June 24, 1930. H. L. JOHNSTON 1,766,999

FOOD HANDLING MACHINE

Filed Feb. 11, 1927 2 Sheets-Sheet 1

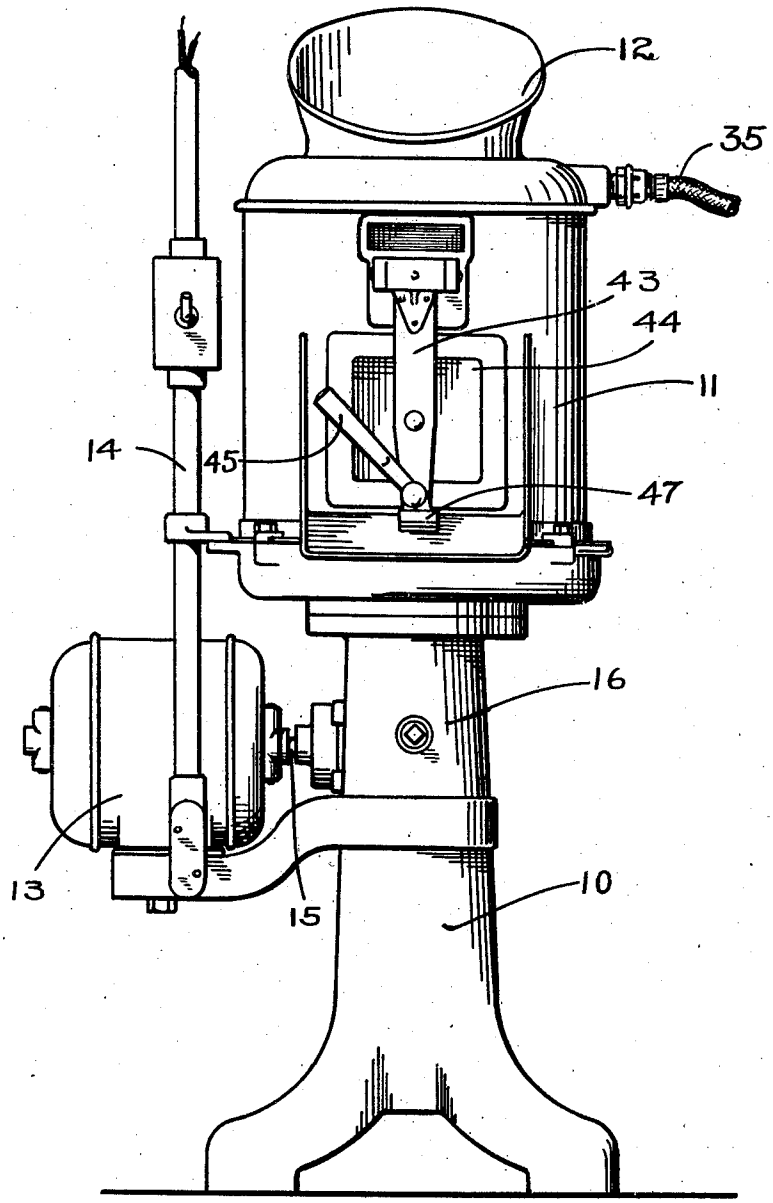

Fig.-1

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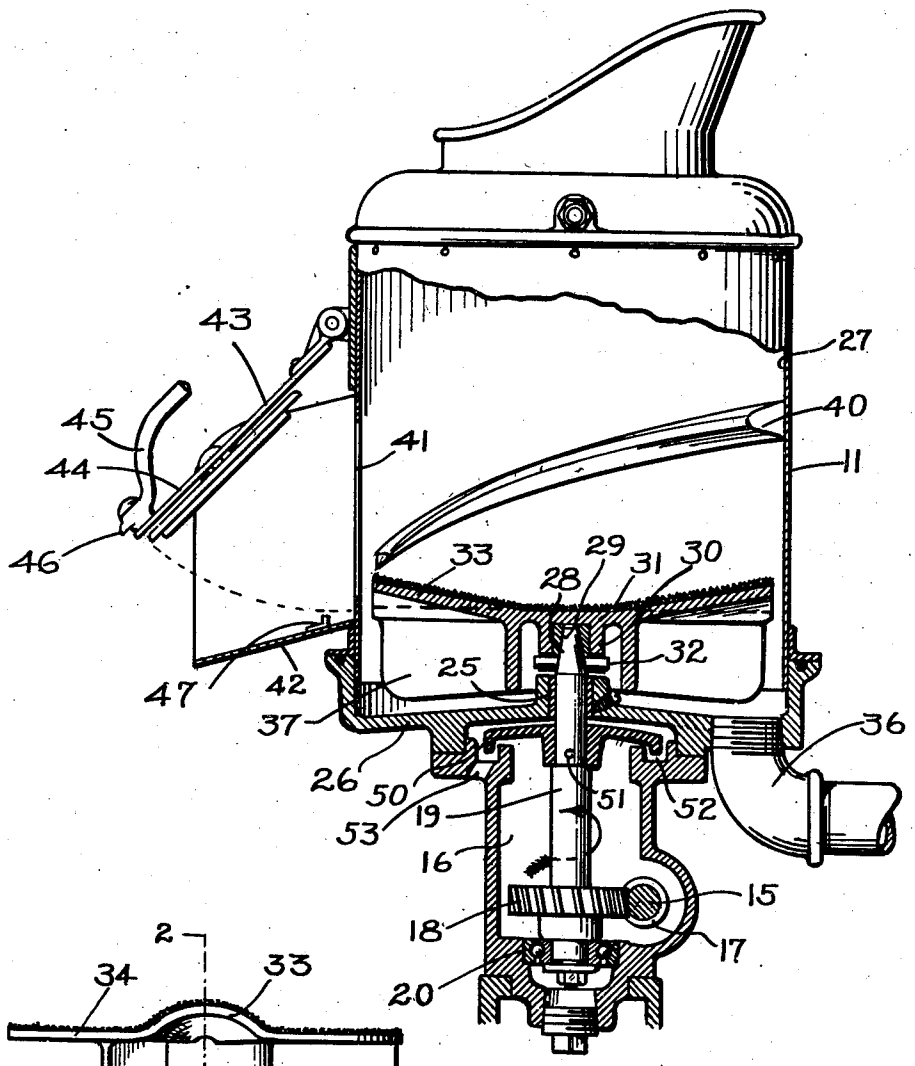

Fig.-2

Fig.-3

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1,766,999

UNITED STATES PATENT OFFICE

HERBERT L. JOHNSTON, OF TROY, OHIO, ASSIGNOR TO THE HOBART MANUFACTURING COMPANY, OF TROY, OHIO, A CORPORATION OF OHIO

FOOD-HANDLING MACHINE

Application filed February 11, 1927. Serial No. 167,522.

This invention relates to vegetable-handling machines and more particularly to machines adapted to remove the peels of vegetables such as potatoes and the like.

One object of the invention is to provide a vegetable-peeling machine having means for causing the movement of the individual vegetable within a mass of vegetables to bring them into the desired peeling relationship with the peeling instrumentalities.

Another object of the invention is to provide a machine of this character having a rotatable abrasive peeling disc and means for causing movement of the mass of vegetables during operation to bring the individual potatoes, or other vegetables, into peeling contact with the abrasive disc.

A further object of the invention is to provide a deflecting disc associated with the operating shaft for the abrasive disc to deflect any liquid passing down along the shaft away from the shaft-operating mechanism below it.

Further objects and advantages of the invention will be more fully set forth in the accompanying description, in the claims and in the drawings, in which,

Fig. 1 is a front elevation of the vegetable-peeling machine;

Fig. 2 is a side elevation of the vegetable hopper partly in section; and

Fig. 3 is a side elevation of the table.

Referring more particularly to the drawings by reference characters in which corresponding numerals designate like parts in the various figures, the machine comprises an upright pedestal 10 on which is mounted the hopper or housing 11 into which the vegetables may be poured through the upwardly flaring opening 12. An electric motor 13 is suitably mounted on the pedestal and is supplied with power through the electrical conduit 14. The horizontally extending motor shaft 15 extends into a casing 16 and is there provided with a worm 17 engaging the worm wheel 18 which is mounted on the vertical shaft 19 within the housing. A ball bearing 20 mounts the lower end of the shaft 19 and the upper end of this shaft is rotatably mounted in a bearing bushing 25 which is fixed in the casting 26 which forms the lower horizontal wall of the hopper or casing 11. The side wall 27 of this casing 11, of cylindrical shape, is preferably formed of sheet metal, and is supported at the lower end thereof to the bottom casting 26.

