

No. 610,458.

Patented Sept. 6, 1898.

G. M. PETERSON, Dec'd.

M. A. PETERSON, Administratrix.

FRUIT GRADER.

(Application filed July 28, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

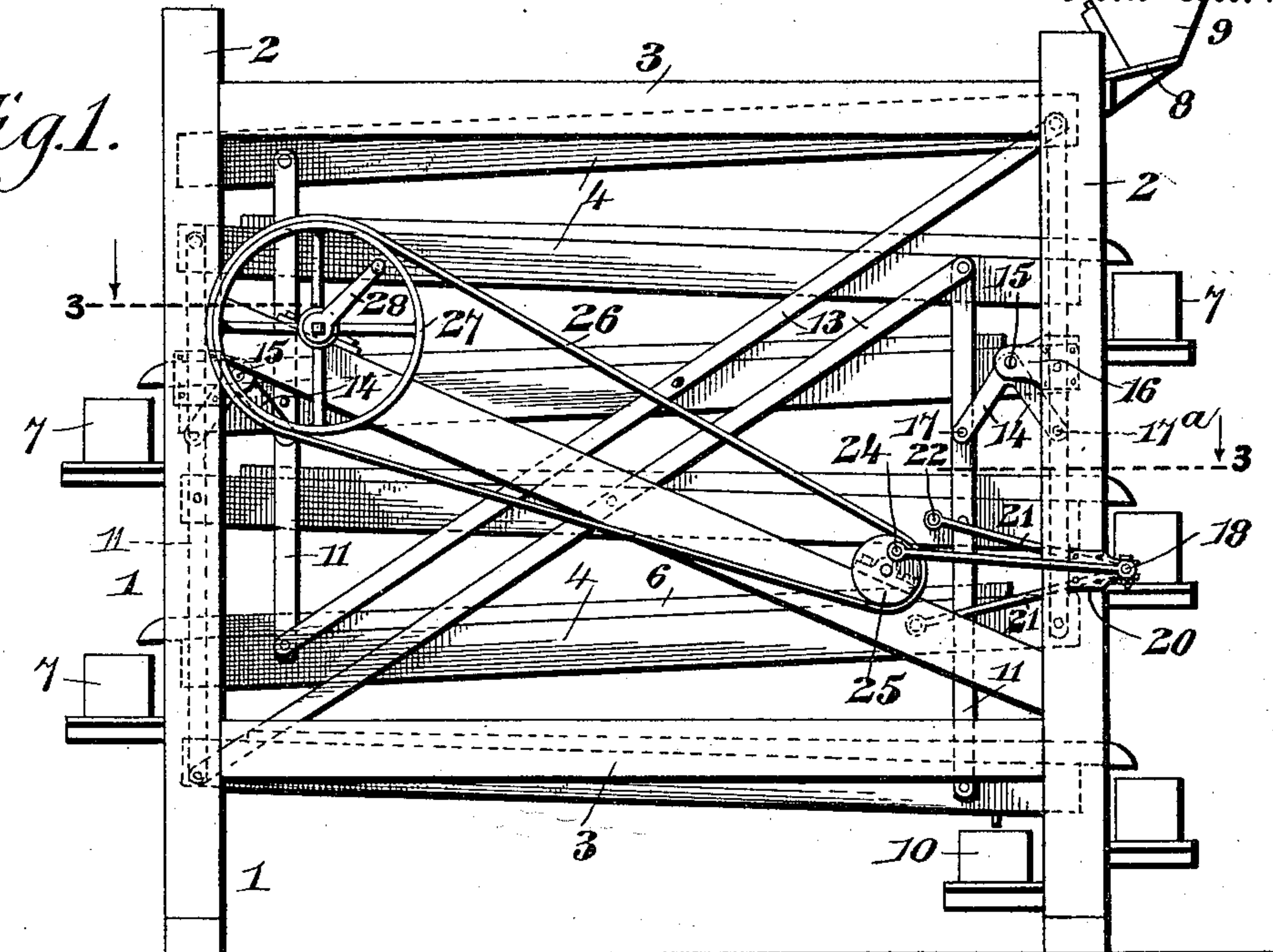
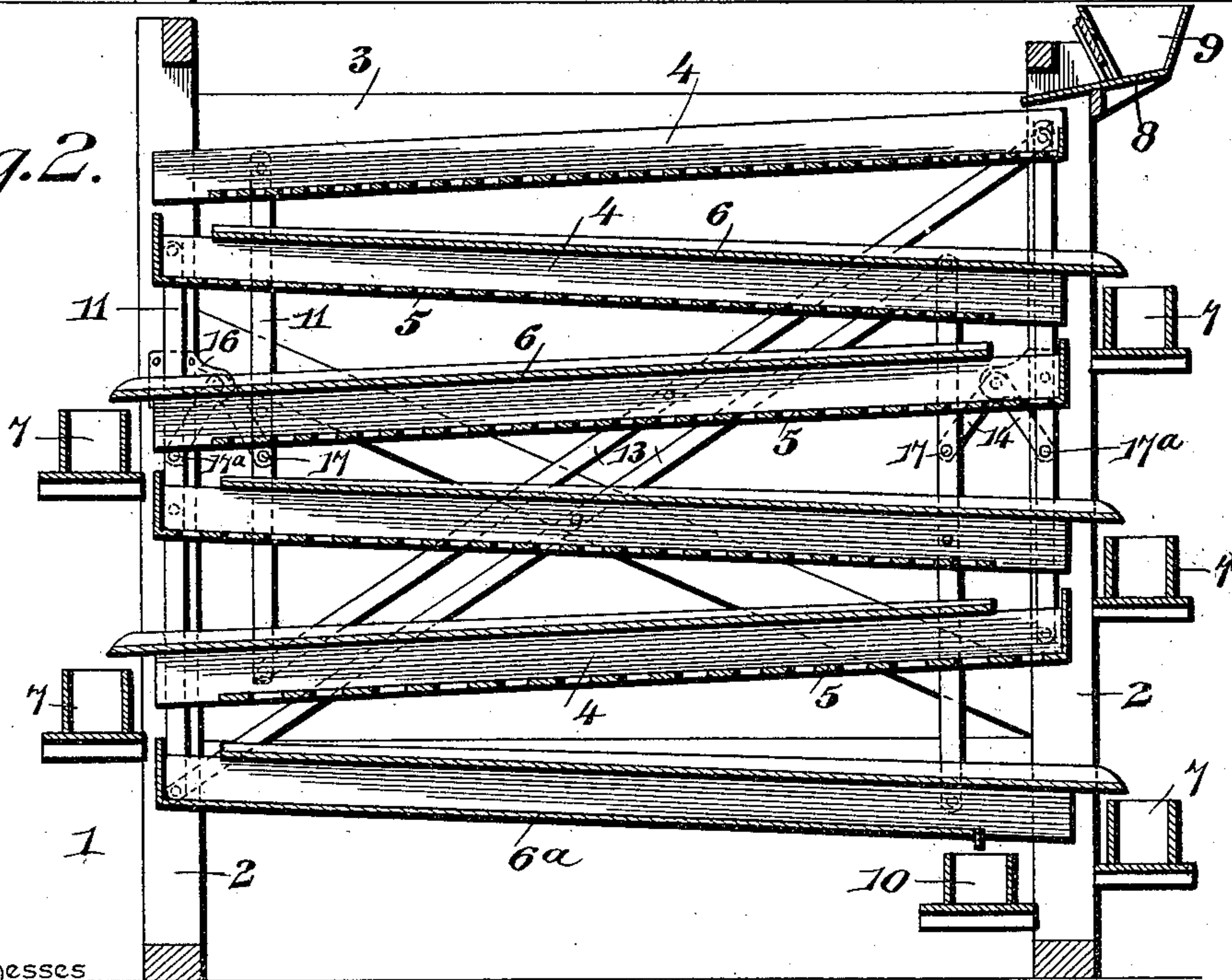


