

**No. 639,906.**

Patented Dec. 26, 1899.

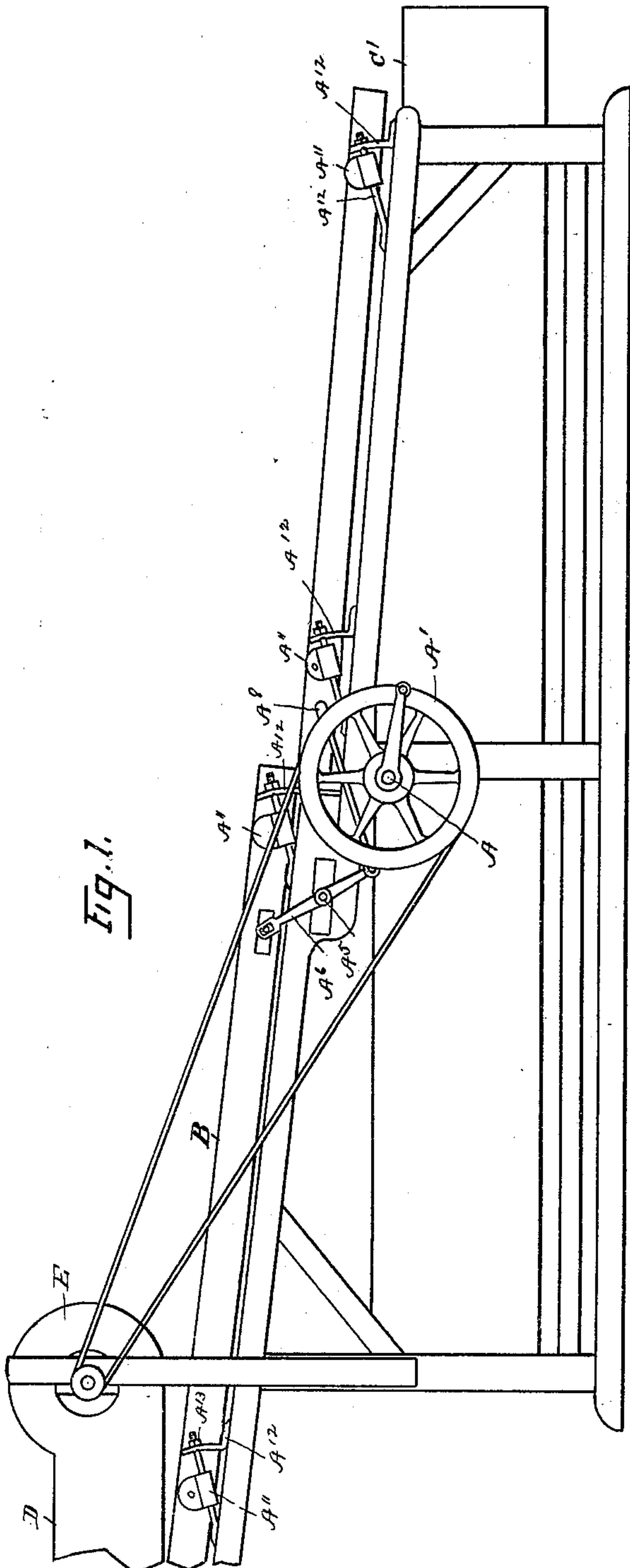
R. M. PRATT.

## FRUIT GRADER.

(Application filed Mar. 6, 1899.)

(No Model.)

