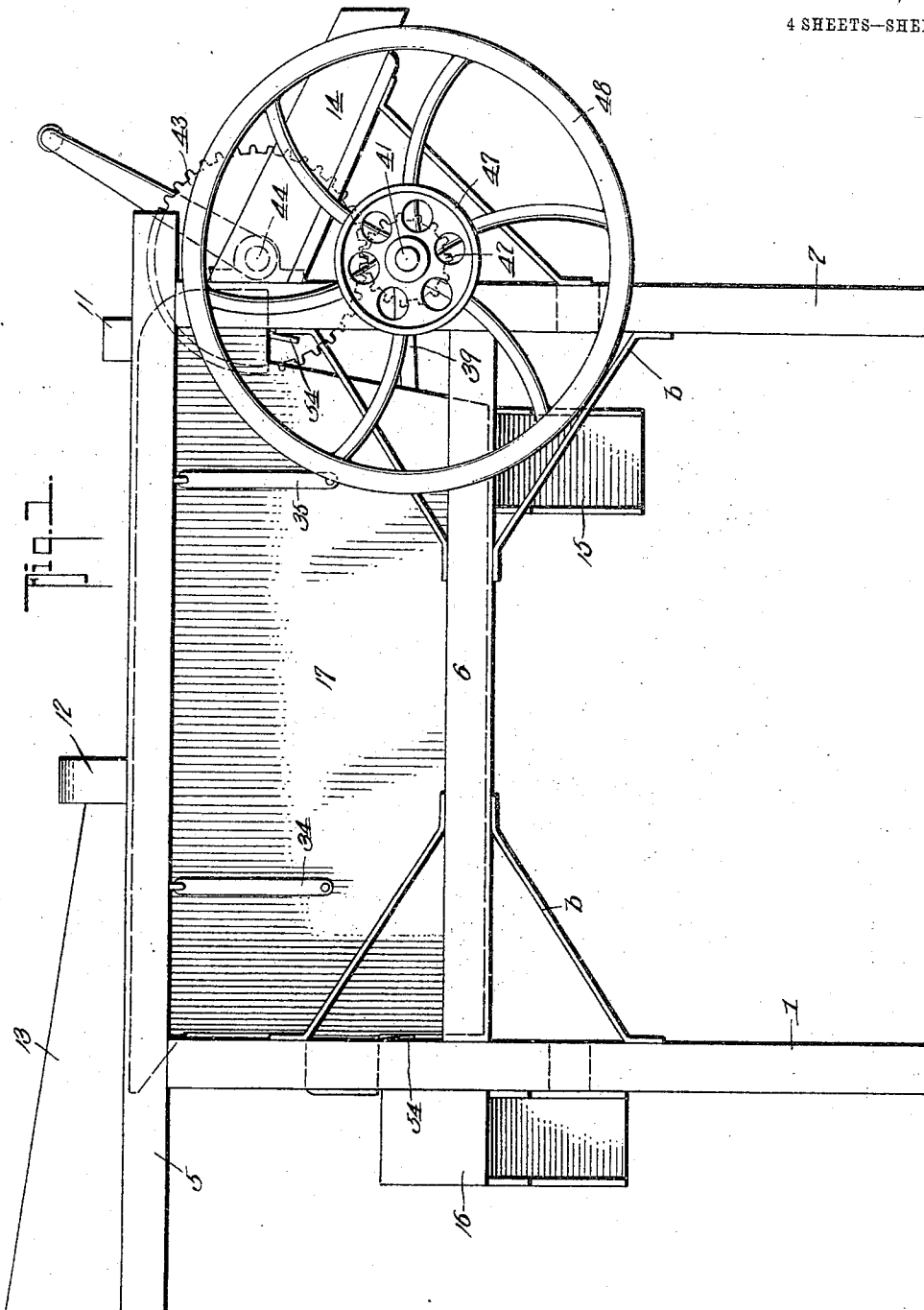


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 POTATO CLEANING AND ASSORTING MACHINE.
 APPLICATION FILED APR. 1, 1909.

948,842.

Patented Feb. 8, 1910.

