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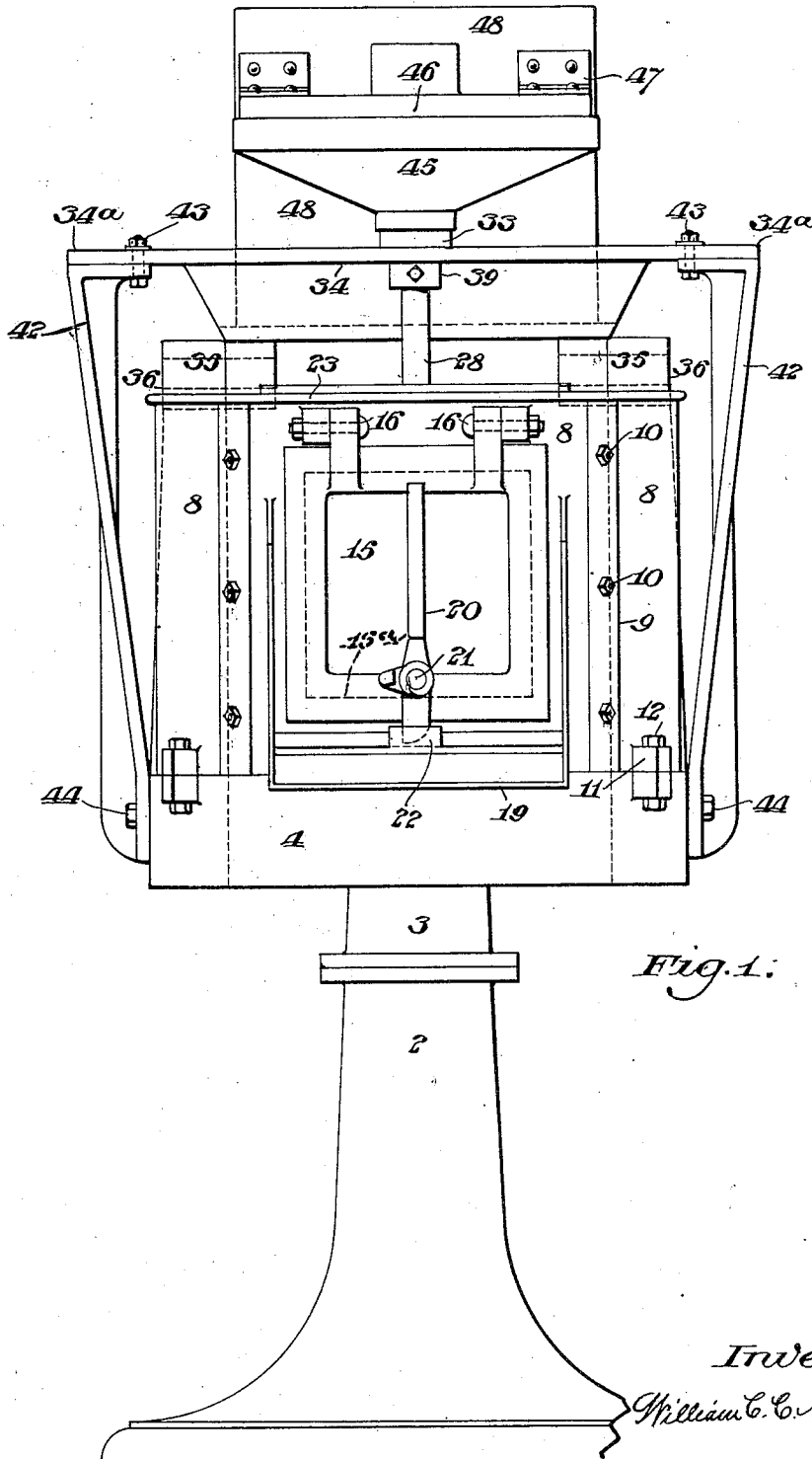
W. C. C. MATHEWS

