

March 25, 1930.

H. ROBINSON

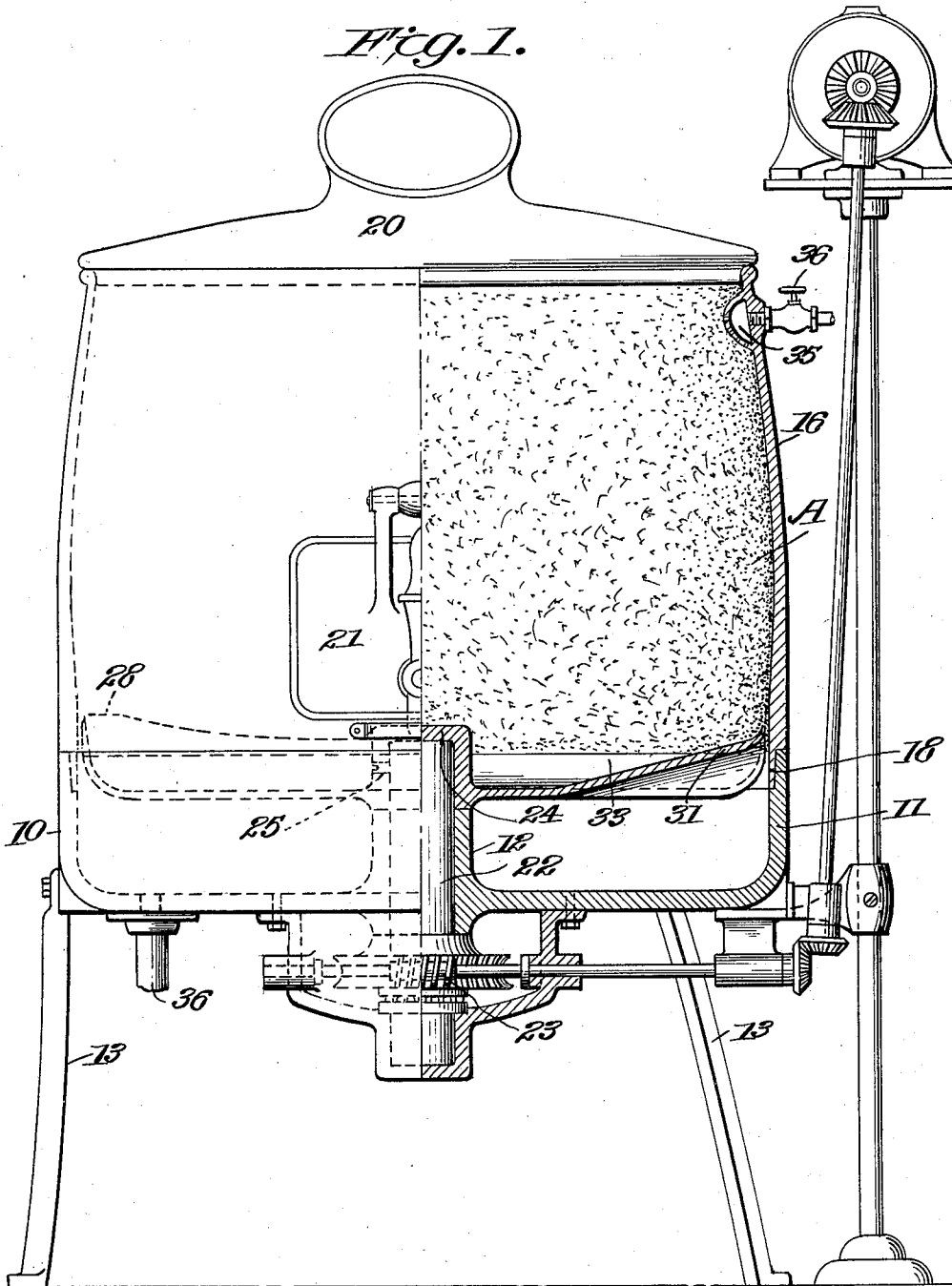
1,752,203

AGITATING, ETC., MACHINE

Filed Aug. 21, 1929

2 Sheets-Sheet 1

Fig. 1.



INVENTOR,
Henry Robinson,
M. J. O'Neil
Attorney.

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2 Sheets-Sheet 2

Fig. 2.