Fig. 2.



Witnesses

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Fig. 3.

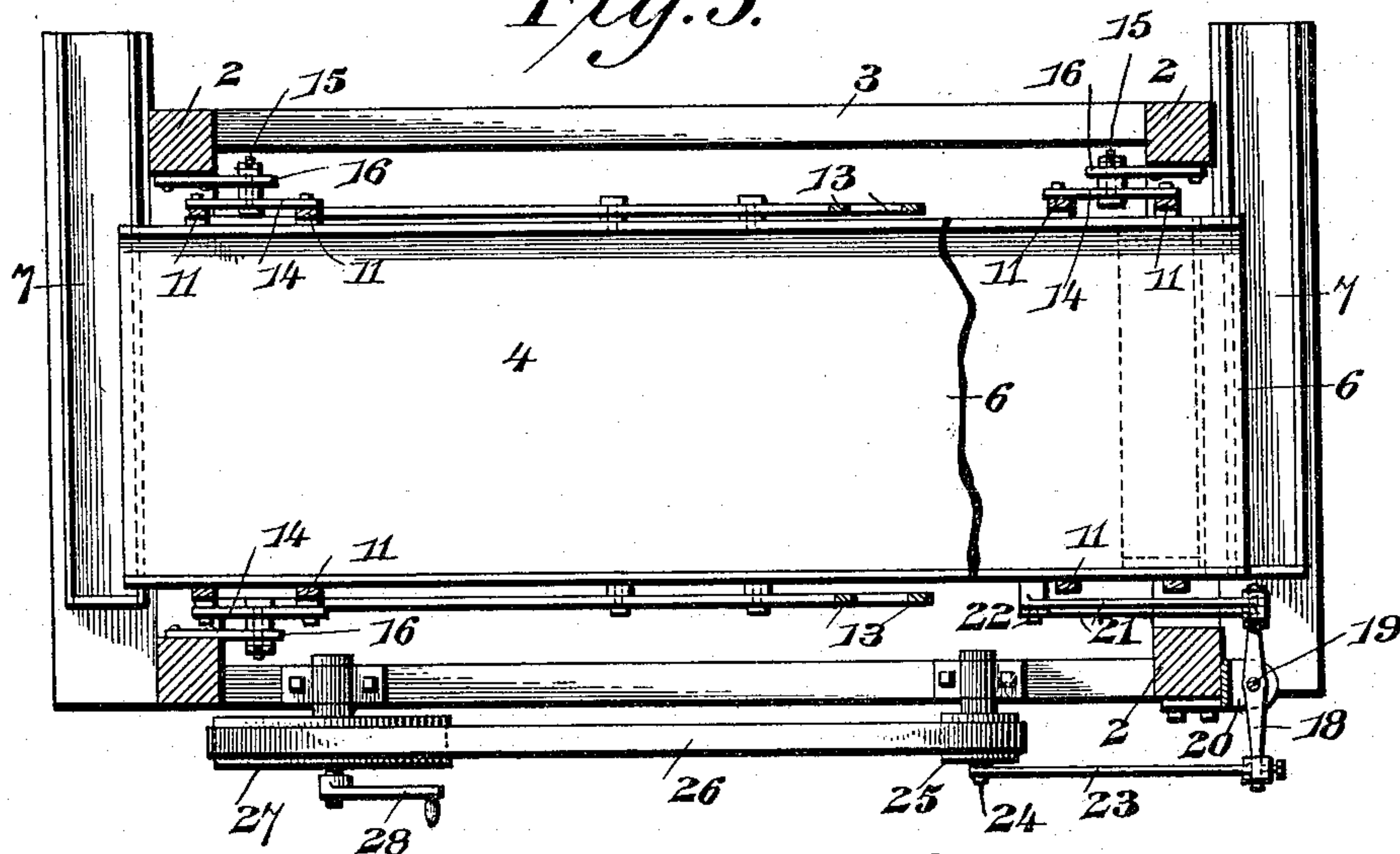


Fig. 5.

