Oct. 22, 1935. E. D. RAPISARDA 2,018,418

CANDY CLEANING MECHANISM

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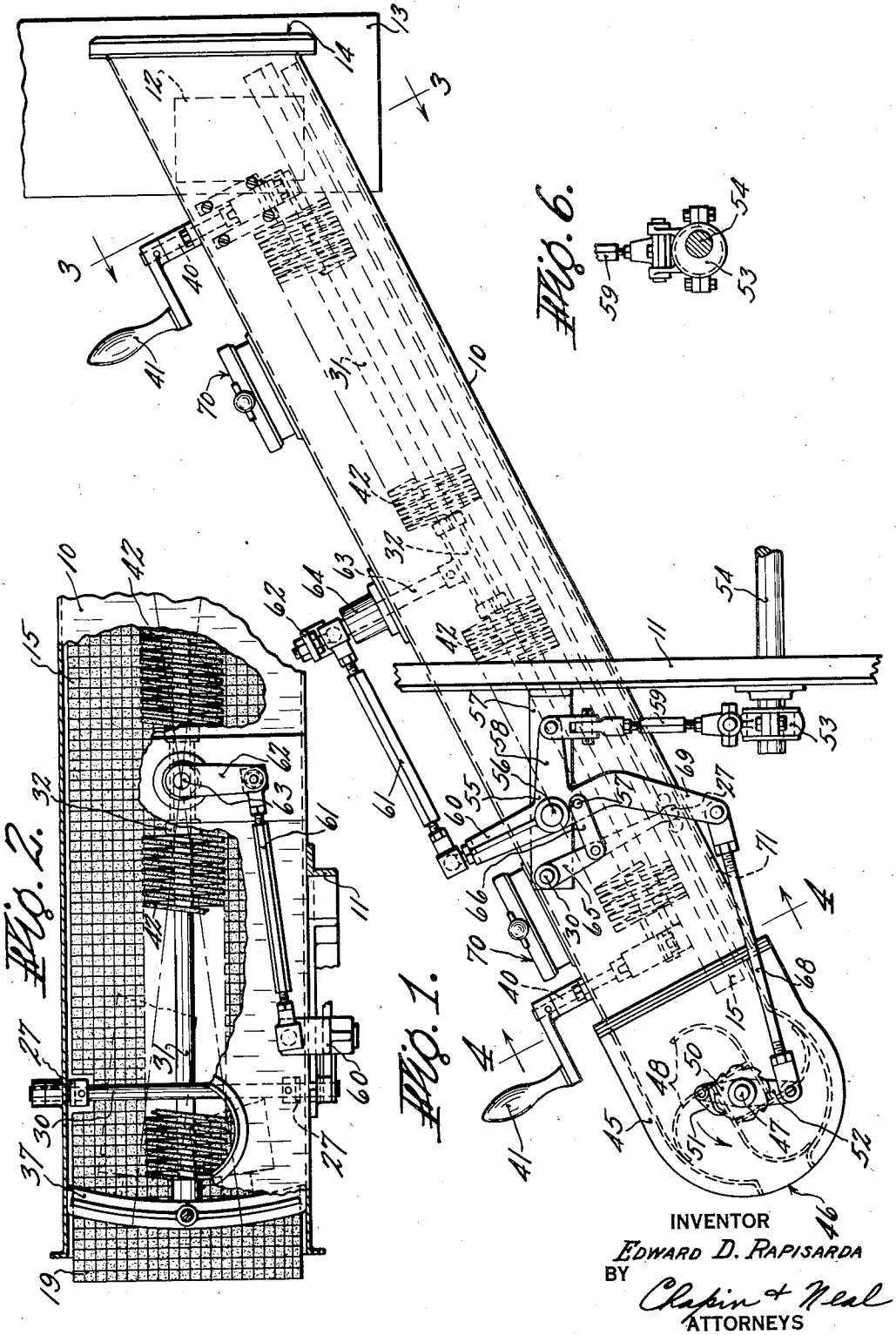


Fig. 1.



Fig. 2.



Fig. 6.

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Fig. 3.