1,777,123

VEGETABLE PARING MACHINE

Filed Sept. 22, 1926

3 Sheets-Sheet 1



Inventor

William C. C. Mathews

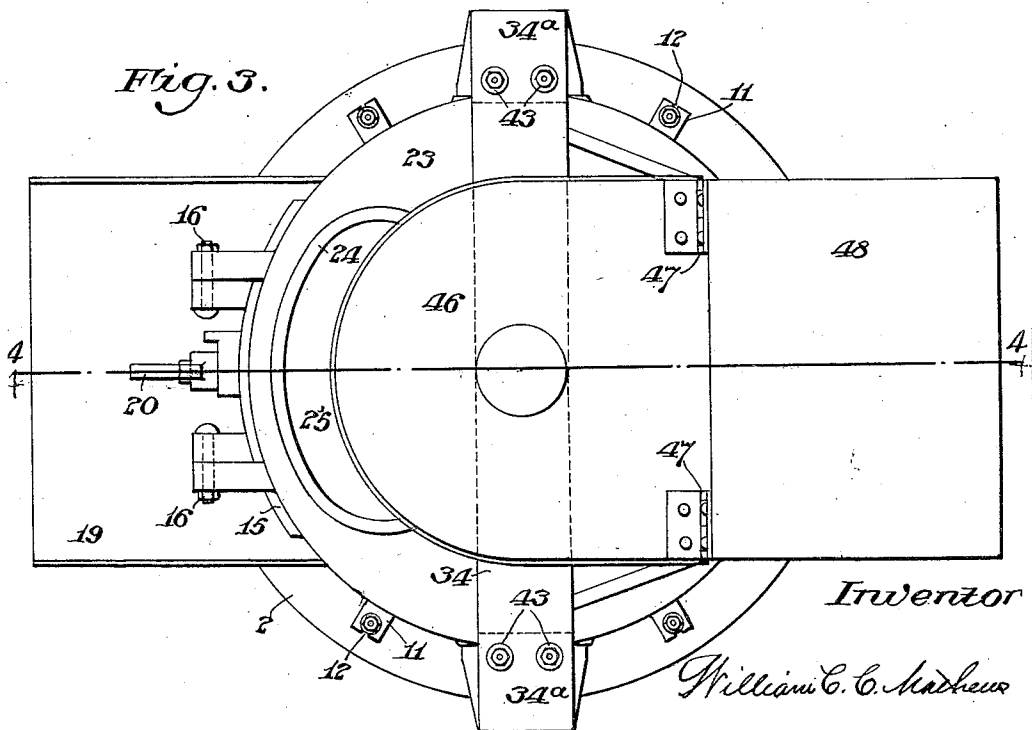
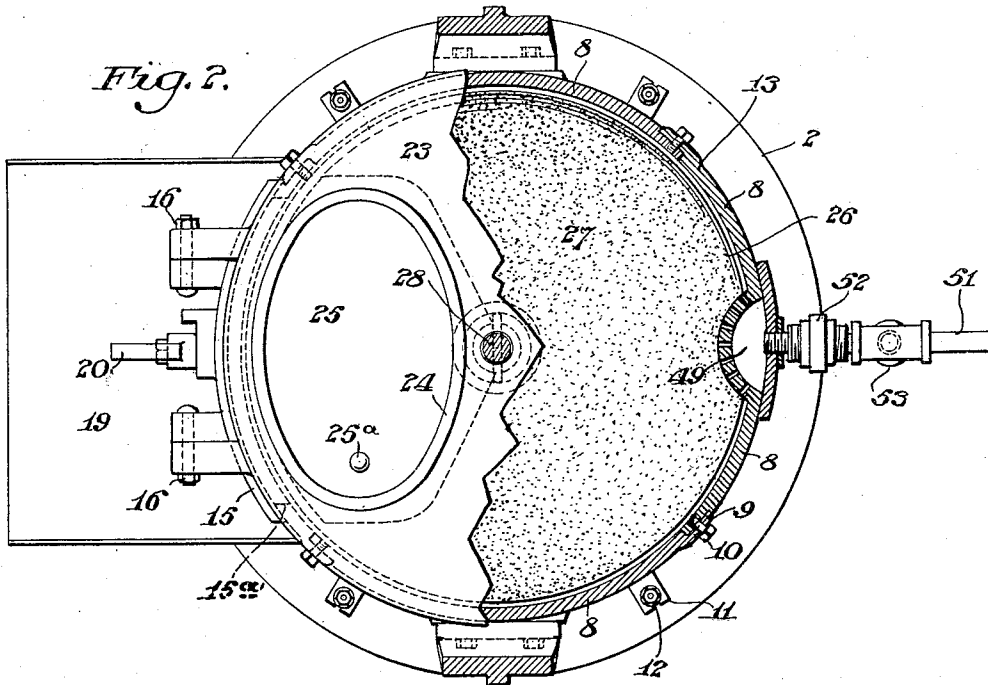
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3 Sheets-Sheet 2