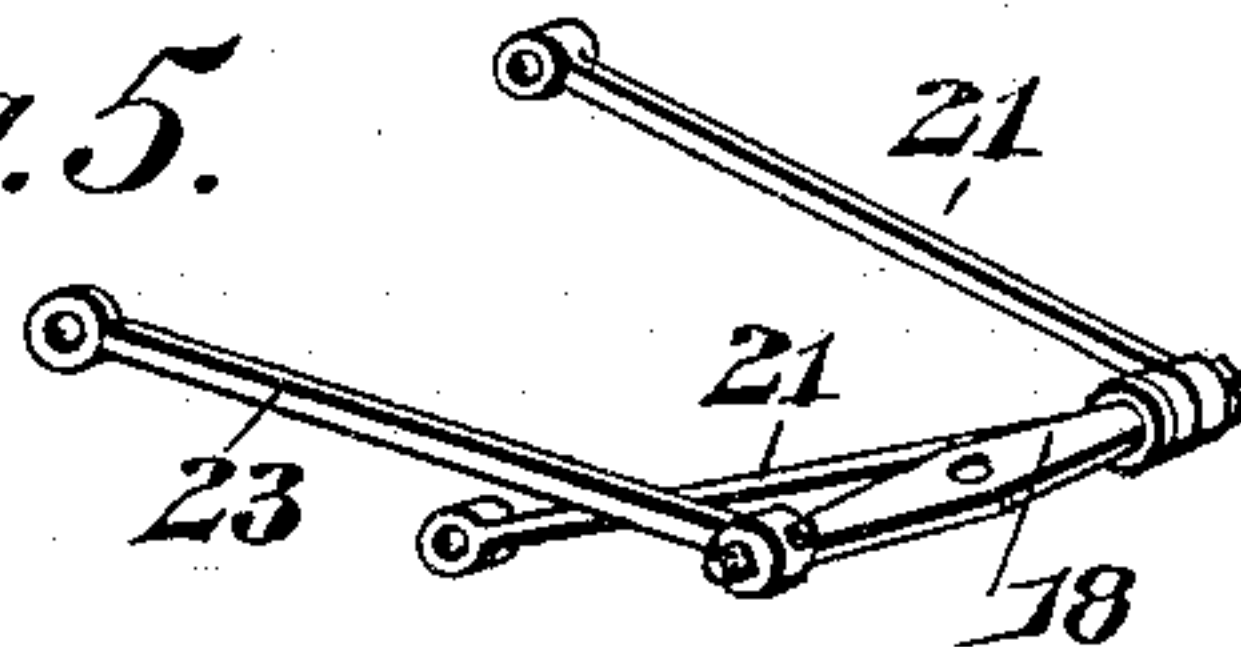
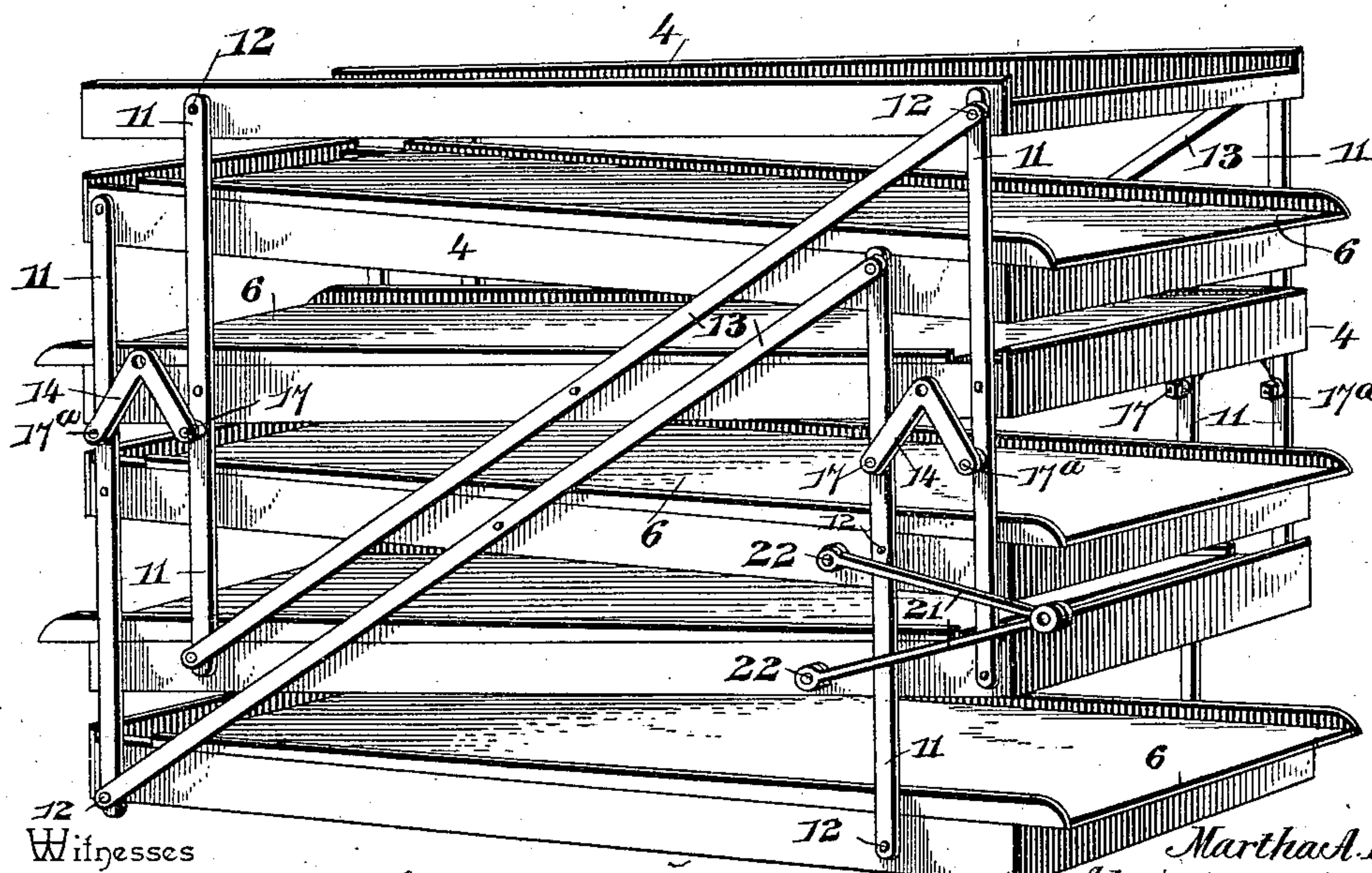