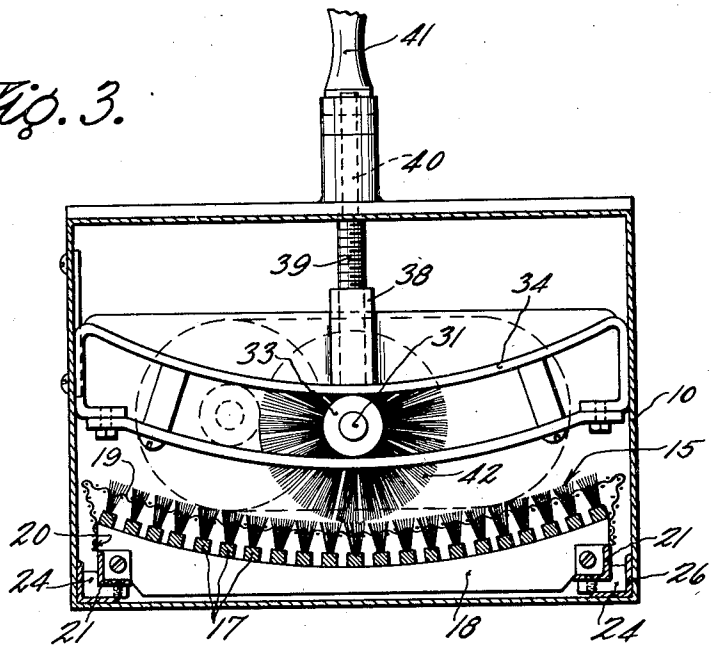



Fig. 4.

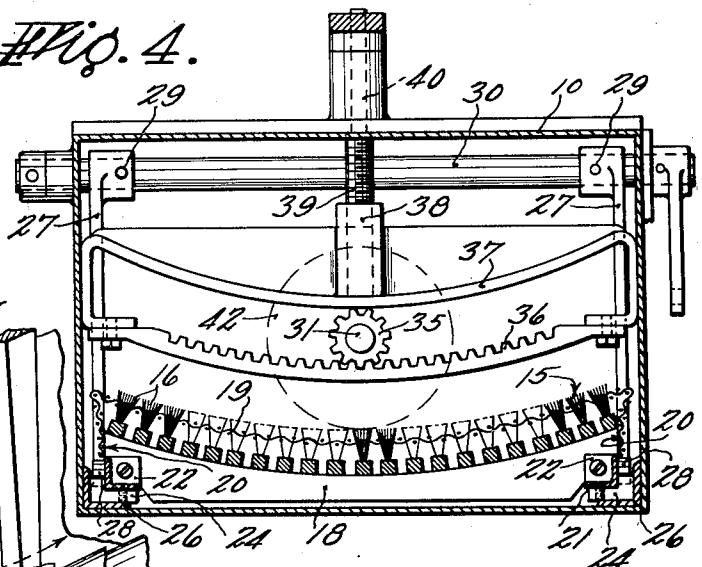
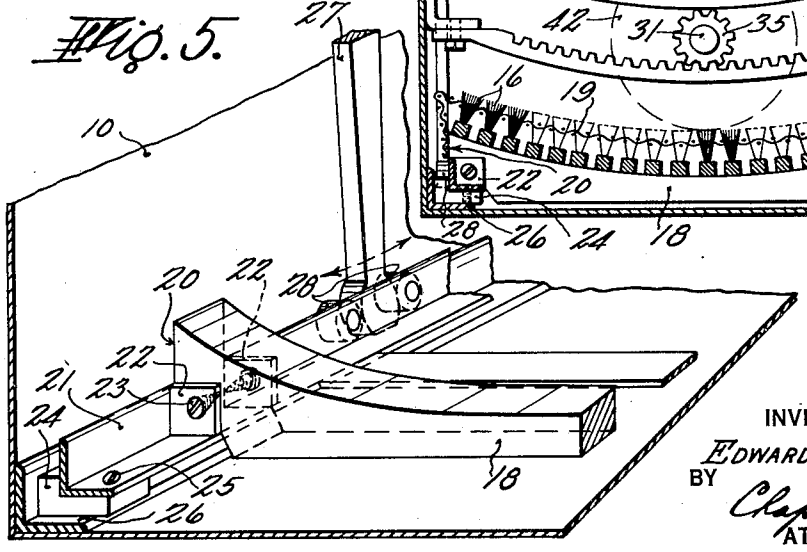



Fig. 5.