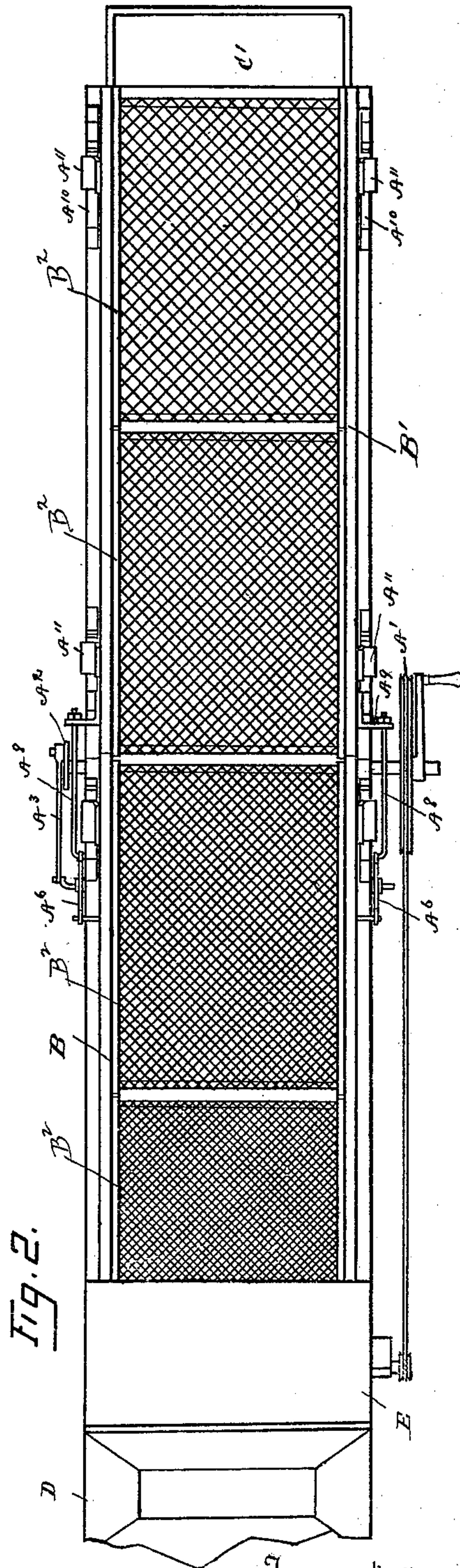
**2 Sheets—Sheet 1.**



Witnesses

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No. 639,906.

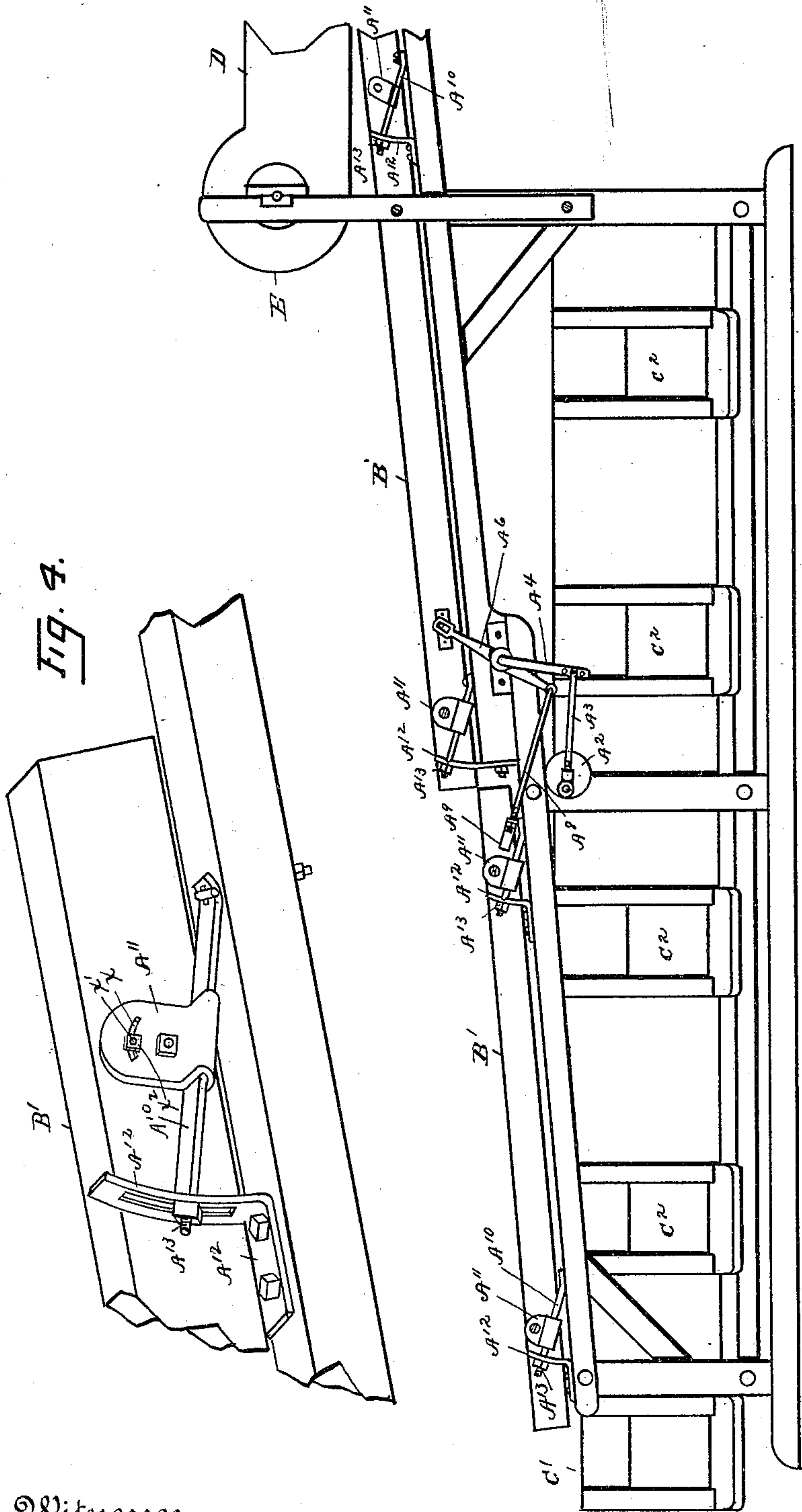
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