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

MARTHA A. PETERSON, OF SALEM, OREGON, ADMINISTRATRIX OF GEORGE M. PETERSON, DECEASED.

FRUIT-GRADER.

SPECIFICATION forming part of Letters Patent No. 610,458, dated September 6, 1898.

Application filed July 28, 1897. Serial No. 646,233. (No model.)

To all whom it may concern:

Be it known that I, MARTHA A. PETERSON, a citizen of the United States, residing at Salem, in the county of Marion and State of Oregon, administratrix of the estate of GEORGE M. PETERSON, deceased, late a citizen of the United States, residing at Salem, in the county of Marion and State of Oregon, do hereby declare that GEORGE M. PETERSON invented a new and useful Improvement in Fruit-Graders, of which the following is a specification.

This invention relates to fruit-graders, and more especially to that class of grading-machines which are employed for assorting or separating prunes into different grades.

To this end the invention primarily contemplates an improvement upon the construction disclosed in the allowed application of George M. Peterson, Serial No. 537,969, whereby the grading shoes or sections of the machine shall be mounted and operated in such a manner as to insure a thorough screening or separating of the prunes or other fruit into uniform grades.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the construction, novel combination, and arrangement of parts, as hereinafter fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side elevation of a prune-grader embodying the improvements contemplated by this invention. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a horizontal sectional view on the line 3 3 of Fig. 1. Fig. 4 is a perspective view of the two independently-movable sets of grading-shoes removed from the main frame of the machine. Fig. 5 is a detail in perspective of the operating connections for vibrating the two independent sets of grading-shoes.

Referring to the accompanying drawings, the numeral 1 designates the upright stationary frame of the machine, essentially comprising a series of corner-posts 2, connected at suitable points by horizontal frame-bars 3. Arranged to vibrate within the stationary frame 1 of the machine is a series of super-