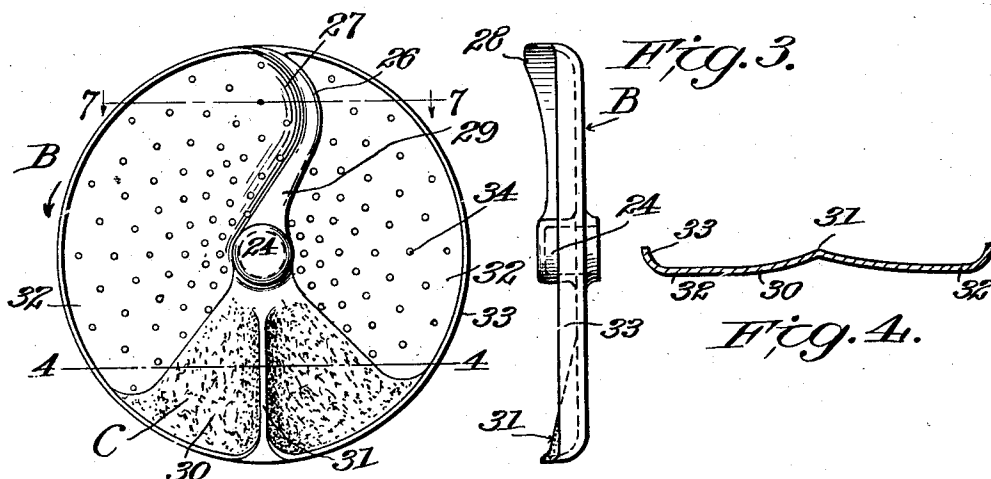


Fig. 3.

Fig. 4.

Fig. 5.

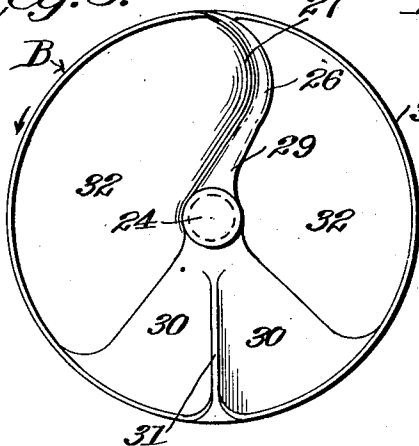


Fig. 6.

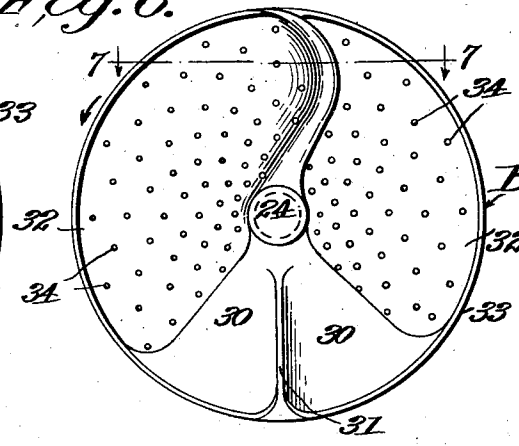
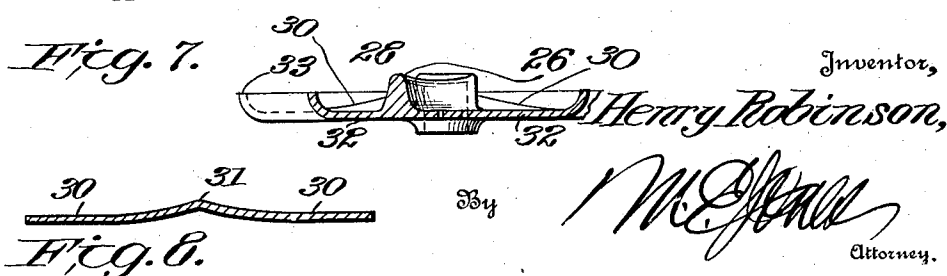


Fig. 7.

Fig. 8.



Inventor,

Henry Robinson,

Attorney.

UNITED STATES PATENT OFFICE

HENRY ROBINSON, OF NEW YORK, N. Y.

AGITATING, ETC., MACHINE

Application filed August 21, 1929. Serial No. 387,473.

My invention relates specifically to the class of machinery in which a mass, at least several layers deep, of various substances, are enclosed in a container for agitation by mechanical means, for either the thorough mixing of substances such as glucose and proteins, for the removal of dirt by washing and agitation from fruits and leafy vegetables or for uniformly abrading the jackets or skins of tuberous vegetables. The invention resides in the improved mechanical means for more efficiently accomplishing the ends mentioned with less waste of material in abrading, with greater compactness, economy of space and in less time.