ROBERT M. PRATT, OF ST. HELENA, CALIFORNIA.

## FRUIT-GRADER.

SPECIFICATION forming part of Letters Patent No. 639,906, dated December 26, 1899.

Application filed March 6, 1899. Serial No. 708,045. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT M. PRATT, a citizen of the United States, residing at St. Helena, in the county of Napa and State of California, have invented certain new and useful Improvements in Fruit-Graders; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in fruit-grading machines; and it consists in the novel construction and arrangement of the parts, as hereinafter more fully set forth.

The object sought to be accomplished is to provide a machine simple in construction and requiring small power in its operation and to separate the fruit or the other matter into its various sizes, dropping them into separate compartments cleaned and free from bruises. Heretofore machines of this class have been of various constructions, the series of grading-screens being placed in one long tray, which has been rocked, usually from one end, either vertically or laterally. This class of machines has been objectionable in that the continued motion of a long tray pivoted at one end only racks the machine to pieces in a short time, requiring constant attention and repair of the parts.

In the drawings, Figure 1 is a side elevation of a machine constructed in accordance with this invention. Fig. 2 is a plan view from above of the same, showing the various sizes of mesh of the grading-screens. Fig. 3 is a side elevation from the reverse side of Fig. 1. Fig. 4 is a detail in perspective showing means of adjustment of the tray-guides.

In the description with reference to the drawings distinguishing letters of reference will be assigned to the primary parts. To the secondary parts of each group a common letter strengthened by a numeral will be assigned.

The machine is constructed, preferably, so far as practicable, of wood, in length about eighteen to twenty feet. The screen-trays are divided in the center and agitated by a reciprocating mechanism driven by the rotation of the shaft A, extended through the machine from side to side, having the driving-

pulley A' upon the one side and the crank-head A<sup>2</sup> on the other. Linked to the crank-head A<sup>2</sup> by the connecting-rod A<sup>3</sup> and crank-arm A<sup>4</sup> is the shaft A<sup>5</sup>, extended through the machine and oscillated by the rotation of the shaft A and the connecting mechanisms.

Rigidly mounted upon the shaft A<sup>5</sup>, on each side of the machine, are the reciprocating arms A<sup>6</sup>, the upper ends of which are connected to the upper tray B by means of a pin extended from the side of the upper tray B and working in a slot in the arm A<sup>6</sup>. The lower end of said arm is adjustably connected to the lower tray B' by means of the connecting-rod A<sup>8</sup>, the threaded end of which passes through the extension A<sup>9</sup> on the lower tray B'.

