

No. 850,424.

PATENTED APR. 16, 1907.

T. FRANKLIN & G. L. BELDING.
PEELING MACHINE FOR VEGETABLES.

APPLICATION FILED JUNE 5, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

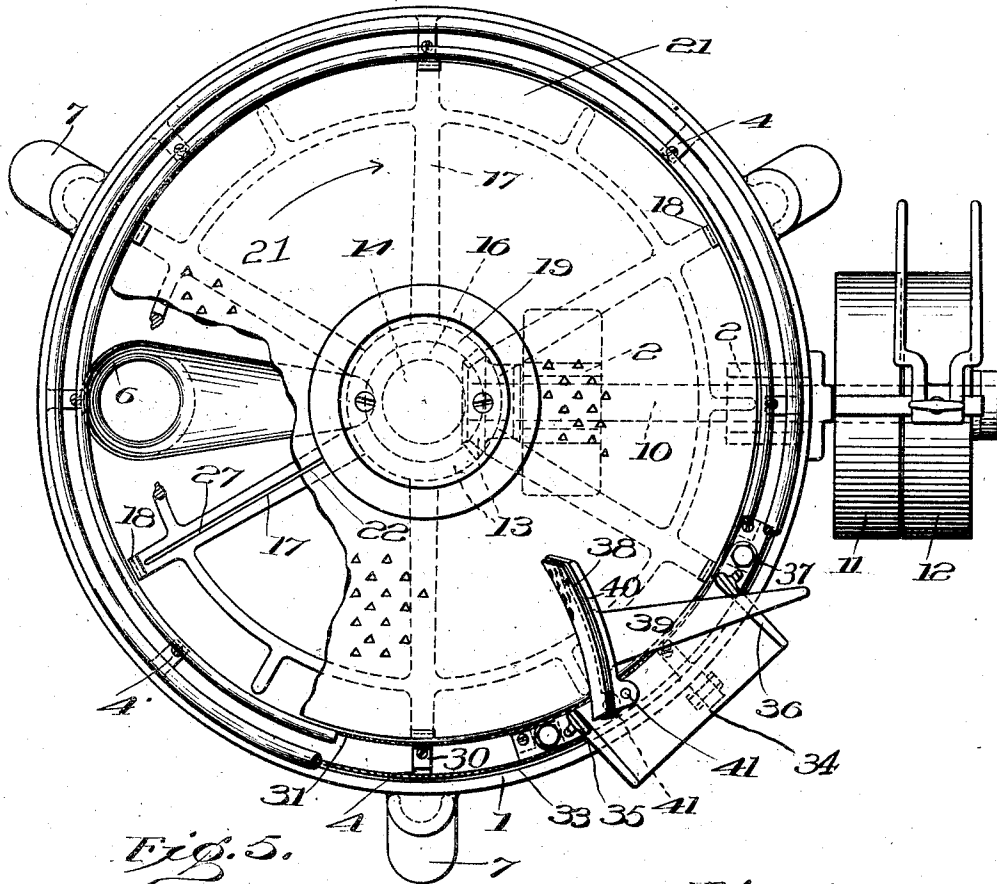


Fig. 5.

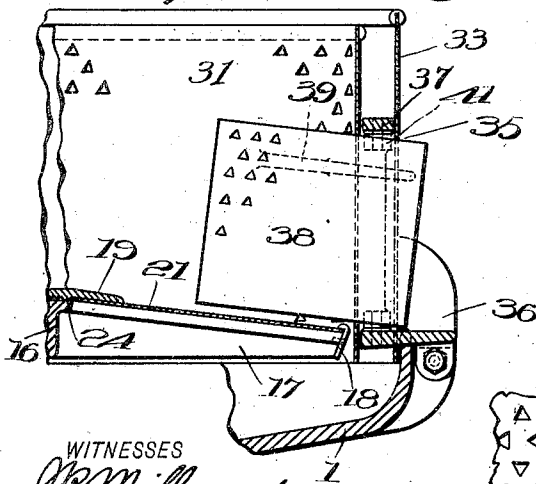


Fig. 6.

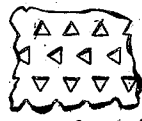
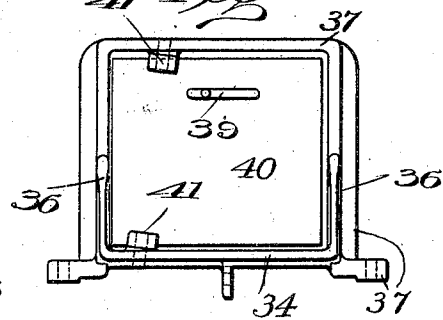


Fig. 7.

