

No. 719,532.

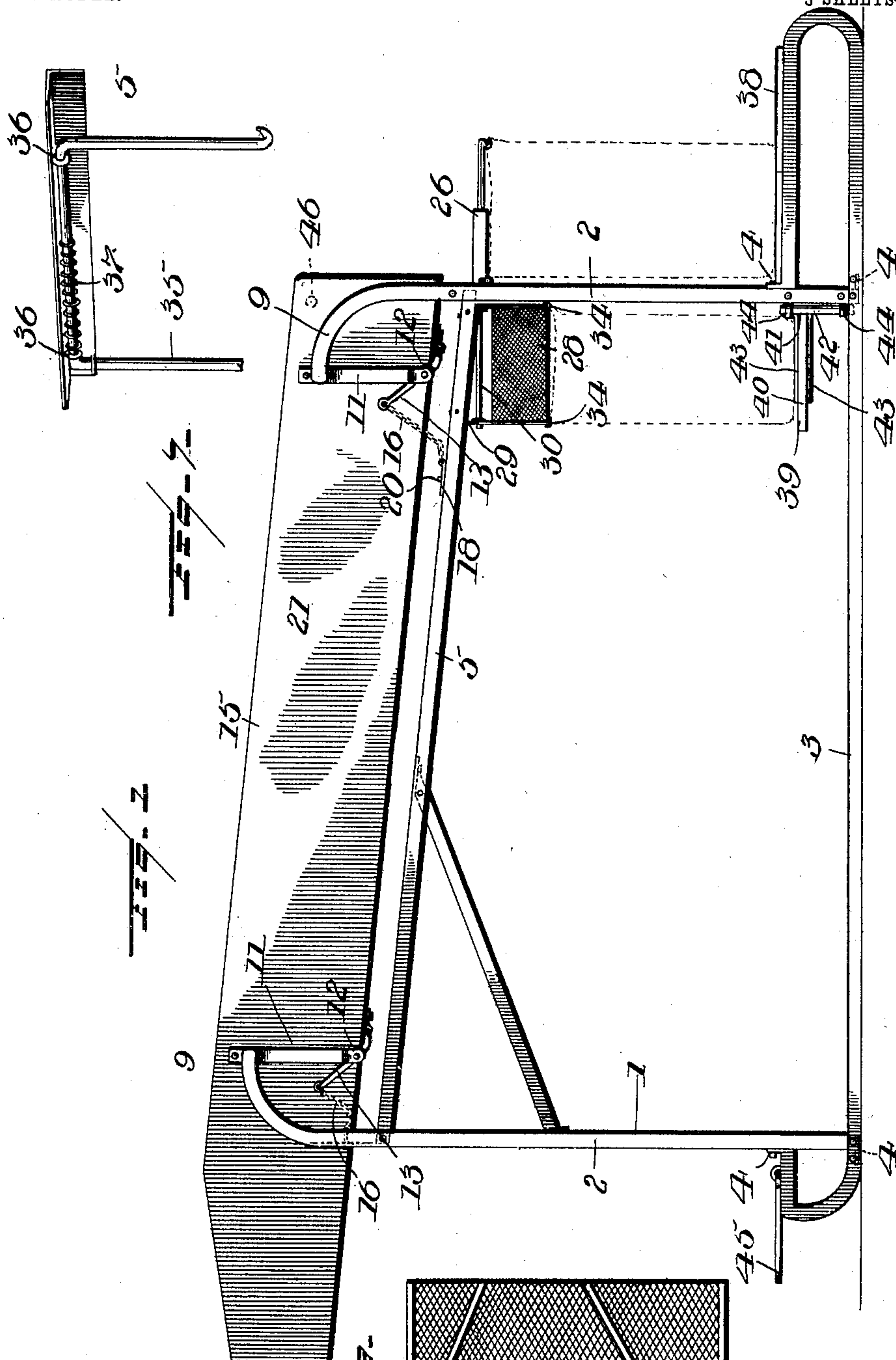
PATENTED FEB. 3, 1903.