At its upper end the shaft 19 is tapered as shown at 28 to receive a correspondingly tapered socket 29 formed in the depending hub 30 carried by the rotatable table 31. This hub has aligned slots in the lower face adapted to receive a drive pin 32 carried by the shaft 19. This table is provided with a plurality of agitating projections, bumps or waves 33 which are raised above the level of the horizontal portions 34 of the table and are preferably of progressional increasing height from the center of the disc out. The entire upper surface of the table is roughened, as by covering it with abrasive material embedded in the surface and for this purpose small chips or pieces of carborundum may be used, attached in any suitable and well known manner. These chips act on the vegetables as they are brought into contact with the abrasive disc to remove the peel. During peeling operations water is introduced through the supply pipe 35, to flow downwardly through the mass of vegetables and flush out or wash away the portions of peel as removed. This water, and the entrained peeling, flow into the bottom of the hopper or housing 11 and thence outwardly. The table is provided with downwardly extending paddles 37 which circulate the water in the lower part of the casing to assist in the free outflow of the water and peelings through the outlet pipe 36, to any desired place.

The peelings, and flushing water, are thrown outwardly by the table as they are removed by the abrasive, and fall between the table and the side walls of the hopper. These vegetables are supplied through the upper opening 12 into the casing 11 so that the rotation of the table 32 will operate by means of the abrasive on its upper surface to remove the peels of the vegetables brought into contact with it, these vegetables being meanwhile bodily rotated or circulated about

due to rotation of the table. This action tends to move the vegetables outwardly toward the wall of the container.

In order to intimately mix and circulate the vegetables together throughout the mass as they are rotated and so moved the side wall 27 of the housing 11 is provided with an upwardly spiraling and sloping guide or rib 40 bent into substantially V shape so as to extend inwardly from the surface of the housing. As clearly shown in Fig. 2 the size of the guide 40 increases as it extends upwardly from a point adjacent the table so the smaller portion of the guide may be effective to create a lifting effect on the peripheral portion of the mass of vegetables without crushing them as they are urged against the guide by centrifugal force and by the projections of the table. It will also be apparent that the guide has no sharp or cutting edge which would chip or cut the vegetable. Preferably two of these ribs 40 are provided substantially opposite each other so that the potatoes or vegetables as they are rotated by the table will be moved upwardly on the guides 40 to some extent and will then return down falling towards the center of the housing so that the entire mass of vegetables will be mixed together from the center toward the outside of the mass and then towards the center of the mass again as the entire mass of vegetables is rotated by the table. This will insure that all of the vegetables will be acted upon by the abrasive on the upper surface of the table so that all of the peeling of the vegetables may be removed, and the time of peeling contact of any particular portion of each vegetable so limited that unduly large portions of the vegetable itself will not be removed.

Intermediate the ribs 40 the hopper 11 is provided with a discharge opening 41, with which is associated a discharge spout 42. The opening extends downwardly and terminates substantially opposite the upper abrasive surface of the rotatable table. Pivotally attached to the hopper above the opening 41 is a support arm 43 to which is attached, by means of a central bolt, a closure or door 44; the arrangement being such that the door may be swung upon the supporting arm to open or close the discharge opening. The support arm has an operating handle 45 carrying a latch 46 which may be moved behind a retainer lug 47, when the door is closed, to hold the door against opening. The construction is such that the door when closed sets tightly against the hopper to prevent undesirable leakage. When it is desired to discharge the peeled vegetables the door is swung to open position and the vegetables will flow out through the spout.

In order to prevent any water which may seep through the bearing 25 from finding its way into the lower part of the housing 16 the shaft 19 is provided with a disc 50 which is attached by means of a pin 51 to the upper portion of the shaft below the bearing 25. Any liquid finding its way through the bearing 25 will be deflected by this deflecting disc 50 as this disc rotates with the shaft 19. A water-collecting groove 52 extends around the periphery of the disc in the upper portion of the housing 16 and passage 53 at one side of the housing forms an outlet passage for the water which is deflected into the groove 52. A supply of oil may therefore be maintained in the housing 16 to lubricate the shaft-operating mechanism in this housing without the oil being diluted by water from the housing 11.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. In a machine of the class described, a vegetable container, a metal side wall for said container, a rotatable table on which the vegetables rest, power means for rotating said table, said table having a top surface for rotating the vegetables as the table is rotated, and a smooth non-abrasive upwardly sloping guide surface provided in said side wall for mixing the vegetables together as they are rotated on said table said guide surface increasing in cross section upwardly from a point adjacent the table.