Inventor

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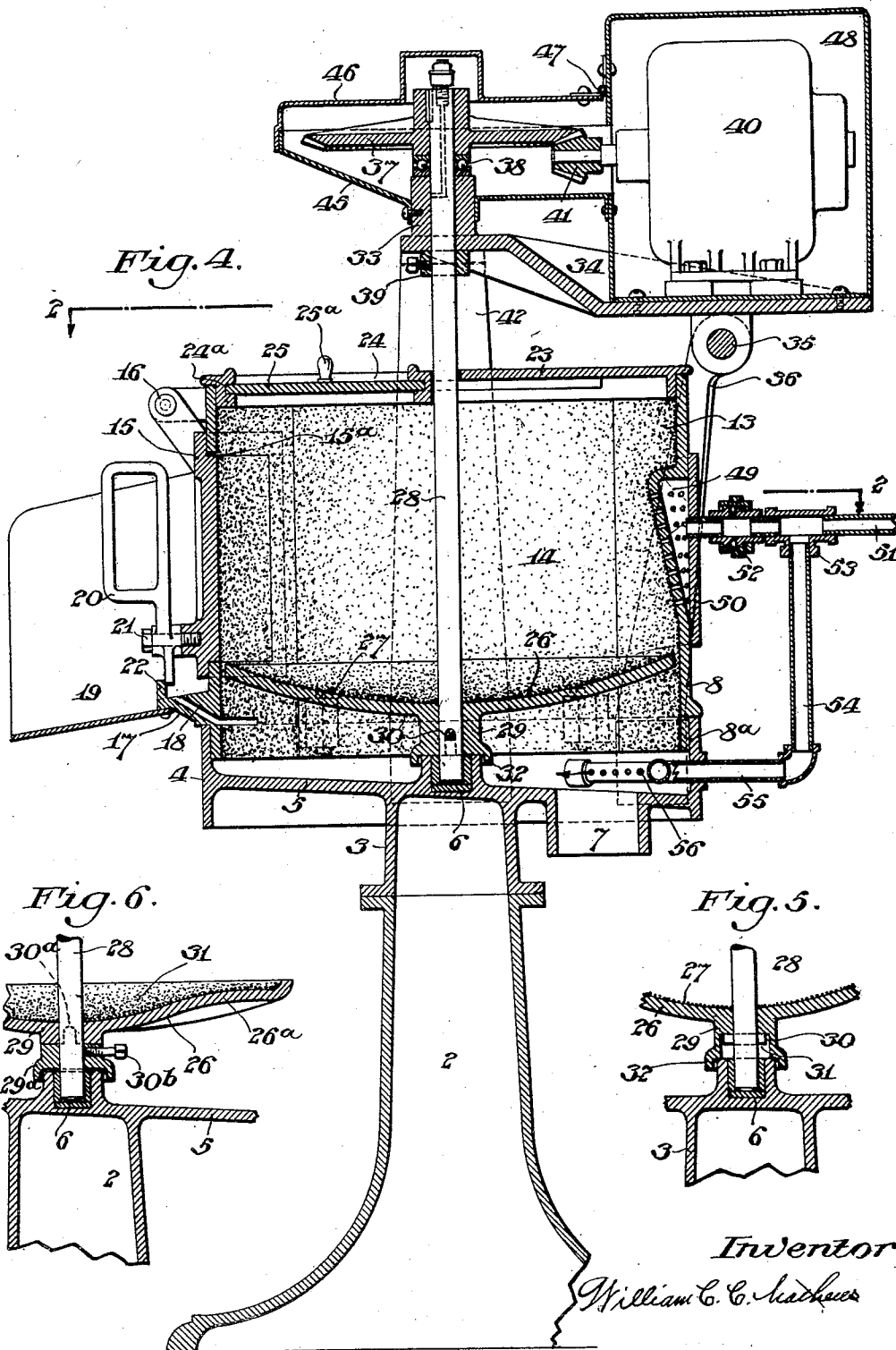
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VEGETABLE PARING MACHINE

