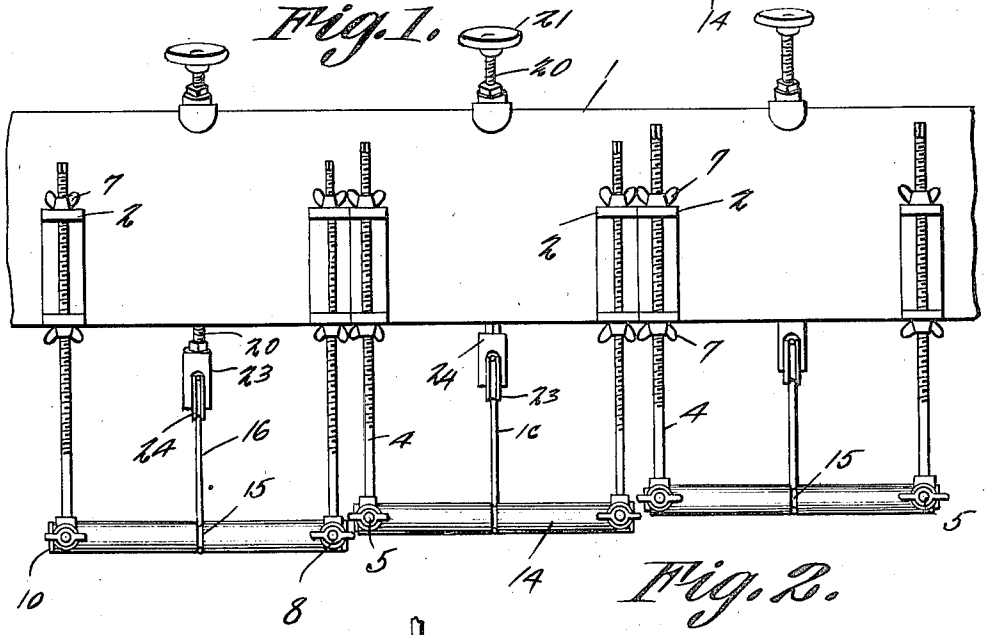


Fig. 2.

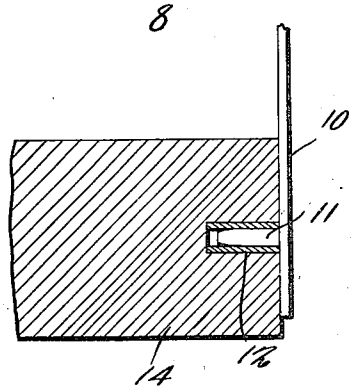


Fig. 3.

Witness

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2 SHEETS—SHEET 2.

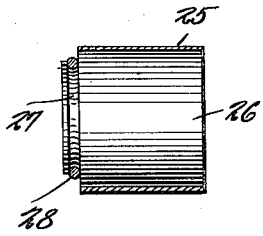


Fig. 5.

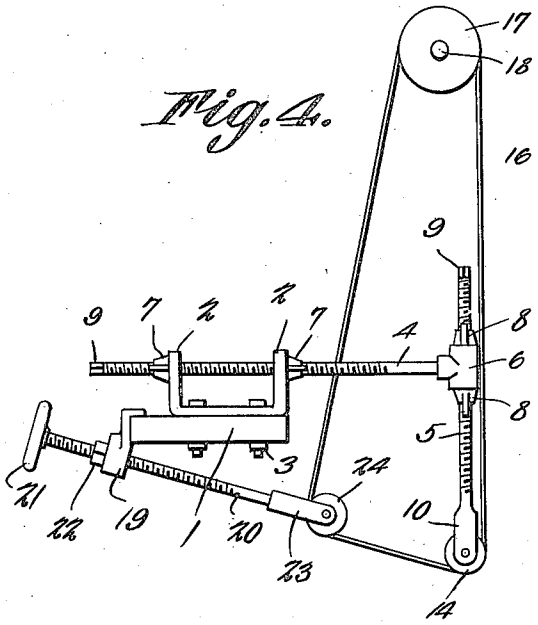


Fig. 6.