Fig. 8.

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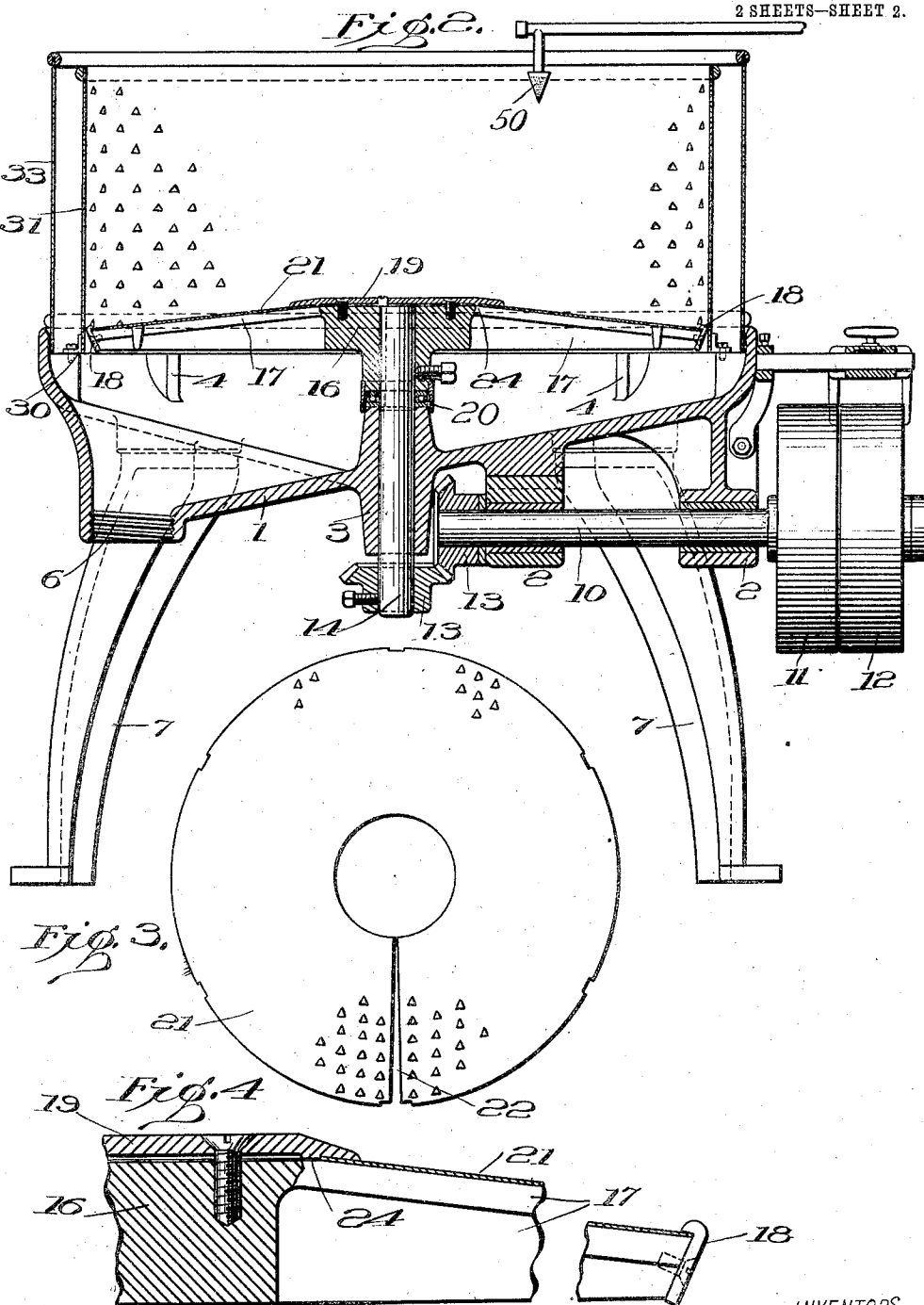
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2 SHEETS—SHEET 2.



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THOMAS FRANKLIN AND GEORGE L. BELDING, OF WEST POINT,
NEW YORK.

PEELING-MACHINE FOR VEGETABLES.

No. 850,424.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed June 5, 1906. Serial No. 320,260.