4 SHEETS—SHEET 1.



WITNESSES:

Oliver H. Holmes
Charles H. Wagner

INVENTOR

John H. Bittle

BY

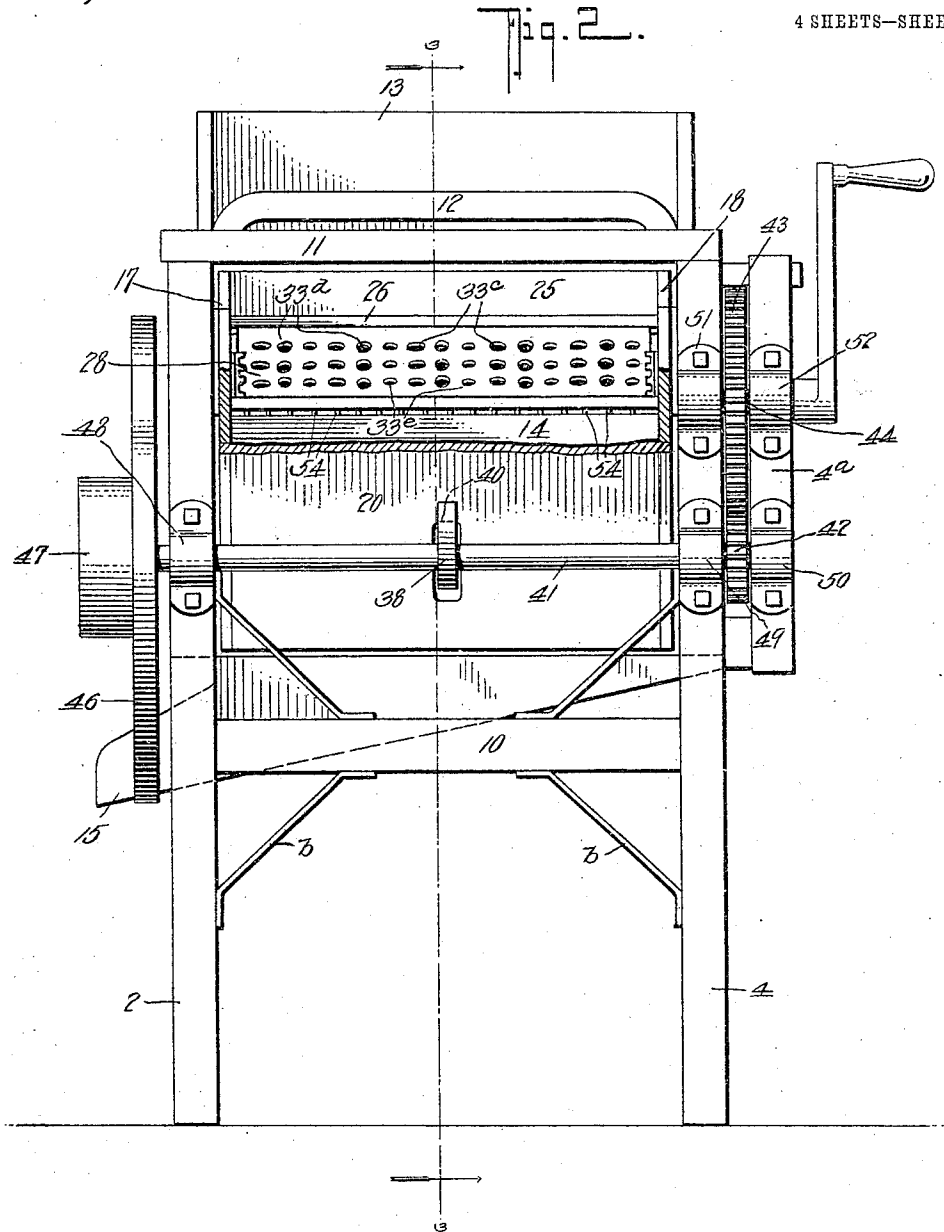
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