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Patented Oct. 22, 1935

2,018,418

# UNITED STATES PATENT OFFICE

2,018,418

## CANDY CLEANING MECHANISM

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Application January 18, 1935, Serial No. 2,407

6 Claims. (Cl. 107—44)

This invention relates to a device for removing from candy, or candy centers, which have been cast or shaped in starch molds, any particles of starch which have adhered to the centers upon removal from the molds.

The principal object of the invention is to clean the adhering starch from the centers in a more efficient manner, and to assure the removal of substantially all starch particles even when the latter have become engaged in depressions or crevices in the candy. Other and further objects will be made apparent in the following specification and claims.

In the accompanying drawings:

Fig. 1 is a side elevation of a candy cleaning device constructed in accordance with my invention;

Fig. 2 is a fragmentary plan view with parts of the center casing broken away;

Fig. 3 is a sectional view substantially on line 3—3 of Fig. 1;

Fig. 4 is a sectional view substantially on line 4—4 of Fig. 1;

Fig. 5 is a fragmentary perspective view showing the manner of supporting the lower cleaning brush and guiding its movements; and

Fig. 6 is a detail view of the eccentric drive for the brushes.

Referring to the drawings, 10 indicates an elongated casing in which the cleaning mechanism is housed. The casing 10 is supported in an inclined position, by any suitable frame structure partly shown at 11. The candies to be cleaned enter the upper end of the casing 10 through an opening 12, formed in one of its side walls. The opening 12 may communicate directly with the discharge opening of the mechanism (indicated at 13) which separates the candies from the starch matrix in which they have been molded. The upper end of the casing 10 is closed by means of a closure 14, which is preferably a glass plate permitting a view of the interior of the casing.

As the candies enter the casing they are received on the upper end of a trough-shaped brush 15 reciprocably mounted at the bottom of the casing. The brush 15 extends substantially the full length of the casing and, as best shown in Figs. 3, 4 and 5, is upwardly concave in transverse section. The brush tufts 16 are carried by ribs 17 secured to suitably shaped cross members 18 and extend through the meshes of a screen 19, the edges of which are bent down and secured to the ends of the cross members 18 as at 20. The screen engages the brush tufts a sufficient distance below the free ends of the bristles to afford a proper brushing action while supporting the tufts against too great displacement, the position of the screen thus giving a control over the stiffness of the brushing action. The frame of the brush 15 is completed by longitudinal angle members 21, provided with spaced lugs or ears 22 between which the ends of the cross members 18 are received and to which they are secured by screws 23.

Bearing blocks 24, secured to the side members 21 as by screws 25, ride on angle guides 26 welded or otherwise secured in the lower corners of the casing 10. The brush is reciprocated in the guides 26 by means of arms 27, the lower free ends of which engage between spaced rolls 28 secured to the side members 21. The arms 27 are secured as at 29 to a rock shaft 30 journaled in the sides of the casing and operated, as later described, to impart a short longitudinal reciprocation to the brush.

Positioned within the casing 10 and extending longitudinally thereof is a shaft 31, journaled at its mid-point in an oscillating bearing 32 described below. The lower end of the shaft 31 is provided with an anti-friction roller 33 riding in an arcuate guide member 34 concentric with the pivot of bearing 32 (see Fig. 2) and curved to conform substantially to the curvature of the brush 15 as shown in Fig. 3. The upper end of shaft 31 is provided with a gear 35 engaging a rack 36 formed on the lower member of a guide 37 which is similar in all other respects to guide member 34. The guide members 34 and 37 are provided with internally threaded bosses 38 engaging threaded portions 39 of vertical shafts 40 which extend through and are journaled in the top of casing 10, and are provided with crank handles 41 by which the vertical position of the guide members may be adjusted independently in an obvious manner.