To all whom it may concern:

Be it known that we, THOMAS FRANKLIN and GEORGE L. BELDING, citizens of the United States, residing at West Point, in the county of Orange and State of New York, have invented new and useful Improvements in Peeling-Machines for Vegetables, of which the following is a specification.

Our invention relates to a potato-peeler of new and improved construction whereby a large number of potatoes or other vegetables may be rapidly and thoroughly peeled and cleaned with the minimum of waste.

The important features are a hollow base having a bottom inclined toward the center and a spout to collect and deliver the waste water containing the dirt and particles of peel to drain, &c. On the base is set an inclosing shell, preferably of sheet metal, and within the shell is secured the perforated cylinder, roughened or provided with projections on its inner surface to abrade the surfaces of the potatoes, as hereinafter described. Within the cylinder is journaled a suitable supporting frame or spider, on which is secured the disk, perforated and roughened on its upper surface to correspond to the cylinder. The disk and spider are preferably made convex, as shown, with a slight downward inclination toward their periphery and are peculiarly constructed, so that the disk is firmly secured in place without undesirable projections, which tend to collect the peelings, dirt, &c. Means are provided for rotating the disk at a considerable speed. A stream of water is directed into the top of the cylinder to wash the potatoes.

An important feature is a door in the cylinder, so formed and arranged that when opened inwardly the peeled and cleaned potatoes are quickly and conveniently delivered outwardly through a corresponding opening and a chute without stopping the machine.

Both the cylinder and disk must be perforated to permit the waste to flow away and be suitably roughened on their inner surfaces to abrade or pick off the skins. These thin metallic parts may be perforated and provided with desirable interior projections by punching the parts from the exterior with a suitable tool.

A desirable form of machine made accord-

ing to our invention is shown in the drawings herewith, in which the reference-letters of the specification indicate the same parts in all the figures.

Figure 1 is a top plan of our machine with the door open and a portion of the disk broken away. Fig. 2 is a vertical section. Fig. 3 is a plan of the disk detached. Fig. 4 is a partial section of the disk and spider enlarged. Fig. 5 is a partial vertical section showing the door open. Fig. 6 is a partial elevation showing the door closed. Figs. 7 and 8 are respectively plan and edge views of a section of a desirable form of perforated cylinder and disk.

In the figures, 1 indicates the base, provided with integral bearings 2 2 and 3 for the shafts and with supporting-lugs 4 4 for the shell and the cylinder. The bottom of the base is preferably inclined toward the center, whereby the washing-water is conveniently collected and delivered through the waste-spout 6 at one side to a receptacle or drain. The base may be bolted on suitable supporting-legs 7 7, and the form thereof (best shown in Fig. 2) affords a solid support for the parts.

In the bearings 2 2 are journaled the driving-shaft 10, carrying the power-pulley 11 and the idler 12, connected by miter-gears 13 to the counter-shaft 14, journaled in the central bearing 3 and supporting on its upper end the spider, composed of the central hub 16 and the radiating arms 17, on which is secured by hooks 18 and clamping-plate 19 the peculiarly-formed disk 21. A ball-bearing 20 may be used. Power may be applied in any other suitable manner. This disk must be perforated and formed with suitable picking-projections on its upper or interior surface, by which the skins are abraded or picked off progressively, but very rapidly. These may be called the "operative" projections, and it is desirable to have none other in the interior, such as screw-heads, which would tend to catch the dirt and fragments of skin. We have therefore devised a simple construction and means for clamping the disk firmly in place without undesirable projections. The disk is formed of sheet metal (more or less resilient) having a central opening and marginal notches to fit the hooks 18, secured to the ends of the arms 17 and split at 22,

whereby the circumferential length of the disk may be shortened by drawing the split ends together. The disk is then set in place on the spider, its edge pressed out under the hooks, preferably beveled to bind, as shown in Fig. 4, and then clamped securely in place by the clamping-plate 19, screwed to the hub and having an annular shoulder or flange 24 to engage with the inner edge of the disk. As best shown in Fig. 4, this shoulder is merely thick enough to form an abutment for the disk edge, but is thinner than the disk, not to interfere with the secure clamping thereof. The only screws are those in the clamping-plate, and they are therefore arranged where they can be countersunk and where there is the minimum of contact with the moving potatoes. The use of screws securing the disk directly to the arms is thus avoided.

One of the arms 17 is slotted longitudinally at 27, and the slit 22 between the disk ends is arranged to register with this slot, whereby the waste water and particles are not caught, but are free to flow out through said slot and slit. As shown, the disk and spider are made convex—that is, higher at the center, with a slight inclination toward the sides—whereby the outward movement and circulation of the potatoes is assisted. If the centrifugal force of the disk were alone relied on for such outward movement, an excessive speed might be necessary, and this would not only be a waste of power and a strain on the parts, but would cause the potatoes more or less to cling to the cylinder and not circulate.