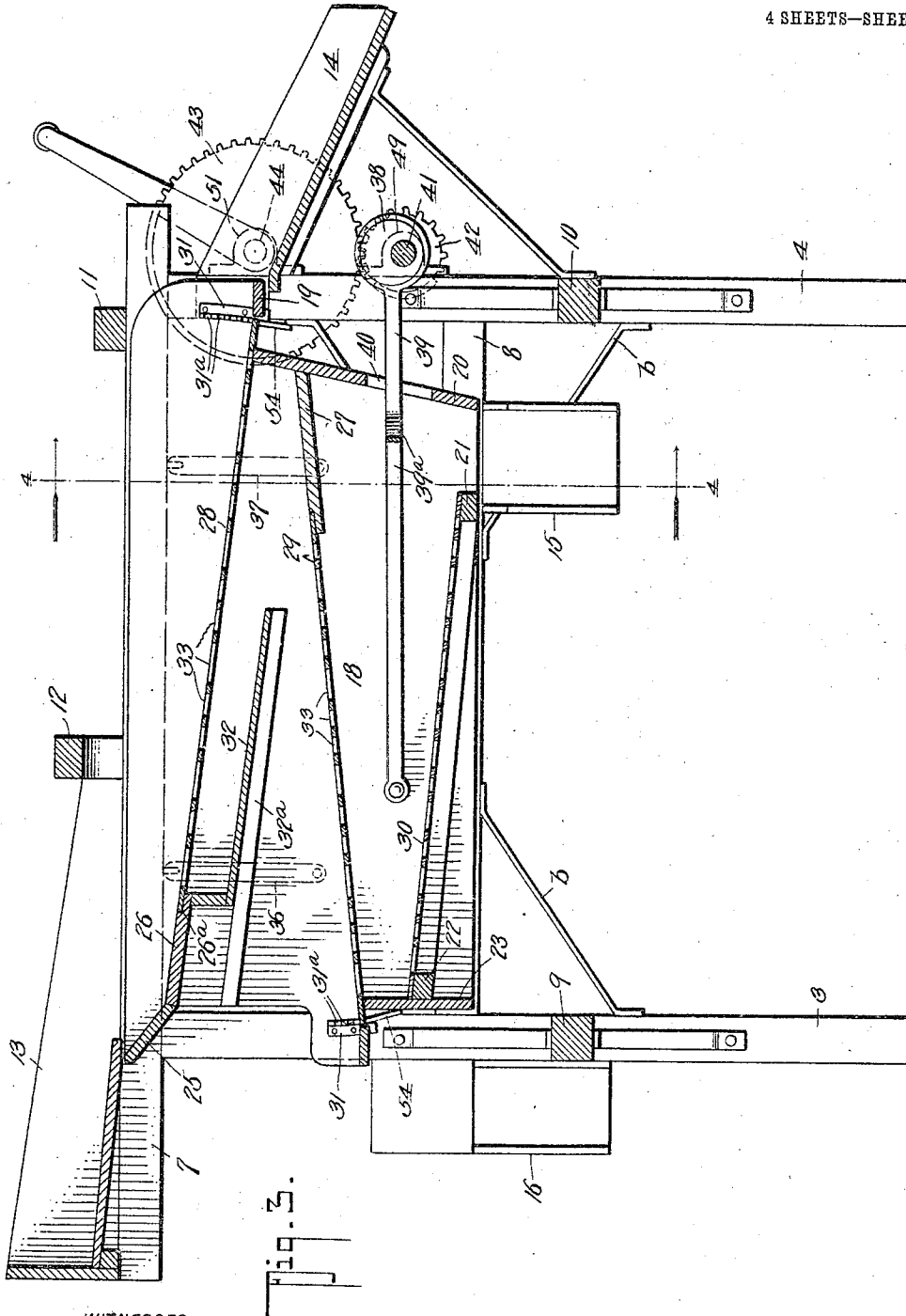
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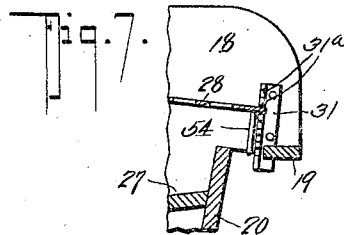