The shaft 31 is provided with a cylindrical brush 42 extending substantially the length of the shaft, the brush being interrupted at its center to accommodate bearing 32. The bristles of the brushes 42 are preferably arranged in spiral formation as best shown in Fig. 2.

As previously noted the casing may receive the candies directly from the starch separator. In certain types of such separators air suction is used and to prevent an undesirable rush of air through the cleaner the lower end of casing 10 is provided with a discharge chamber 45 into which the candies pass from the brushes. The chamber 45 is provided with a discharge opening 46. A shaft 47 journaled in the sides of the

chamber is provided with four curved closure members 48, the edges of which make a substantial sealing engagement with the walls of the chamber. As shaft 47 is rotated in the direction of the arrow in Fig. 1, the members 48 receive the candies as they drop from the lower brush 15 and carry them to the discharge opening 46, the latter opening being substantially shut off at all times by the engagement of adjacent members 48 with the chamber walls at opposite sides of the opening. The shaft 47 extends outwardly beyond the wall of the chamber and is provided with a ratchet 50 which is engaged by a pawl 51 carried at one end of a carrier arm 52 pivotally mounted on the shaft.

The members 48 are intermittently advanced, the brush 15 is reciprocated, and the brush 42 is both oscillated and rotated about its axis from a single eccentric 53 secured to a driven shaft 54. Referring particularly to Figs. 1, 2 and 6, a three arm lever 55 is pivoted at 56 to a bracket 57 welded or otherwise secured to frame 11. Arm 58 of lever 55 is connected by an adjustable link 59 to eccentric 53 whereby lever 55 is rocked about its pivot 56 when 54 is driven from any suitable source of power, not shown.

Arm 60 of lever 55 is connected by an adjustable link 61 to the free end of an arm 62 secured to the upper end of a vertical shaft 63 journaled in a bearing sleeve 64 secured to the top of the casing 10 and permitting vertical movement of the shaft. The lower end of shaft 63 is secured to the bearing 32 and the oscillation imparted to shaft 63 through the linkage just described oscillates the brush 42 within the casing as indicated in dotted lines in Fig. 2, the ends of the brush rising at the ends of its swing in conformity with the curvature of the guide members 34 and 37 as shown in dotted lines in Fig. 3. At the same time the brush is rotated about its own axis by the engagement of gear 35 with curved rack 36.

The outer end of rock shaft 30, which reciprocates brush 15, is provided with an arm 65 having its free end connected by a link 66 to lever 55 at a point 67 below the pivot 56, whereby rocking of lever 55 by the eccentric 53 imparts a short reciprocation to the brush 15 in a direction lengthwise of the casing and brush 42. Movement is imparted to the pawl and ratchet 50—51 to advance the members 48 of the candy discharge mechanism by a link 68 which connects the pawl carrier 52 to the arm 69 of lever 55.

Hand holes provided with suitable closures 70 are formed in the top of the casing adjacent its upper and lower ends to permit access to the interior of the casing for the purposes of cleaning the brushes or other servicing operations. A bleeder hole 71 may also be provided at the lower end of the bottom of the casing admitting air to the underside of brush 15 in sufficient amount to keep starch from accumulating in the brush.

In operation the candies or candy centers enter the casing 10 through opening 12 and falling on brush 15 pass by gravity into engagement with the rotating and oscillating brush 42. The combined rotation and bodily movement of brush 42 gives a very much more efficient cleaning action than the brush arrangements commonly used, and particularly when the oscillation is about the longitudinal center of the brush with the ends of the brush following an upwardly concave path as in the particular embodiment shown. In this arrangement the end portions of brush 42 are in contact with or have a predetermined spaced relation with respect to brush 15 throughout the extent of the brush movement, whereas the intermediate portion of the brush 42 is spaced from the brush 15 when the brush 42 is at either extreme of its oscillation (in the dotted line position in Fig. 3), this spacing having a maximum at the center of the brush and diminishing towards the ends. As the brush 42 swings into alignment with brush 15 the entire length of brush 42 is brought into contact or parallelism with the brush 15. During these movements the brush 42 is also being rotated about its axis and brush 15 is being reciprocated longitudinally. As a result the candies, traveling by gravity from the upper end of the casing to the lower end, are moved and turned to expose all surfaces repeatedly to the action of the brushes and are subjected to varying vertical brush pressure as the intermediate portion of brush 42 moves into and out of contact with the brush 15.