On the lugs 4 is supported and secured by any suitable means, such as angle-irons 30, the cylinder 31, perforated and provided with internal projections like the disk and of a diameter only slightly greater than the disk that there may be rather a close fit.

33 is the inclosing shell to retain the water, which is preferably merely set in place on the lugs so that it can be removed readily. The shell and the cylinder may have their upper margins reinforced, as shown.

The shell is provided with an opening 35, and at this point a frame 37 is bolted to the base and is provided with a chute 34, having sides 36 to deliver the potatoes out through said opening. In said frame is hinged a suitable door 40, carrying a stop-arm 39, so arranged that when the door is swung in it is stopped at the proper angle. On the inner surface of the door is secured the piece 38 of curved and perforated sheet metal cut from the cylinder to form the opening, corresponding to shell-opening 35. When the door is open, the rotating potatoes strike its outer surface to be directed out through the chute and are thus quickly ejected and the machine emptied ready for a fresh charge. As shown in Figs. 1 and 6, the door-hinges 41 are arranged out of vertical alinement to maintain the lower edge of the door substantially paral-

lel to the inclined disk surface as it is swung in. The direction of rotation of the disk is indicated by the arrow in Fig. 1.

Figs. 7 and 8 show, enlarged or exaggerated, a desirable form of perforated picking projections. These are preferably formed by punching in the metal from the exterior with a tool of triangular or other suitable shape. A perforation so made increases in diameter outwardly, so that the particles of skin and dirt easily pass out. By this construction the skins are removed in fine particles, so that they are easily washed out with the dirt through the holes and the potatoes thoroughly washed while being peeled. indicates a spout of any desirable form, through which the washing-water is introduced.

The disk and cylinder are desirably made of hard steel, so as to resist the wear, but are arranged easily to be removed and replaced when the projections are worn down.

Our machine is simple and economical to construct and to operate and from its various features peels and cleans the potatoes rapidly and effectively and with the smallest possible waste. The operation may easily be observed without stopping the machine and the potatoes removed as soon as their light color indicates that they are peeled and cleaned.

While the machine is described in connection with "potatoes," yet it may be used for cleaning other vegetables and fruits.

This machine is adapted to be used with compressed air for cleaning where water would be unnecessary or undesirable.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a peeling-machine for vegetables and fruits, the combination with a hollow, circular supporting-base, of a spider concentrically journaled thereon, said spider being composed of a central hub and radiating arms, hooks secured on the outer ends of the arms, a disk having its outer edge fitting within the hooks, a clamping-plate fitting over the central portion of the disk, screws to secure the clamping-plate to the hub, means to rotate the spider and disk, a cylinder secured on the base to surround the disk, said cylinder and disk being perforated and having picking projections on their inner surfaces, and an imperforate shell on the base surrounding the cylinder.

2. In a peeling-machine, the combination with a circular base, of a spider concentrically and substantially horizontally journaled therein, said spider being composed of a central hub, integral, radiating arms and upward projections on the ends of said arms, one of said arms being longitudinally slotted, a disk of thin metal arranged on the spider with its margin engaging said projections.

said disk having a central opening and being split from said opening to its margin and with the slit so formed arranged to register with the slot in the slotted arm, a clamping-plate arranged to engage with the inner portion of the disk, means to secure the plate to the hub to clamp the disk in place, a cylinder on the base concentrically arranged to surround the disk, said cylinder and disk being perforated and roughened on their inner surfaces, and means to rotate the disk.

3. In a peeling-machine, the combination with a circular base, of a spider concentrically journaled thereon, said spider being composed of a central hub and radiating arms slightly downwardly inclined toward their ends, one of said arms being longitudinally slotted, beveled hooks on the ends of arms, a disk of thin metal arranged on the spider with its margin forced into the hooks, said disk having a central opening and split from said opening to its margin, a clamping-plate having an annular shoulder fitting within the central opening and forming an abutment for the inner edge of the disk, and a portion outside of the shoulder engaging with the upper surface of the disk, screws to secure the plate to the hub and to clamp the disk on the spider, the disk being arranged with the slit between its split ends to register with the slot in said slotted arm, a cylinder on the base around the disk, said cylinder and disk being perforated and having projections on their inner surfaces, a shell on the base surrounding the cylinder and means to rotate the disk, substantially as shown.