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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

WILLIAM C. C. MATHEWS, OF PHILADELPHIA, PENNSYLVANIA

VEGETABLE-PARING MACHINE

Application filed September 22, 1926. Serial No. 136,977.

My invention has for an object an improved construction of vegetable paring machine adapted to be operated by an electric motor which is so positioned and combined in operative relation as to be above that portion of the machine where the water spray and drainage is employed; and my object is further to support the motor on a hinged frame whereby it may be swung up out of operative position after the operating shaft and abrading disk have been raised and removed for cleaning or other purposes.

My object is also to provide a ball bearing at the upper part of the machine to support the weight of the abrading disk and its operating shaft, whereby they are capable of rotating at high speed, the lower end of the shaft being steadied in a bearing to prevent lateral swinging.

Further objects of my invention comprise the locating of the abrading or paring mechanism at a relatively low elevation whereby low vibration is assured and easy access in charging and discharging may be had, while the motor and driving means are arranged at a higher and rear position so as to form no obstruction and permit free access to the operative or working parts; and also in providing an organized machine in which water may be freely used during its operation without danger to the driving or motive power.

My object is also to provide a light running machine in that the rotating abrading disk and shaft therefor are suspended on ball bearings and in a manner that the bearings are protected from objectionable contact with water.

With the above and other objects in view, the nature of which will be more fully understood from the description hereinafter, the invention consists in the novel construction of vegetable paring machine, as hereinafter more fully described and defined in the claims.

Referring to the drawings: Fig. 1 is a front

elevation of my improved paring machine; Fig. 2 is a sectional plan view taken on line 2—2 of Fig. 4; Fig. 3 is a plan view of the machine; Fig. 4 is a vertical section taken on line 4—4 of Fig. 3; Fig. 5 is a vertical section of the lower bearing for the operative shaft of the abrading disk; and Fig. 6 is a vertical section corresponding to Fig. 5 but showing a modified construction thereof.

2 is a pedestal or floor base and upon it is secured the central hub 3 made integral with a circular inclined floor 5 which is bounded by a circular flange 4. Immediately above the floor 5 and hub 3 is a step bearing 6 opening upwardly for receiving and steadying the lower end of the vertical shaft 28 to which the abrading disk 26 is secured. The inclined floor 5 has at its power portion a drainage aperture 7 through which all surplus water may freely escape.