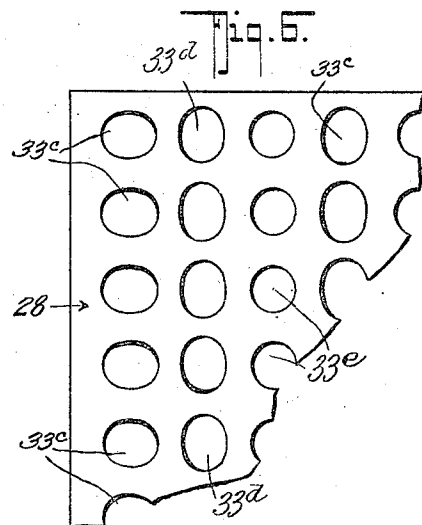
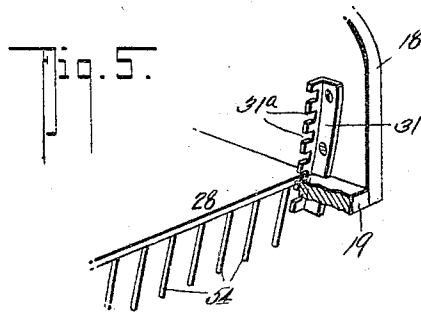
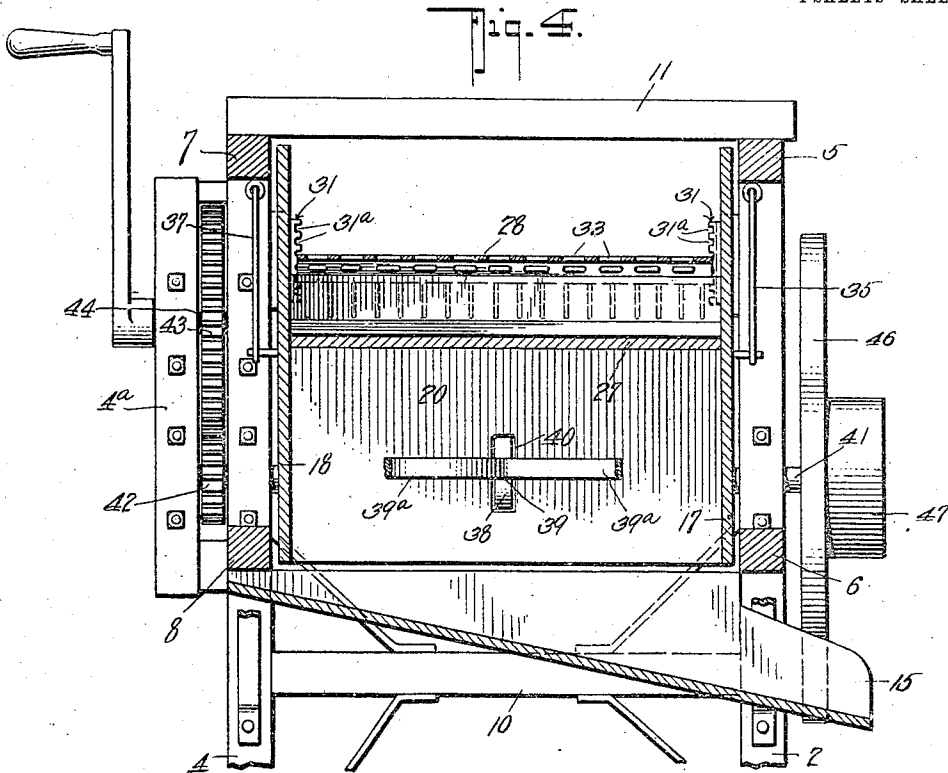
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