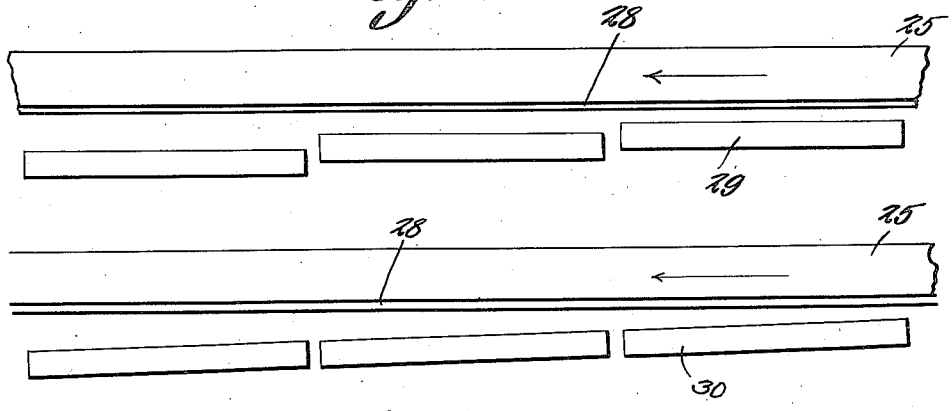


Fig. 7.

Witness

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UNITED STATES PATENT OFFICE.

ARTHUR M. O'QUINN, OF FORT VALLEY, GEORGIA.

SIZER AND GRADER.

1,293,176. Specification of Letters Patent. Patented Feb. 4, 1919.

Application filed September 24, 1918. Serial No. 255,486.

To all whom it may concern:

Be it known that I, ARTHUR M. O'QUINN, a citizen of the United States, residing at Fort Valley, in the county of Houston and State of Georgia, have invented a new and useful Sizer and Grader, of which the following is a specification.

The device forming the subject matter of this application is adapted to be employed for grading fruit and vegetables, and one object of the invention is to provide novel means whereby the sizing roller may be adjusted transversely, both horizontally and vertically.

The invention aims to provide novel means whereby the sizing roller may have, practically, a universal transverse adjustment, this adjustment being brought about by a simple mechanism, well adapted to withstand hard usage, and not likely to become inoperative after long continued use.

Another object of the invention is to combine, with a means for adjusting the sizing roller, a mechanism whereby the driving belt for the roller may be tightened up when the roller is adjusted, should it be found desirable to use a belt drive.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that, within the scope of what is claimed, changes in the precise embodiment of the invention shown can be made without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in front elevation, a device constructed in accordance with the invention; Fig. 2 is a top plan of the structure shown in Fig. 1; Fig. 3 is a fragmental section taken longitudinally of one of the rollers, and showing the end-mounting for the roller; Fig. 4 is a transverse section showing particularly, the means whereby the driving belt for the roller is tightened up, when the position of the roller is adjusted transversely; Fig. 5 is a fragmental elevation showing the means for operating certain of the belts; and Figs. 6 and 7 are diagrams, alluded to hereinafter in describing the operation of the machine.

The fruit and vegetable grader forming the subject matter of this application embodies a support or frame, including a beam 1 carrying U-shaped brackets 2 disposed cross wise of the beam and held in place thereon by securing elements 3. Each of the brackets 2 carry a first member 4 which is capable of right line adjustment in the bracket. A second member 5 is mounted for right line adjustment in the first member 4 in a direction at an angle to the direction in which the first member 4 is adjustable in the bracket 2. The members 4 and 5 may be variously constructed, and any suitable means may be provided for adjusting them and holding them in adjusted positions. Thus, the members 4 and 5 may be in the form of rods, the member 4 having a head 6 wherein the member 5 is received. If desired, the members 4 and 5 may be threaded, the member 4 carrying nuts 7 which engage the ends of the bracket 2, and the member 5 carrying nuts 8 which engage the ends of the head 6. Preferably, the member 4 is not threaded into the bracket 2, and the member 5 is not threaded into the head 6 but these members 4 and 5 may have squared ends 9 for the reception of a wrench or key, used in holding or manipulating them. The members 5 are vertically disposed, whereas the members 4 are horizontally disposed, in the ordinary construction of a fruit and vegetable grading machine. The members 5 terminate in end plates 10 carrying stub axles 11 received within bushings 12 in the ends of sizing rollers 14.

The sizing rollers 14 may be driven in any desired way, but, in the present embodiment of the invention, they are provided intermediate their ends with grooves 15 receiving driving belts 16 engaged with pulleys 17 on a line shaft 18. Hangers 19 are attached to the beam 1 or are supported otherwise, screws 20 being threaded into the hangers, the screws being downwardly and forwardly inclined with respect to the beam 1. The screws 20 may be manipulated by means of hand wheels 21, and are held in adjusted positions by means of lock nuts 22, which, being threaded upon the screws 20, engage the hangers 19 as clearly shown in Fig. 4.