The body or bowl 14 is formed of four curved sections 8 which, when placed edge to edge, form a circular or cylindrical chamber which fits down upon the upper edge of the circular flange 4 of the hub and floor portion above referred to. These sections 8 overlap as at 9 (Fig. 2) and are secured together by screws 10. The lower portions 8^a of the sections 8 are sleeved down into the circular flange 4 (Fig. 4) and, moreover, are secured in place thereon by bolts 12 extending through lugs 11 (Figs. 1 and 2). The rear section 8 is formed with an inwardly extending perforated wall to form a spray chamber from which water freely passes through the aperture and into the bowl 14 which contains the potatoes to be pared. The diagrammatically opposite section 8 is formed with a discharging aperture 15^a provided with a threshold 17 having an inward drainage aperture 18 to permit excess water running back into the space above the floor 5 and under the rotating abrading disk 26 (Fig. 1). A spout 19 extends forward from about the bottom and sides of the dis-

charge opening 15^a and constitutes a discharge chute. A door 15 hinged at 16 to the upper part of the section 8 provides a closure for the opening 15^a and may be held in closed position by the handle 20 pivoted to the door at 21 and adapted to engage a lug 22 on the threshold portion. By opening the door 15 when the disk 26 is being rotated, the pared content will, under centrifugal action, be discharged.

The upper part of the body or bowl 14 is provided with a cover 23 which is flanged and fits to the sections 8 as shown in Fig. 4. This cover is provided with a feeding aperture 24 having grooved side walls and in which a closure 25 is freely movable in a horizontal plane. When the slidable closure 25 is moved in a circular direction, it provides an elliptical opening 24 (Fig. 2) at the front portion of the machine and through which the charge of potatoes or other vegetables may be introduced. The closure 25 is so shaped that in effect it is hinged adjacent to the shaft 28 and center of the cover 23 and with its outer curved edge guided in the curved groove 24^a (Figs. 2 and 4).

The interior walls of the sections 8 are formed with abrading material such as corundum sprinkled in the molds in which the sections 8 are cast so as to become attached to the iron. The abrading surface may be of any other suitable substance and attached in any other manner, as I do not limit myself in this respect. The rotatable abrading disk 26 is made of more or less dish-shape and with its upper surface 27 similarly provided with corundum or other abrading material, as in the case of the body sections 8. The disk 26 may be of uniform concavity as in Fig. 4, or provided with irregular raised portions 26^a of any desired shape as preferred.

The shaft 28 is centered at its lower end in the step bearing 6 to prevent lateral displacement and extends upwardly through the cover 23 and journaled in a bearing 33 on a frame 34 which is hinged at 35 to the upper ends of two frames 36 secured at their lower ends to the flange 4 at the rear part of the machine. This frame 34 is provided with lateral arms 34^a (Fig. 1) which rest upon the upper ends of the side brackets 42 which also are firmly bolted to the flange 4 at 44 and may also be detachably bolted to said brackets by bolts 43. In this manner, the frame 34 is firmly positioned during the operation of the machine, but by removing the bolts 43 it may be swung upward for reasons now to be described.

When the shaft 28 is in operative position (Fig. 4), it is secured at the top to a bevel gear 37 between which and the top of the bearing 33 is interposed ball or roller bearings 38 so that the shaft may be freely rotated notwithstanding the weight of the parts. A collar 39 may be secured to the

shaft 28 by a set screw below the bearing 33 to prevent the shaft and gear lifting. An electric motor 40 is bolted to the frame 34 above the hinged portions 35 and is provided with a small bevel gear 41 which meshes with the large gear 37 (Fig. 4) and by which it is driven.

The motor 40 is enclosed within a casing 48 also secured to the frame 34 and this casing may extend laterally in a fixed portion 45 and in a hinged portion 46. These portions 45 and 46 form a box enclosing the gears 37 and 41 and also the ball bearing 38. When it is desired to oil the gears or bearings, the case part 46 is lifted upward and swung about its hinges 47. It will be understood that in this manner the motor and driving mechanism are protected against injury from moisture.