JOHN ALFRED BITTLE, OF CRESSONA, PENNSYLVANIA.

POTATO CLEANING AND ASSORTING MACHINE.

948,842.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed April 1, 1909. Serial No. 487,179.

To all whom it may concern:

Be it known that I, JOHN ALFRED BITTLE, residing at Cressona, in the county of Schuylkill and State of Pennsylvania, have invented a new and Improved Potato Cleaning and Assorting Machine, of which the following is a specification.

This invention has for its purpose to provide an improved construction of machine for cleaning and assorting potatoes, in which the cooperative parts are so combined and arranged whereby to provide a compact, readily accessible, durable, efficient and reliable means of the character stated, that can be economically made and easily operated.

With the above and other objects in view, my invention generally comprehends the improved construction and arrangement of a framing that forms the housing for the operative parts, that comprise a peculiarly suspended and constructed shaker having a plurality of separating sieves or screens arranged and adjusted to opposing inclinations therein; improved means for varying the inclination of one or more of the sieves, and crank or other power actuated mechanism for imparting the required motion to the shaker.

In its more specific nature, my invention consists in certain details of construction and combination of parts, all of which will be hereinafter fully described, specifically pointed out in the appended claims and illustrated in the accompanying drawings, in which:—

Figure 1, is a side elevation of my invention. Fig. 2, is an end elevation thereof. Fig. 3, is a longitudinal section of the same, taken substantially on the line 3—3 on Fig. 2. Fig. 4, is a transverse section of the same on the line 4—4 on Fig. 3. Fig. 5, is a detail view in perspective of the means for varying the inclination of the sieves hereinafter referred to. Fig. 6, is a detail view of a portion of one of the separating sieves hereinafter referred to. Fig. 7, is a detail view of the lower end of one of the sieves, and shows the same as elevated above the end closure below it.

In the practical application of my invention, I provide a rigid frame that preferably consists of four uprights or corner posts 1, 2, 3, 4 joined by the horizontal side beams 5—6 and 7—8, and the several cross or end

beams 9—10—11—12 suitably braced by the members *b* or otherwise held together in a manner to form a simple and substantial support on which to mount the internal operative parts, the hopper 13 and the delivery chutes 14, 15 and 16 that are relatively arranged in a manner clearly understood from the drawings and which will hereinafter be again referred to.

The internal or operative parts comprises generally speaking, a "shaker" formed of two closed side members 17—18 and relatively fixedly held by a number of cross members 19—27 inclusive and each of which will hereinafter be specifically located with respect to the said sides 17—18, the said members providing the means for mounting and adjusting the separating sieves 28 and 29 and the cleaning screen 30 to the desired positions.

The sieves 28 and 29 that effect the separations or assorting of the potatoes, and the screen 30 that separates the trash and dirt from the last sized potatoes, are pitched to opposing inclinations, alternately, and are arranged so as to produce a compact machine of large capacity.

The arrangement of the several sieves and the screen mentioned is best shown in Figs. 3 and 4, by reference to which it will also be seen that the side members 17—18 of the shaker carry small plates 31 (see also Fig. 5), each having a series of segmentally arranged notches 31^a in which the lower end of the sieves 28 and 29 can be adjustably fitted to afford means for varying the inclination of the said sieves for accelerating or retarding the movement of the potatoes in passing over them, as desired.

It will be noticed from Fig. 3 that at the discharge end of the hopper bottom are located two of the cross members 25 and 26, the one 25 being inclined and forming a closure between the hopper and the member 26 which is also inclined and forms a chute leading the potatoes onto the upper or large mesh sieve plate 28, the upper end of which rests in an offset or seat 26^a on the end of the member 26 and the other or lower end engages its coincident notched plates 31.

32 designates an adjustable guide board located just below the receiving end of the sieve 28, and slidably mounted on cleats 32^a on the sides 17 and 18, said guide board 32 being provided for regulating the point of

discharge of the first separations or assortment of the potatoes onto the second or lower sieve 29, it being clear that the shifting of the member 32 may be readily effected since it is slidable on the cleats 32^a and that the smaller sizes of potatoes that drop through the apertures 33 are delivered onto the head end of the sieve 29, to thereby cause them to travel over the full length of the said sieve 29 and producing a finer separation than if they only passed over a portion of said sieve 29.

The shaker is suspended in the main framing by the hangers 34—35—36 and 37 that are pendent from the upper beams 5 and 7 to allow for imparting a vibratory or reciprocating motion to the said shaker, which motion I prefer to acquire through the medium of the mechanism shown in the drawings and which comprises an eccentric 38 whose rod 39 is bifurcated to form portions 39^a that extend inwardly and are secured to the sides 17 and 18, the outer or solid part of the rod 39 extending through a slot 40 in the end board 20 that form the front closure part of the shaker and has the usual eccentric strap for fitting the eccentric 38, that is secured to the main shaft 41 journaled in the bearing boxes 48, 49 and 50 on the vertical frame members 2—4 as best shown in Fig. 2.

Shaft 41 carries a pinion 42 that meshes with a gear 43 on a crank shaft 44 mounted in the boxes 51—52 on the main frame member 4 and the sub frame 4^a clearly shown in Fig. 2.

46 designates a fly wheel and 47 a belt wheel mounted on the shaft 41 to provide for operating the machine with other than hand power.