As will be obvious the cleaner can be adjusted to accommodate large or small candies by suitable manipulation of handles 41.

I claim:

1. A device for cleaning candies, candy centers and the like which comprises an inclined supporting brush upon which the candies are received, said supporting brush having a transversely curved surface forming a trough down which the candies pass, a relatively narrow brush positioned to engage the candies on the supporting brush and mounted for vertical and pivotal movement at its center on an axis normal to the surface of the candy supporting brush, means to oscillate the narrow brush about said axis, and means to cause the ends of the narrow brush to follow paths conforming to the curvature of the supporting brush whereby the center portion of the elongated brush moves toward and from the surface of the supporting brush as the narrow brush moves into and out of alignment with the supporting brush.

2. A device for cleaning candies, candy centers and the like which comprises an inclined supporting brush upon which the candies are received, said supporting brush having a transversely curved surface forming a trough down which the candies pass, a rotatable brush, having a diameter less than the width of the supporting brush, positioned to engage the candies on the supporting brush and mounted for vertical and pivotal movement at its center on an axis normal to the surface of the candy supporting brush, means to simultaneously oscillate the rotatable brush about said axis and rotate it about its longitudinal axis and means to guide the ends of the rotatable brush, during said oscillatory movement, in paths having a fixed relationship to the curvature of the supporting brush.

3. A device for cleaning candies, candy centers and the like which comprises an inclined supporting brush upon which the candies are received, said supporting brush having a transversely curved surface forming a trough down which the candies pass, means to reciprocate said supporting brush longitudinally, a rotatable brush, having a diameter less than the width of the supporting brush, positioned to engage the candies on the supporting brush and mounted for vertical and pivotal movement at its center on an axis normal to the surface of the candy supporting brush, means to simultaneously oscillate the rotatable brush about said axis and rotate it about its longitudinal axis and means to guide

the ends of the rotatable brush, during said oscillatory movement, in paths substantially conforming to the curvature of the supporting brush.

4. A device for cleaning candies, candy centers and the like which comprises an inclined trough-shaped brush, arcuate in cross section, down which the candies pass, a screen in the meshes of which the tufts of said brush are engaged, a rotatable brush overlying said trough and positioned to engage the candies thereon, said rotatable brush being mounted for vertical and pivotal movement at its longitudinal center on an axis normal to the surface of the trough-shaped brush to permit its ends to swing transversely across the width of the trough, guides in which the ends of the rotatable brush travel, said guides conforming to the transverse curvature of the trough, a casing enclosing said brushes, and provided at its lower end with a discharge opening, a rotatable shaft mounted adjacent the discharge opening and provided with radial members adapted to receive the candies from the brushes and carry them to the discharge opening, said radial members making a sealing contact with the casing walls on opposite sides of the discharge opening as the candies are discharged therethrough to prevent a flow of air into the casing, a restricted opening in the casing below the trough-shaped brush to bleed air into the casing through said brush, means to reciprocate the trough-shaped brush in the direction of its length, means to simultaneously rotate the second named brush about its axis and oscillate it about its pivot and means to intermittently rotate the candy discharge means.

5. A device for cleaning candies, candy centers, and the like comprising a trough-shaped brush, a cylindrical brush positioned adjacent the concave side of the trough-shaped brush, and means for imparting to the cylindrical brush a combined motion of rotation on its own axis and motion laterally of the trough-shaped brush.

6. A device for cleaning candies, candy centers, and the like comprising a trough-shaped brush, a cylindrical brush positioned adjacent the concave side of the trough-shaped brush, and means for imparting to the cylindrical brush a combined motion of rotation on its own axis, motion laterally of the trough-shaped brush, and motion towards and away from the surface of the trough-shaped brush.

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