J. THOMPSON.
MACHINE FOR GRADING OR ASSORTING POTATOES.

APPLICATION FILED OCT. 6, 1900.

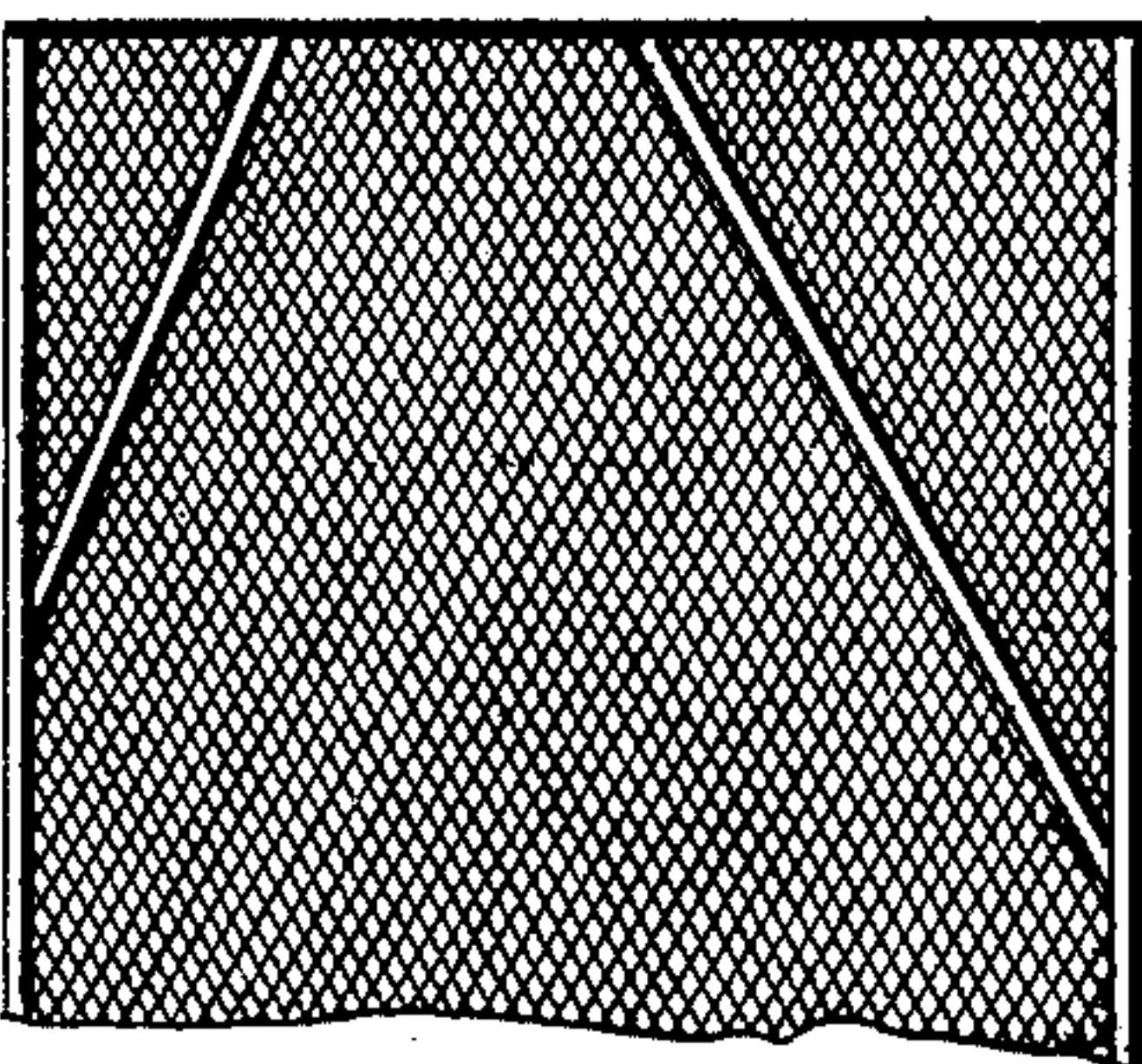
NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

L. C. Hills
Chas. L. Wallace



INVENTOR:
James Thompson,
By *Stanton Weaver*
his Attorney

No. 719,532.