posed oppositely-inclined grading-shoes 4, extending the full length of the frame. The grading-shoes 4 are arranged one above the other in zigzag relation and alternately incline in opposite directions, respectively, toward opposite ends of the stationary machine-frame, and each of said grading-shoes 4 essentially comprises an elongated rectangular casing having a perforate bottom screen 5 and an upper imperforate delivery-board 6, arranged parallel with the bottom screen 5 and disposed directly under the bottom screen 5 of the superadjacent shoe, so as to receive thereon the separations which pass through perforations of this screen. In each grading-shoe 4 the upper flat imperforate delivery-board 6 has the upper or higher end thereof terminate short of one end of the shoe-casing at a point approximately below the lower end of the bottom screen 5 of the superadjacent grading-shoe, so as to permit the fruit which passes over the screen of one shoe to flow into the subadjacent shoe onto the upper or higher end of the screen of such shoe. While the upper or higher end of the flat delivery-board 6 of each grading-shoe terminates short of one end of the shoe, the other or lower end of said board is extended beyond one end of the shoe, so as to overhang and work directly over an open chute-box 7, secured in a transverse position against one end of the stationary frame of the machine, 1, and serving to receive the grade of fruit or prunes delivered thereto from the delivery-board overhanging the same. A series of the open chute-boxes 7 is employed, and such boxes are suitably supported at opposite ends of the stationary machine-frame, so that there will be one of such boxes for use in connection with the flat imperforate delivery-board of each grading-shoe.

The grading-shoes 4 are duplicates in construction, excepting the uppermost and lowermost shoes, the uppermost of said shoes simply being provided with a perforate bottom screen 5 and having its upper or high end working under the feed-board 8, extended over the uppermost grading-shoe from the hopper 9, suitably supported on top of the stationary frame 1, at one end thereof, and serv-

ing to hold a supply of the unassorted fruit or prunes which are to be fed onto the uppermost grading-shoe. The lowermost grading-shoe of the series is a duplicate in construction of the other shoes with the exception of having the lower side thereof inclosed by an imperforate apron or delivery-board 6^a, which receives the last grade of fruit from the bottom screen 5 of the superadjacent grading-shoe and conducts the same into a receiving box or receptacle 10, mounted within the bottom part of the machine-frame. It will of course be understood that the perforations in the bottom screens of the grading-shoes progressively increase in size toward the lowermost shoe, so that the screen-perforations of each succeeding lower shoe are larger than those of the immediately-preceding shoe, whereby successive separations will take place and the prunes or fruit of one size screened onto one of the flat delivery-boards and from thence discharged into the end chute-box 7.

The several superposed oppositely-inclined grading-shoes are entirely disconnected at their ends and are grouped together into separate independently-movable sets, each set of grading-shoes comprising alternate parallel shoes. The several alternate parallel grading-shoes of each set are rigidly connected together for movement in unison by means of a series of vertically-disposed metallic frame-strips 11, bolted or otherwise suitably secured, as at 12, to opposite sides of the shoes, near the ends thereof, and in order to maintain the fixed parallel relation of the grading-shoes of each set such shoes also have arranged at opposite sides thereof the diagonal brace-strips 13, bolted or otherwise suitably fastened to the sides of the shoes which they connect; so it will be observed that the strips 11 and 13 for each set of shoes comprise a frame or framework, to which such shoes are rigidly connected, whereby it is simply necessary to vibrate such frame or framework to provide for the vibration of the grading-shoes carried thereby. There is a separate frame or framework of strips for each set of the grading-shoes, as already explained, and to provide means for hanging the separate sets of grading-shoes for vibration within the main stationary frame 1 of the machine there is employed at each corner of the main stationary frame a bell-crank hanger-plate 14, pivotally fastened, as at 15, to a fixed supporting-plate 16, bolted or otherwise rigidly secured to the adjacent corner-post 2 of the stationary frame. Each of the pivotal hanger-plates 14, which is mounted in the manner described, has one extremity thereof pivoted, as at 17, to the adjacent frame-strip 11 of one set of shoes and its other extremity similarly pivoted, as at 17^a, to the adjacent frame-strip 11 of the other set of grading-shoes, and since all of the hanger-plates are mounted and arranged alike it will be observed that a longitudinal movement or vibration of the

entire series of grading-shoes will cause such shoes to swing on the bell-crank hanger-plates and necessarily move in an upward and downward direction. Since the bell-crank hanger-plates have one arm connected with the frame or framework for one set of shoes and their other arms connected with the frame or framework for the other set of shoes, one set of shoes will necessarily be caused to move in an upward direction, while the other set of shoes simultaneously moves in an opposite direction, so that the two sets of grading-shoes may be said to simultaneously vibrate up and down in opposite directions.