4. In a potato-peeling machine, the combination with a suitable cast-metal, circular base, of a disk journaled thereon in horizontal position, means to rotate the disk, a sheet-metal cylinder secured on the base to surround the disk and concentric therewith, said cylinder and disk being perforated and provided with picking projections on their inner surfaces, a corresponding piece of thin metal secured on a suitable frame and hinged to form a door to said opening, and an outwardly-extending stop-arm on the door adapted to engage with the edge of the opening when the door is swung in, to stop the door substantially at an angle of forty-five degrees to a tangent to the cylinder at the point at which the door is hinged.

5. In a peeling-machine, the combination with a suitable base, of a support for the disk journaled therein, said support having its upper surface slightly downwardly inclined toward the periphery, a thin metal disk secured on said support, a cylinder of thin metal secured on the base to surround the disk, said cylinder and disk being perforated and having picking projections on their inner surfaces and the cylinder having a side opening, a door, composed of a frame and a sheet of thin metal curved and formed to

correspond to the cylinder, hinged in said opening to swing in and the hinges arranged not in vertical alinement whereby the door swings parallel to the inclined disk, an imperforate shell surrounding the cylinder and provided with a corresponding side opening, and a chute secured on the base within the shell and extending through said shell-opening, substantially as described and shown.

6. In a peeling-machine, the combination with a suitable base, of an imperforate, sheet-metal shell supported thereon, a perforated sheet-steel cylinder secured on the base concentrically within the shell, a spider journaled on the base within the cylinder and concentrically therewith, said spider being composed of a central hub and radiating arms, the arms being inclined slightly down from the hub, a perforated sheet-steel disk secured on the spider, and means to rotate the spider and the disk, said disk and cylinder having picking projections on their inner surface.

7. In a peeling-machine, the combination with a hollow or dished base having its bottom inclined toward the center, a waste-spout adjacent to its outer edge and a channel leading with a slight downwardly inclination from the center to the waste-spout, of suitable supporting-legs for the base, a vertical shaft fitted to a bearing in the base, a spider composed of a central hub and radiating arms secured on the upper end of the shaft, a thin metal disk secured on the spider, a cylinder secured on the base and inclosing the disk, and a cylindrical shell inclosing the cylinder, said disk and cylinder being perforated and having picking projections on their inner surfaces, and said radiating arms being slightly inclined downwardly toward their ends and having their ends free and disconnected except by the disk.

8. In a potato-peeling machine, the combination with a suitable metal base, of a disk journaled thereon in substantially a horizontal position, means to rotate the disk in one direction, a sheet-metal cylinder secured on the base to surround the disk and having a side opening, said cylinder and disk being perforated and provided with picking projections on their inner surfaces, a door hinged by one of its vertical edges in said opening and adapted to be swung in to intercept the peeled articles and direct them out through the opening, and a piece of sheet metal secured to the inner surface of the door, said piece being curved and perforated and provided with picking projections to correspond to the cylinder, and being adapted to fit the opening so that the inner surface of the cylinder is continuous and uniform when the door is closed.

9. In a peeling-machine, the combination with a suitable base, of a disk journaled thereon in substantially a horizontal position,

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means to rotate the disk in one direction, a cylinder on the base surrounding the disk, a shell on the base surrounding the cylinder, corresponding side openings in the cylinder and the shell, a door hinged adjacent to said openings and adapted to swing inwardly through the cylinder-opening, and a stop on the door adapted to engage with the edge of the shell-opening to limit the inward swing of the door, and limit the extent of inward movement of the door, so that the peeled articles will strike the outer surface of the door and be directed outwardly through the opening.

10. In a peeling-machine, the combination with a suitable base, of a disk journaled thereon in substantially a horizontal position, means to rotate the disk in one direction, a cylinder secured on the base around the disk, said cylinder and disk being perforated and provided with picking projections on their inner surfaces, a cylindrical shell on the base around the cylinder, said shell and cylinder having corresponding side openings, a metal frame set in said openings and having an outwardly-extending chute, a door hinged in said frame by one of its vertical edges and adapted to swing in through the cylinder-opening, and a stop on the outer surface of the door near the top, said stop being adapted to engage with the edge of said frame and limit the inward swing of the door, so that the peeled articles will strike the outer face of the door, when the door is swung in, and be directed out through the opening.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

THOMAS FRANKLIN.
GEORGE L. BELDING.

Witnesses:

WM. WARD,
ISAAC A. BOYLE.