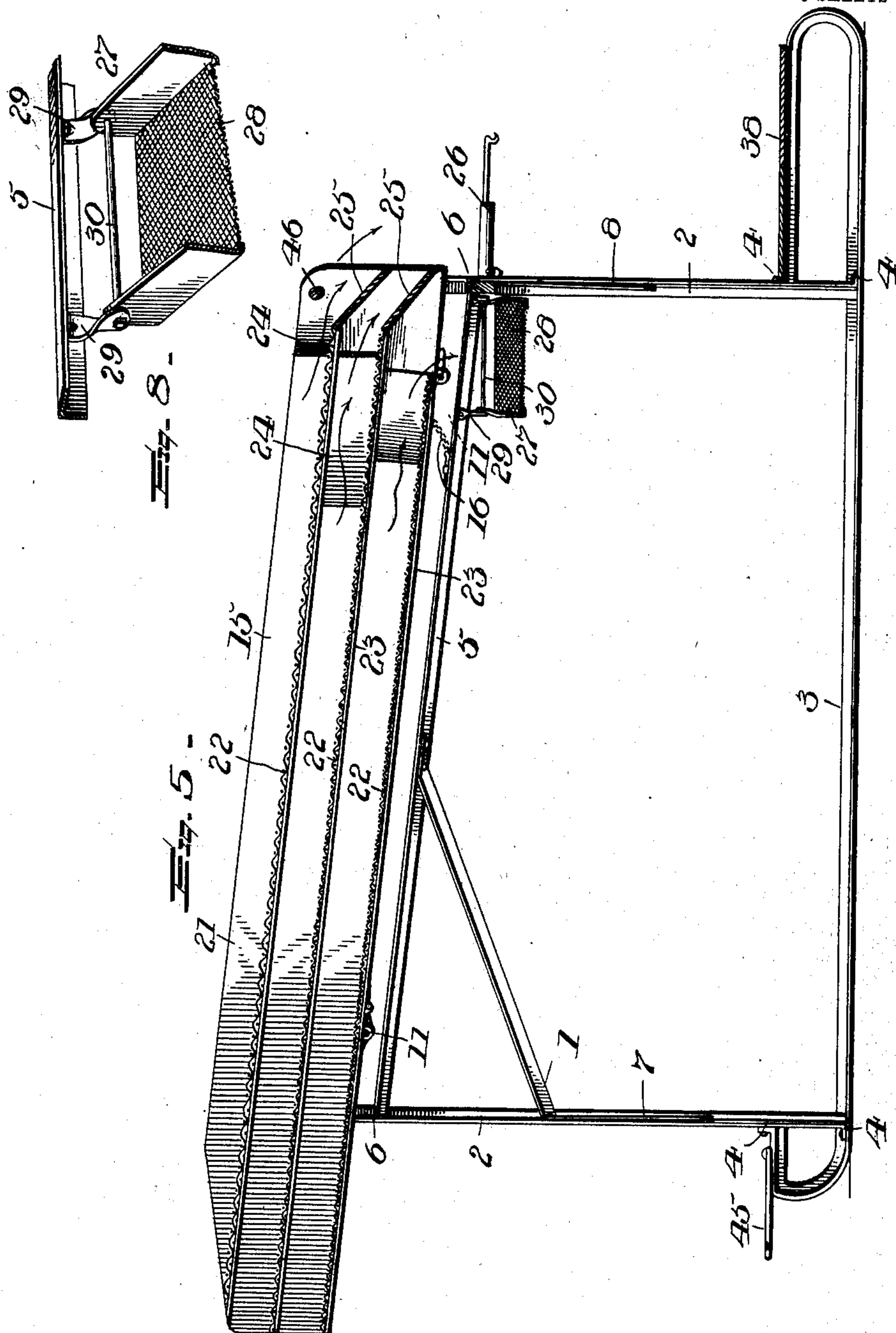
PATENTED FEB. 3, 1903.

J. THOMPSON.
MACHINE FOR GRADING OR ASSORTING POTATOES.

APPLICATION FILED OCT. 6, 1900.