To get the desired action of the trays B and B', they are inclined at a suitable angle and mounted upon the approximately horizontal guides A<sup>10</sup> by means of bracketed sleeves A<sup>11</sup>, secured to the sides of the trays, said guides A<sup>10</sup> being secured upon the frame of the machine and on opposite sides and near each end of a tray.

To regulate the lift of the trays in their reciprocations, the guides A<sup>10</sup> are pivoted upon the frame and made adjustable vertically by means of the slotted extension-plates A<sup>12</sup> upon the frame of the machine, each guide-rod A<sup>10</sup> having a threaded portion extending through the slot in its plate A<sup>12</sup> and being clamped in adjusted position by means of a set-nut A<sup>13</sup> upon said threaded portion. The bracketed sleeves A<sup>11</sup> are, as shown, pivotally supported upon the trays, so that they can be adjusted to accommodate the adjusted positions of the guide-rods, and, if desired, said sleeves can be locked in adjusted position, as by the construction illustrated in Fig. 4, in which the bracket-plate is provided with a segmental slot  $\alpha$ , through which extends a bolt  $\alpha'$ , attached to the tray, a set-nut  $\alpha^2$  being provided for said bolt. It is evident from the construction just described that the reciprocating motion imparted to the tray is in a forward and up and downward and back direction. It is calculated to run the machine so rapidly that in one movement the fruit is thrown upward in a forward direction, the tray retreating in the reverse movement in a downward direction, and owing to the slant of the tray this leaves the fruit in a position



advanced on the screen. Thus it travels until it finds an opening through which it can pass into the bins C immediately under the screens.

Placing the actuating mechanisms in the center of the machine equalizes the strains and distributes the vibration more evenly over the frame, it having been found in practice that it is unnecessary to anchor the machine, as it will not, as is true of numerous forms of fruit-graders, creep or shift from its original position.

In grading fruit with this machine it is placed in the hopper D, at the upper end thereof, the light dirt and leaves or the like being separated therefrom by the blower E, belted to the driving-shaft A. The trays being agitated, the fruit now travels down the trays and is assorted into the various sizes by the screens, as described. The larger sizes, which have failed to escape through the screen, fall from the end of the tray B into the hopper C'.

To facilitate the removing of the fruit from the bins C, the bottoms are made sloping from approximately half-way their depth to a point behind the doors C<sup>2</sup> in the bin.

To make the screens easily changeable, they are mounted in the frames B<sup>2</sup>, which are inserted in the tray and maintained in position by the tightness of their fit. Thus the grader is quickly and easily adapted to handle any size or nature of fruit by the simple change of the screens.

While this machine has been described in its adaptability to the grading of fruit, and particularly to the grading of prunes, it is ob-

vious that it may be used for other purposes, such as grading gravel, separating screening from coal, or the like.

Having thus described this invention, what is claimed is—

1. In a device of the nature indicated, a frame, a tray carrying a screen or the like and having reciprocation on the frame, a guide-rod pivotally mounted upon the frame, a slotted extension-plate upon said frame, a threaded portion of the guide-rod extending through said slot and receiving a nut whereby said guide-rod is clamped in adjusted positions, and a sleeve upon the tray engaging the guide-rod; substantially as described.

2. In a device of the nature indicated, a frame, a tray carrying a screen or the like and having reciprocation upon the frame, a guide-rod upon the frame, means for adjusting the guide-rod to vary its inclination, a bracketed sleeve upon the tray, said sleeve engaging the guide-rod and said bracket being pivoted upon the tray and having a segmental slot, and a bolt upon the tray and projecting through said slot to receive a member, as a nut, for clamping the bracket to the tray and thus locking the same in adjusted positions; substantially as described.

In testimony whereof I have hereunto set my hand this 24th day of January, 1899.

ROBERT M. PRATT.

Witnesses:

BALDWIN VALE,  
E. F. MURDOCK.