To provide for imparting the necessary longitudinal vibration or movement to the loosely-suspended grading-shoes within the stationary frame, there is employed an oscillating operating-lever 18. The oscillating operating-lever 18 is pivotally mounted intermediate of its ends, as at 19, in the suitable supporting-bracket 20, fastened to one of the corner-posts of the main frame, and the inner end of said lever 18 has pivotally or loosely connected therewith one end of the connecting-links 21, which diverge from their point of connection with the operating-lever 18 and are pivotally fastened at their other ends, as at 22, respectively, to adjacent grading-shoes belonging to different sets. The outer end of the oscillating operating-lever 18 has pivotally connected thereto one end of a pitman 23, the other end of which pitman has a crank-pin connection 24 with a crank-wheel 25, suitably supported at one side of the machine-frame 1 and receiving motion from a drive-belt 26, passing over a drive-belt wheel 27, mounted at the same side of the frame 1 as the crank-wheel 25 and having a crank-handle connection 28 therewith, so that the same may be readily turned to provide for communicating motion to the two sets of superposed oppositely-inclined grading-shoes hung within the frame 1. The oscillation of the operating-lever 18 causes both sets of grading-shoes to be moved in a longitudinal direction, which movement, through the medium of the bell-crank hanger-plates 14, at the same time imparts an up-and-down movement or vibration to each set of shoes, as already explained, which compound movement causes a sufficient violent agitation or vibration of the shoes to insure a thorough separation of the fruit or prunes into uniform grades.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a fruit-grader, an upright stationary frame, a series of superposed oppositely-inclined grading-shoes arranged within the said frame, framework rigidly connecting each set

of alternate parallel shoes, a common swinging support for both sets of connected shoes, and means for simultaneously moving both sets of shoes in a longitudinal direction, the movement of said swinging supports serving to impart to the two sets of shoes a vertical vibration respectively in opposite directions, substantially as set forth.

2. In a fruit-grader, an upright stationary frame, a series of superposed oppositely-inclined grading-shoes arranged within said frame, a framework rigidly connecting each set of alternate parallel shoes, and means for imparting a longitudinal vibration to all of the shoes and a simultaneous vertical vibration to the two sets of shoes, respectively, in opposite directions, substantially as set forth.

3. In a fruit-grader, an upright stationary frame, a series of superposed oppositely-inclined grading-shoes arranged within the frame, a framework connecting the alternate parallel shoes of each set, a common support for both sets of connected shoes, and means for imparting a longitudinal reciprocatory movement to both sets of shoes and a simultaneous up-and-down movement respectively in opposite directions, substantially as described.

4. In a fruit-grader, an upright stationary frame, a series of superposed oppositely-inclined grading-shoes arranged in said frame, a framework rigidly connecting the alternate parallel shoes of each set, bell-crank hanger-plates pivotally supported at the corners of the stationary frame and having their separate arms respectively connected with the separate sets of shoes, and operating connections with the two sets of shoes for swinging the same on the bell-crank hanger-plates, substantially for the purpose set forth.

5. In a fruit-grader, an upright stationary frame, a series of superposed oppositely-inclined grading-shoes arranged within the stationary frame, a framework of strips rigidly connecting the alternate parallel grading-shoes of each set, bell-crank hanger-plates pivotally supported at the corners of the stationary frame and having their separate arms respectively connected with the separate sets of grading-shoes, an oscillating operating-lever 18 pivotally supported intermediate its ends at one corner of the stationary frame, a pair of connecting-links 21 loosely connected at one end with the inner end of said lever, and at their other ends, respectively, connected with grading-shoes belonging to different sets, and a suitable pitman connection 23 with the outer end of the said operating-lever, substantially as specified.

In testimony that I claim the foregoing as the invention of GEORGE M. PETERSON I have hereto affixed my signature in presence of two witnesses.

MARTHA A. PETERSON,
Administratrix of the estate of George M. Peterson, deceased.

Witnesses:

S. T. RICHARDSON,
P. H. D'ARCY.