The apertures in the several sieves 28 and 29 are sized, relatively, to effect the required separations of the different grades or sizes of the potatoes and in each sieve the said apertures are preferably arranged as is shown in the detail view Fig. 6 by reference to which it will be seen that they are arranged in rows, as follows: Starting at the head end of the sieve is a row of elliptically shaped apertures 33^a having their major axes disposed in a line parallel with the length of the sieve. Next is a row of like shaped apertures 33^a disposed so their minor axes lie in the same direction and then follows a row of circular shaped apertures 33^a, after which the same order of disposal is repeated and so on throughout the full length of the sieve. At the discharge or lower ends, the sieves 28 and 29 each have a series of pendent fingers or projections 54 that form guards for closing the spaces between the said lower ends of the sieves and the boards 40 and 23 when the said lower ends are raised above the boards 19 and 23 as illustrated in detail in Fig. 7, they being pro-

vided to prevent the potatoes getting underneath the said ends of the sieves. These guard fingers 54 do not extend the full width of the sieve to allow the outer edges of the sieves to freely engage the notches in the plates 31, it being apparent that since the sieve plates are not fixedly secured, other than by one end resting in the seats in the cross members 26 and 27 at their head ends and the other end engaging the notched plates 31, the said sieve plates can be almost instantly lifted and adjusted to their desired positions and held without bolting or other permanent connection, it being also apparent that to change the inclination of the sieves the head end thereof is raised to disengage the offset or seat in the cross members 26—27 before mentioned, and then slightly pushed back to disengage the front end from the notches in the plates 31 and after the said front end has been brought to the desired inclination and adjusted to engage the desired ones of the notches in the plates 31 the upper end of the sieve will drop back into its offset or seat, and be thus retained in its adjusted position.

By reason of the construction of the parts and their coöperative arrangement, as described, it will be readily apparent from the drawings that when shaft 41 is rotated by hand or power, a reciprocating motion is imparted to the shaker through the eccentric and its rod 39.

The potatoes are entered through the hopper 13 and are deflected down onto the sieve 28 by the cross guard 12. In passing over the top sieve 28 the smaller sizes will drop through the apertures 33 onto the second sieve 29, the smallest sizes being conveyed to the head end of the said sieve 29 by the adjustable deflector or guide 32, the larger sizes that do not pass through the sieve 28 discharging therefrom through the end chute 14.

The second sieve 29 being provided with apertures of a smaller size will assort another size, or seconds, and these are discharged through the chute 16 at the back end of the machine, the sizes that pass through the sieve 29 dropping onto a sieve 30, that is fixedly mounted on the cross bars 21 and 22 are separated from the dirt and refuse that falls through the sieve, and pass out into the side discharging chute 15.

While I have shown and described but two sieves and a screen, it is obvious that a shaker frame equipped with a greater number of said sieves and relatively arranged as those shown, might be used for effecting a greater assortment in sizes, it being also apparent that a crank might be used in place of the eccentric for imparting the desired motion to the shaker and other changes or modifications of the details shown and de-

scribed might be made without departing from my invention as coming within the scope of the appended claims.

Having thus described my invention, what I claim is:

1. In a machine of the character described, the combination of the main frame, a single shaker frame mounted therein, and means for actuating the shaker frame, said shaker frame including a plurality of transverse supports at the opposite end, a plurality of sieves, one end of each of the said sieves being pivotally mounted at one end on the corresponding end of the cross support and having the other end projecting over and beyond the other cross support, each of the said projected ends of the sieve having pendent guard fingers and means on the shaker frame for sustaining the said projected ends of the sieve at variable inclinations.

2. In a machine of the character stated, the combination with the main frame and the shaker frame supported therein, said frame including an upper cross member and a lower cross member, the upper cross member having a shouldered seat the notched plates on the sides of the shaker frame in

advance of the cross member and a sieve plate whose upper end is adapted to rest in the seat, whose lower end extends beyond the cross member and is adapted for engagement with the notched plates, the said front end having a series of pendent guard fingers.

3. In a machine of the character stated, a suitable supporting frame, a shaker frame mounted therein, means for actuating the said shaker frame, the said shaker frame including a plurality of sets of upper and lower cross bars, a plurality of sieves, one for each set of upper and lower cross bars, said sieves being loosely sustained at their upper ends on the upper cross bars and having their lower ends projected beyond the lower cross bars, means on the shaker frame for holding the lower ends of the sieves at different inclinations and other means on the projected ends of the sieve for preventing the potatoes from passing out over the cross bar over which the lower end of the sieves project.

JOHN ALFRED BITTLE.

Witnesses:

C. A. MOYER,
ISAAC C. BITTLE.