NO MODEL.

3 SHEETS—SHEET 3.



WITNESSES:

R. C. Hills
Chas. L. Wallace

INVENTOR:

James Thompson,
BY *Stanton Weaver*
his Attorney

UNITED STATES PATENT OFFICE.

JAMES THOMPSON, OF GREELEY, COLORADO.

MACHINE FOR GRADING OR ASSORTING POTATOES.

SPECIFICATION forming part of Letters Patent No. 719,532, dated February 3, 1903.

Application filed October 6, 1900. Serial No. 32,226. (No model.)

To all whom it may concern:

Be it known that I, JAMES THOMPSON, a citizen of the United States, residing at the city of Greeley, in the county of Weld and State of Colorado, (post-office address No. 805 Seventh street,) have invented certain new and useful Improvements in Machines for Grading or Sorting Potatoes, &c., of which the following is a specification.

10 This invention relates to improvements in grading or sorting machines for potatoes and the like.

The object of the present invention is to provide a machine of the character stated 15 which is adapted to separate the potatoes or the like according to their size and at the same time free them from the soil intermingled therewith and also one which is so constructed as to be readily transported from place to 20 place; and, furthermore, the invention contemplates in the construction of the machine the provision of simple and efficient means for imparting a peculiar motion to the body or shoe of the machine whereby the desired 25 separation is effected in an easy manner and with a minimum expenditure of energy.

With these and other objects in view, which will appear as the nature of the improvements is better understood, the invention consists, 30 substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

35 In the drawings, Figure 1 is a side elevation of a grading or sorting machine constructed in accordance with the present invention. Fig. 2 is a top plan view thereof. Fig. 3 is an end elevation viewing the machine at the 40 discharge end. Fig. 4 is a similar view looking at the feed end. Fig. 5 is a longitudinal sectional view. Fig. 6 is a detail perspective view, on an enlarged scale, of one of the hangers and the means carried thereby for 45 effecting agitation of the shoe. Fig. 7 is a similar view of the bag-holder employed in connection with the transversely-arranged chute. Fig. 8 is also a detail perspective view illustrating the means for connecting said 50 chute to the machine-frame. Fig. 9 is a top plan view of the discharge end of the bottom

screen, illustrating the relative arrangement of the deflectors therein.

Referring to the drawings, the numeral 1 designates the frame of the herein-described 55 machine, which frame is formed entirely of angle-iron, and said frame comprises a series of uprights 2 and a pair of runners 3. The ends of the latter are curved upwardly, and their extremities lie in parallel relation to the 60 body of each of the runners 3, and to these extremities the uprights 2 are riveted, bolted, or otherwise suitably fastened, the lower end of each of the uprights 2 being fastened in a similar manner to the runners. It is prefer- 65 able, however, to slit the ends of the uprights 2 and the runners 3 at their respective points of connection, and thereby form a right-angul- arly-extending attaching-foot 4; but this is not essential, as other connecting media may 70 be employed. The upper ends of the uprights 2 are suitably connected by longitudinal and transverse ribs 5 and 6, respectively, the ribs imparting rigidity to said uprights; but in order to further strengthen the frame the 75 same is provided with braces 7 and 8. The extreme upper ends of the uprights 2 are curved so as to form supporting-heads 9, each of which is provided with an inwardly-pro- 80 jecting stud 10, and pivotally connected to each of said studs is a depending hanger-strap 11, which is bifurcated at its lower end, as at 12. An agitator-lever 13 is fulcrumed, as at 14, in each of the bifurcations 12, which 85 levers are suitably connected to the under side of the body or shoe 15, and said levers are also each provided with a draft-chain 16 or other suitable yielding connections, said chains being designed to control the move- 90 ments of the levers 13 when the shoe 15 is operated in order to impart to the shoe a sudden lifting movement, and thereby thor- oughly agitate the contents of the shoe for effecting the separation of the same. The chains 16 carried by the levers 13 at the feed 95 end of the machine are connected to the adjacent uprights 2. The chains 16 carried by the levers 13 at the discharge end of the machine are connected to adjustable hooks 18, one of which is mounted upon each of the 100 longitudinal ribs 5 and provided with a slot 19, through which a bolt 20 or its equivalent

is passed for securing the hook to said rib. By reason of the slots 19 the hooks 18 are capable of being slid upon the ribs 5 for the purpose of regulating the slack in the chains 16 connected thereto, and thereby regulate the throw of the levers 13, to which said chains are connected.