At their forward ends, the screws 20 terminate in heads 23 carrying pulleys 24 across which the driving belts 16 are trained.

Any suitable means coöperating with the rollers 14 may be provided for affording a fruit runway during the sizing operation. If desired, a conveyer belt 25 may extend longitudinally of the rollers 14, the conveyer belt being trained around pulleys 26 having grooved treads 27, receiving a rope belt 28 which not only moves longitudinally, but rotates slowly on its axis. These details have not been discussed at great length, because they are shown, described and claimed, in my copending application for Letters Patent on a sizer and grader, Serial No. 255,485 filed the 24th day of September, 1918. It should be noted, however, that the rope belt 28 alone does not coöperate with the sizing rollers 14 to form a fruit runway, the conveyer belt 25 and the rope belt, together coacting with the rollers 14 to form the runway. The rope belt 28 serves to advance the fruit, and to turn the fruit on an axis extended through the stem end of the fruit, and through the opposite end thereof.

It will be understood that, by loosening the nuts 7 assuming that nuts are used, the first member 4 may be adjusted horizontally, in a right line, in one direction, it being possible to hold the member 4 in adjusted positions by tightening up the nuts 7. Similarly, by loosening the nuts 8, the member 5 may be adjusted vertically, and may be held in adjusted positions by tightening up the nuts 8. In this way, the sizing rollers 14 may be adjusted, one at a time, both horizontally and vertically. When the sizing rollers are adjusted, the slack may be taken out of the driving belt 16, by moving the pulley 24, the screw 20 being advanced or retracted, and being held in adjusted positions by the lock nut 22.

It will be seen that this application discloses a simple means whereby, practically, a universal transverse adjustment of the sizing roller 14 may be effected, so that the sizing roller may be located as desired with respect to the member which coöperates with the sizing roller during the sizing operation.

I am aware that it has been proposed heretofore, to adjust a sizing roller transversely in one direction. I am aware, also, that it has been proposed to swing a sizing roller in a single arc, at the end of a pivoted arm, supported in various ways. Such means, however, effect an adjustment of the roller to assume different positions on a single arc having its center exterior to the roll. The device forming the subject matter of this application is distinguished from such devices, by the fact that it provides an adjustment whereby the roller may be moved transversely to cause the roller to assume different positions on different arcs, having their centers exterior to the roller. Further, the structure herein described provides a means whereby the roller may be adjusted transversely in fixed planes at an angle to each other.

As shown at 29 in Fig. 6, the sizing rollers may be disposed parallel to the belts 25 and 28, but at different distances therefrom. In Fig. 7 as shown at 30, the sizing rollers are located in a straight line which slants away from the belts. Thus, when the rollers are arranged as disclosed in Fig. 6, a step by step sizing is effected, whereas, if the rollers are located as shown in Fig. 7, the sizing operation takes place gradually, and not by steps.

Having thus described the invention, what is claimed is:—

1. In a fruit and vegetable grader, a sizing roller; and means for adjusting each end of the roller transversely to cause each end of the roller to assume different positions on different arcs having their centers exterior to the roller.

2. In a fruit and vegetable grader, a sizing roller; and means for adjusting both ends of the roller transversely in fixed planes at an angle to each other.

3. In a fruit and vegetable grader, a support; a first member mounted for right line movement in one direction on the support; a second member mounted for right line movement in another direction on the first member; means for holding the first and second members in adjusted positions; and a sizing roller carried by the second member.

4. In a fruit and vegetable grader, a sizing roller; and means for adjusting the roller transversely to cause the roller to assume different positions along a non-circular curve.

5. In a fruit and vegetable grader, a conveyer; a sizing roller coöperating with the conveyer; and means for adjusting the roller transversely to cause the roller to assume different positions parallel to the conveyer, upon and on opposite sides of a fixed curve.

6. In a fruit and vegetable grader, a conveyer; a sizing roller coöperating with the conveyer; and independent means for adjusting each end of the roller transversely to cause the roller to assume different positions at an acute angle to the conveyer, upon and on opposite sides of a fixed curve.

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

ARTHUR M. O'QUINN.

Witnesses:
MASON B. LAWTON,
IVY E. SIMPSON.