The manner in which the disk 26 is suspended upon the shaft 28 is best shown in Figs. 4 and 5, from which it will be seen that the disk is provided on its under side with a hub 29 through which the shaft extends. This hub has upwardly extending side notches or recesses 31 which receive the ends of a transverse pin 30 which extends through the shaft. In this manner, the disk is made to rotate with the shaft but by raising the disk, the pin 30 may be removed and the shaft withdrawn from the disk. When this is being done, both the shaft and disk are raised part way up through the body or bowl 14 so as to permit access below the disk. To permit the raising of the shaft 28, the collar 39 must be loosened, the case part 46 raised and the gear 37 and shaft 28 lifted. In this way the shaft may be lifted entirely clear of the machine. The disk 26 may be sustained wholly by the shaft 28 and its ball bearings 38 or, if desired, the hub 29 of the disk may lightly rest on the hub portion of the step bearings 6. It is desirable, however, to rely on the ball bearings as the sustaining means so that the machine may be run with the least power. When the shaft 28 is removed, the frame 34 may be swung upward and back, the cover 23 removed and the disk lifted out. In assembling, the reverse order is employed.

The water is supplied to the machine in the following manner. A pipe 51 is connected through a union 52 with a plate 50 which seals the spray chamber 49 and by which water is sprayed upon the materials within the bowl 14. A branch pipe 54 delivers water to a horizontal nozzle pipe 55 terminating in a curved spray pipe 56 arranged in the space below the disk and above the floor 5 which insures thorough washing of waste matter including the peelings from the machine through the waste pipe 7.

The hub 29 of the disk 26 may have an annular apron 32 about it to shield the bearing 6 from peelings and excess moisture. In Fig.

6, I have shown a modified construction for supporting the disk 26 upon the shaft 28. In this construction there is provided a collar 29^a secured to the shaft by a set screw 30^b. This collar is provided on the lower part with the apron and at the upper part with lugs 30^a corresponding to the ends of the pin 30 in Fig. 5. This construction obviates the necessity of removing the pin 30.

10 It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable, and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that I do not restrict myself to the details, as the same are susceptible of modification in various particulars without departing from the spirit or scope of the invention.

Having now described my invention, what I claim and desire to secure by Letters Patent is:

25 1. In a vegetable paring machine, the combination of an abrading bowl having a central bearing at its lower part and also two upwardly extending laterally arranged brackets respectively at opposite sides of the bowl on the outside thereof, a pivoted frame hinged to the rear of the bowl and brackets and having a forward part extending above the center of the bowl with lateral arms detachably secured to the brackets, a vertical shaft having its upper end journaled in the pivoted frame immediately above the center of the bowl and its lower end journaled in the central bearing at the lower part of the bowl, an abrading disk detachably supported upon the lower end of the shaft and within the bowl, a gear secured to the upper end of the shaft and journaled upon the shaft bearing of the pivoted frame whereby it and the vertical shaft are sustained against downward movement but permit vertical movement when withdrawing the shaft from its bearings, a collar detachably clamped to the shaft below the bearing of the pivoted frame for holding the vertical shaft and its gear against upward movement when the machine is in operation, and a motor secured to the pivoted frame and so geared to the gear upon the vertical shaft that the shaft and its gear may be moved vertically without disturbing the motor.

2. The invention according to claim 1, wherein further, the support for the pivoted frame comprises two upright frames at the rear of the bowl and secured to the lower part thereof, and downwardly extending lugs from the pivoted frame hinged to the upper ends of the upright frames on a transverse axis and below the motor supported upon the pivoted frame whereby said frame will normally rest upon the side bracket by grav-

ity but so as to permit it to be swung upward and backward and retain such position after the shaft has been raised and the abrading disk detached.

3. In a vegetable paring machine having an abrading bowl, disk and operating shaft, means for suspending the disk upon the lower end of the vertical shaft consisting of lateral lugs from the shaft, engaging portions on the central under part of the disk comprising a vertical hole through which the shaft extends and recesses on opposite sides of the hole opening downward in which the lateral lugs are received and upon which lugs the upper interior walls of the recesses directly rest and by which the disk is wholly suspended and rotated, and wherein further, the lugs are provided by a removable pin extending through the vertical shaft and of greater length than the diameter of the shaft, a bearing for the lower end of the shaft is provided to hold it against lateral displacement and the under part of the disk is extended downward in annular form to provide an apron extending over the bearing and pin.