The shoe 15 comprises a rectangular frame 21, in which is arranged a series (shown in the drawings as numbering three) of screens 22, and the mesh of said screens beginning with the lowest one increases in diameter so as to permit the potatoes or the like which have been placed upon the upper screen to gravitate therethrough, and thus be sorted and graded, the largest potatoes remaining upon the upper screen, the next size being caught by the second screen, while the smallest size pass through the second screen and are caught by the lowest screen. The soil of course passes with the potatoes during their gravitation and also passes through the lowest screen, as is clearly apparent. It is desirable, however, that the several screens should be capable of removal in order to be replaced by new ones or others of different mesh, and to this end the frame 21 is provided with grooves 23 for receiving the screens 22, the screens being inserted from the feed end of the machine. It is also necessary in the discharge of the potatoes from the shoe 15 after being graded or sorted to guide the same into proper receptacles, and for accomplishing this purpose the upper screen and the middle screen are each provided with an inclined deflector 24; but it will be observed that said deflectors are inclined in opposite directions, and by reason of this the potatoes or the like upon the upper screen are discharged at one side of the machine, while the potatoes or the like upon the middle screen are discharged at the opposite side. The shoe 15 at its discharge end is provided with inclined planes 25, down which the discharged potatoes are adapted to pass, and the machine-frame at said end is also provided with a pair of bag-holders 26, designed for supporting open bags in position to receive the potatoes so discharged. The lowest screen discharges at the same end as the other screens; but to provide for this discharge an inclined transversely-arranged chute 27 is employed, the chute 27 being provided with a screen-bottom 28 and being hingedly connected at its upper end to one of the ribs 5 by means of attaching-irons 29 and a pivotal rod 30. The lower end, however, of said chute is rigidly held by a hanger-strap 31, depending from the rib 6 at the discharge end of the shoe 15, and said strap has its lower end slotted, as at 32, through which slot a bolt 33 or its equivalent is passed for the purpose of adjustably connecting the chute 27 to said strap, so that the inclination of said chute may be regulated. The chute 27 at its lower end is provided with a pair of bag-engaging hooks 34, which hooks coact with an inverted-U-shaped bag-holder 35, the latter being secured to the

adjacent rib 5 through the medium of a series of loops 36 and surrounded by a coiled spring 37 for controlling its movement.

A bag-supporting platform 38 is arranged upon the ends of the runners 3 at the discharge end of the machine, and adjacent to said platform is a swinging supplemental platform 39, designed to support the bag which receives the discharged potatoes or the like from the chute 27. The supplemental platform 39 comprises a board 40 or the like, carried by a bracket 41, which bracket is formed of a vertical standard 42, to which is welded a pair of oppositely-arranged spaced right-angular arms 43, the board 40 being riveted or otherwise suitably secured between said arms. The bracket 42 fits and works within a pair of eyebolts 44, which eyebolts are carried by one of the uprights 2, and by reason thereof it will be seen that the supplemental platform 39 may be swung beneath and away from the lower end of the chute 27 for filling the bags and removing the latter from said platform. By reason of the eyebolts 44 the position of the platform 39 may also be inverted in order to provide a greater space between the same and the chute 27 in order to fill the entire bag when desired.

The runners 3 at the feed end of the machine are provided with a draft-rod 45, by means of which the machine may be readily transported from place to place, and in order that reciprocatory movement may be imparted to the shoe 15 the latter at its discharge end is also provided with a transverse handle-bar 46.