2. In a vegetable-peeling machine of the class described, a vegetable container comprising smooth side portions and a bottom portion, said bottom portion having a top surface having an agitating upward projection adapted to remove the peels of the vegetables, means for rotating said bottom portion, and an upwardly inclined smooth non-abrasive fixed guide along the said side portion for mixing the vegetables together as they are rotated and moved up and down within the container by said bottom portion.

3. In a vegetable-peeling machine, a vegetable container comprising side portions and a bottom portion, said bottom portion having a substantially horizontal top abrasive surface adapted to remove the peels of vegetables and having an upward projection for effecting an upward movement of the vegetables above it, means for rotating said bottom portion, and an upwardly spiraling inwardly projecting nonabrasive guide surface carried by the said side portion for mixing the vegetables together as they are rotated by said bottom portion.

4. In a vegetable-peeling machine, a vegetable container embodying a rotatable table

having an abrasive surface thereon, and a generally cylindrical casing around said table, means for circulating the vegetables within the casing, water inlet means above said table for flowing water onto said circulating vegetables, water outlet means below said rotatable table, a downwardly extending shaft for operating said rotatable table, a bearing for said shaft in the lower wall of said casing, a disc carried by said shaft below said bearing and liquid-receiving means around the edge of said disc, for the purpose described.

5. In a vegetable-handling machine, a vegetable container comprising a housing and a rotatable table therein on which the vegetables rest, a shaft for rotating said table, a bearing for said shaft in said housing, shaft-operating mechanism below said bearing, a casing for said shaft-operating mechanism, and a liquid-deflecting disc fixed to said shaft below said bearing to prevent liquid passing through said bearing from falling on said shaft-operating mechanism.

6. In a vegetable-peeling machine of the class described, a metal casing, a closable door in said casing through which vegetables may be removed, a base member on which said casing is fixed, a smooth upwardly spiraling inwardly projecting guide surface carried by said casing for mixing the vegetables together, a rotatable table spaced above said base member and provided with an abrasive top surface, said table having an upward projection at one side of the surface thereof providing a peripheral portion extending above the center of the table, a downwardly extending driven shaft attached to the lower side of the table and extending through the said base member, a gear chamber below said base member, gear means located below said base member in said gear chamber for rotating said driven shaft, power means for driving said gear means, water inlet means above said table for flowing water onto the vegetables, water outlet means provided in said base member below the table, and paddle means projecting downwardly from said table for moving the peelings of the vegetables into the said outlet means.

7. In a vegetable-peeling machine of the class described, a substantially cylindrical metal casing, a door in said casing through which the vegetables may be removed, a base member on which said casing is fixed, an upwardly spiraling inwardly projecting guide surface carried by said casing for mixing the vegetables together, a rotatable table spaced above the base member and provided with an abrasive top surface, said table having an upward wave projection at one side thereof extending above the center portion of the table, a downwardly extending driven shaft attached to the lower side of the table and extending through the said base member, a disc carried by said shaft below said base member, liquid receiving means around the edge of said disc, power operated means located below said base member for rotating said drive shaft, water inlet means provided in said casing above said table for flowing water onto the vegetables, water outlet means provided in said base member below the table, and paddle means projecting downwardly from said table for moving the peelings of the vegetables into the said outlet means.

8. In a vegetable peeling machine, a vegetable container having nonabrasive side walls, a rotary peeling member mounted therein, said member having an agitating projection extending upwardly beyond adjacent peripheral portions thereof, the side walls of the container being formed so as to have a smooth nonabrasive retarding means acting only on the peripheral portions of the mass of vegetables to exert a limited retarding effect thereon while permitting an upward movement along said side walls without substantial peeling or cutting action, the innermost portion of said retarding means being devoid of a sharp or cutting edge.

9. In a vegetable peeling machine, a vegetable container having nonabrasive side walls, a rotary peeling member mounted therein, said member having an upwardly extending agitating projection at the peripheral portion thereof, the side walls of the container being formed so as to have a smooth nonabrasive retarding means spiraling upwardly from the table acting only on the peripheral portions of the mass of vegetables to exert a limited retarding effect thereon while permitting an upward movement along said side walls without substantial peeling or cutting action.

In testimony whereof I hereto affix my signature.

HERBERT L. JOHNSTON.