4. In a vegetable paring machine, the combination of a bowl having abrading interior walls, a vertical shaft rotatably mounted therein, means above the bowl for suspending the shaft and providing a bearing in which it rotates, a disk supported by the lower portion of the shaft to rotate within the bowl and forming a shallow discharge chamber between the disk and the lower part of the bowl said lower part provided with a floor having an upwardly extending central bearing for the shaft and a discharge from the chamber at the lower portion of the floor, means above the bowl for rotating the vertical shaft, and means extending from the bottom of the disk and forming a downwardly extending annular apron to shield the bearing extending upward from the floor against the entrance of water therein.

5. In a vegetable paring machine, the combination of a bowl having cylindrical abrading interior walls a portion which is provided with a continuous wall projecting inwardly to form a recess on its outer side and said inward projection perforated, a rotatable disk within the bowl and below the level of the inward perforated projecting portion, a plate secured to the outside of the bowl and over the recess formed therein, and means secured to said plate for supplying water to the recess for causing it to flow into the bowl through the recesses.

6. In a vegetable paring machine, the combination of a bowl having abrading interior walls, a hinged frame pivoted upon a transverse axis adjacent to and to the rear of the bowl and provided with an overhanging arm having a vertical bearing, a vertical shaft journaled in the bearing of the overhanging arm and centrally of the bowl so that the

- shaft may be adjusted vertically in the bearing and raised when the pivoted frame is moved upward and backward, power means on the pivoted frame for rotating the shaft, an abrading disk detachably secured to the lower end of the shaft, and means secured to the bowl for positively holding the pivoted frame in its adjusted position immediately over the bowl but permitting adjustment when the frame is to be raised.
7. In a vegetable paring machine having an abrading bowl, disk and operating shaft, means for suspending the disk upon the lower end of the vertical shaft consisting of lateral lugs from the shaft, engaging portions on the central under part of the disk comprising a vertical hole through which the shaft extends and recesses on opposite sides of the hole in which the lateral lugs are received and upon which lugs the upper interior walls of the recesses directly rest and by which the disk is wholly suspended and rotated.
8. In a vegetable paring machine having an abrading bowl, disk and operating shaft, means for suspending the disk upon the lower end of the vertical shaft consisting of lateral lugs from the shaft, engaging portions on the central under part of the disk comprising a vertical hole through which the shaft extends and recesses on opposite sides of the hole opening downward in which the lateral lugs are received and upon which lugs the upper interior walls of the recesses directly rest and by which the disk is wholly suspended and rotated, and wherein further, a central bearing is provided above the abrading bowl in which the shaft is journaled and suspended against downward movement, and a bearing for the lower end of the shaft arranged at a lower level than the transverse lugs for holding the shaft against lateral movement at its lower end.
9. In a vegetable paring machine, the combination of a bowl having interior abrading walls, a pivoted frame having an overhanging arm, a vertical shaft journaled in the overhanging arm centrally of the bowl so that the shaft may be adjusted vertically, an abrading disk within the bowl carried by the shaft, and a removable cover for the bowl below the pivoted frame and having a central aperture for the shaft and a charging aperture to one side thereof through which the articles to be pared are introduced, the cover and disk being removable when the vertical shaft is raised.
10. A vegetable paring machine including an abrading bowl having a lateral door opening to a discharge chute and threshold thereat, an abrading disk rotatably mounted within the bowl at a level corresponding to the lower part of the door opening, a door for the door opening hinged upon a transverse axis at its upper end so that its lower part swings to and from the bowl and over the threshold, means for locking the door in closed position, and a waste discharge chamber within the lower part of the bowl and below the disk for receiving water and waste products, and wherein the threshold is provided with a transverse drainage conduit through its floor forming a drainage passage to the discharge chamber.
- In testimony of which invention, I hereunto set my hand.
- WILLIAM C. C. MATHEWS.