The operation of the herein-described machine is as follows: The potatoes or the like are placed upon the upper screen, and the operator, standing upon the platform 38, grasps the handle-bar 46 and imparts a reciprocatory movement to the shoe 15. In its movement the pressure exerted in the direction of the operator is in the nature of a quick pull, the same resulting in the shoe 15 swinging upon the hanger-straps 11, with a resultant tensioning of the chains 16 on each side of said shoe. Such tensioning pulls the levers 13 downwardly, and the shoe 15 is thereby suddenly thrown upwardly, thus thoroughly agitating the contents of the shoe and causing the smaller-size potatoes to gravitate through the various screens, while the larger potatoes are retained upon the upper screen. As the reciprocation of the shoe 15 is continued the potatoes not only gravitate through the screens, but those retained thereon gradually work to the discharge end of the shoe and, contacting with the deflectors 24, are guided to their respective receptacles. The potatoes of the lowest screen, however, discharge into the chute 27, whence the same pass into the receptacle upon the supplemental platform, and after the various receptacles are filled the same are removed and replaced by others.

As the bag-holders 26 are fully described and claimed in Patent No. 641,055, granted

January 9, 1900, to me, I have not deemed it necessary to enter into a detailed description thereof.

While the form of the invention herein shown and described is what is believed to be a preferable embodiment thereof, it will of course be understood that the same is susceptible of various changes in the form, proportion, and minor details of construction, and the right is therefore reserved to modify or vary the invention as falls within the spirit and scope thereof.

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

1. In a machine of the class described, the combination with a frame provided with a series of uprights, of a reciprocatory shoe arranged between said uprights, depending hanger-straps connected to said uprights, levers connected to said shoe for imparting to the same a quick upward movement, said levers being fulcrumed upon said hanger-straps, and flexible connections between said levers and the frame.

2. In a machine of the class described, the combination with a frame comprising a pair of runners the extremities of which are curved upwardly and bent back into parallel relation with the runner-bodies, and a series of uprights carried by said frame, said uprights being connected to the bent-back extremities of the runners, whereby said extremities brace said uprights, of a shoe carried by said uprights and provided with means for grading its contents.

3. In a machine of the class described, the combination with a frame comprising a pair of runners the extremities of which are curved upwardly and bent back into parallel relation with the runner-bodies, a series of uprights carried by said frame, said uprights being connected to the bent-back extremities of the runners, whereby said extremities brace said uprights, a platform mounted upon the bent-back extremities at one end of the runners, and a bag-holder arranged above the platform, of a shoe carried by said uprights and provided with means for grading its contents, said platform being arranged in advance of and below the discharge end of the shoe, substantially as described.

4. In a machine of the class described, the combination with a frame comprising a pair

of runners the extremities of which are curved upwardly and bent back into parallel relation with the runner-bodies, a series of uprights carried by said frame, said uprights being connected to the bent-back extremities of the runners, whereby said extremities brace said uprights, a main platform mounted upon the bent-back extremities at one end of the runners, a bag-holder mounted upon said frame and located above said platform, an inclined chute carried by said frame and arranged transversely thereof, a swinging supplemental platform connected to one of the uprights, a swinging bag-holder adjustably mounted upon the frame and coacting with the chute for supporting a bag to receive the discharged contents of the chute, of a shoe carried by said uprights and provided with means for grading its contents, the main platform being arranged in advance of and below the discharge end of the shoe, substantially as described.

5. In a machine of the class described, the combination with a frame provided with a series of uprights, of hanger-straps suspended from said uprights and having a swinging connection therewith, the lower ends of said straps being bifurcated, levers fulcrumed in the bifurcations of said hanger-straps, a shoe arranged between said uprights and provided with means for grading its contents, said levers being connected to said shoe, and connections between said levers and the frame for imparting to the shoe a quick upward movement.

6. In a machine of the class described, the combination with a frame provided with a series of uprights, of hanger-straps suspended from said uprights and having a swinging connection therewith, the lower ends of said straps being bifurcated, levers fulcrumed in the bifurcations of said hanger-straps, a shoe arranged between said uprights and provided with means for grading its contents, said levers being connected to said shoe, and chains between said levers and the frame for imparting to the shoe a quick upward movement.

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

JAMES THOMPSON.

Witnesses:

FRANK W. DOOLITTLE,
A. J. ALLEN.