The improved mechanism I employ to accomplish the stated purposes or objects, produces sufficient centrifugal and centripetal motion upon the entire mass of material to be mechanically worked on in the container of the machine, either for mixing, washing or abrading in a satisfactory manner in the most circumscribed space and in the least time, and which container has a door adapted to be opened so that the contents will be immediately, completely and automatically ejected by centrifugal force to an outside receptacle, and on the closing of which door, the container will be ready for another operation.

The present invention is a modification of that disclosed in an application for Letters Patent filed by me of even date herewith, bearing Serial Number 387,472 and it aims to accomplish the same objects and advantages as are possessed by the invention disclosed in said application and which differs from the devices disclosed in my prior Patents Numbers 809,582 and 942,932, in the particulars pointed out in the aforesaid application.

A specific object of the present invention is to provide a construction wherein the centripetally impulsive and centrifugally acting agitating means may be formed rigid or integral with the disk which forms the base of the mixing chamber.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment and wherein:—

Figure 1 is a view of a preferred form, half in front elevation and half in central vertical section;

Figure 2 is a plan view of the combined agitating device and disk;

Figure 3 is an edge view of the device of Figure 2;

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 2;

Figure 5 is a plan view of a second form of combined agitating means and disk;

Figure 6 is a plan view of a third form of combined agitating means and disk;

Figure 7 is a cross sectional view taken on the line 7—7 of either Figure 2 or Figure 6 and

Figure 8 is a sectional view through a modified form taken on the same plane as line 4—4 of Figure 2.

Referring specifically to the drawings, wherein like reference characters designate like or corresponding parts, one preferred construction is illustrated primarily in Figures 1 to 4 and 7, the complete assembly appearing in Figure 1. In such construction, 10 designates a base or bowl which is preferably made in a single metallic casting and has an upstanding marginal wall 11 and a central hollow bearing 12 terminating below the upper edge of said wall. Legs 13 may support the bowl.

A cylinder or chamber member 16 removably surmounts the wall 11 and is also preferably a single metallic casting. Collectively, the base 10 and cylinder 16 form a chamber to accommodate vegetables or the various other materials which may be agitated and washed, or agitated, pared and washed, or mixed or kneaded, according to the specific purposes for which the machine is constructed. In the preferred form of the machine, the inner surface of the cylinder substantially throughout, as at A, is rendered rough or abradant as by permanently applying carborundum or the like thereto. Said cylinder 16 at its lower edge, rests on the wall 11 and an annular depending flange 18 telescopes into bowl or base 10. A removable cover 20

rests on cylinder 16 while a discharge opening and conventional door are provided for the cylinder at 21. The parts described are substantially similar to those of corresponding numbers in the aforesaid pending application.

A vertical operating shaft or spindle 22 is journaled in bearing 12 and extends above said bearing 12. Shaft 22 is adapted to be rotated in any suitable manner and is shown as adapted to be driven by the identical worm drive as at 23, which is disclosed in the aforesaid pending application and therefore, does not require specific description here.

Instead of using a separate agitating device and disk below the same, a unit B is employed which performs the functions of both said agitating device and disk and which constitutes the basic feature of the present application.

Said unit B has an inverted cap shaped hub 24 which is adapted to telescope over the upper end of shaft 22, be rigidly fastened removably to the same as by a set-screw 25 and rest on the top or upper edge of bearing 12.

Integral with the hub 24, is a centripetally impulsive arm-like projection 26 which is hook-shaped in that it curves rearwardly or arcuately with respect to the direction of rotation as indicated by the arrow in Figure 2. The forward or material engaging surface 27 of the projection 26 slants or curves upwardly and rearwardly and is rounded at the top of the projection. Such projection 26 is highest at its outer end as at 28 and is lower at 29, that is between the highest portion and the hub 24 so that engaged tuberous vegetables or other materials through the centripetal impulses imparted thereto by the projection, will be thrown across such projection at the relatively low portion 29.

On the opposite side of the axis of hub 24 to the projection 26, is a substantially arcuate projection or portion 30 which is provided with a raised portion or rib 31 which may be radially, tangentially or otherwise disposed. The rib 31 is arranged centrally of projection 30 and the latter inclines downwardly therefrom in opposite directions, toward its opposite edges and the upper surfaces of the projection 30 is provided with abradant material at C, similarly to the surface A, so that tuberous vegetables or the like, which are moved into contact therewith, will have their skins or outer jackets abraded and removed. The centripetally impulsive projection 26 and centrifugally acting projection 30 coact in the same manner as the corresponding parts of the agitating devices or mechanisms disclosed in the previously mentioned pending application.

In the present disclosure, such centripetally impulsive projection and centrifugally acting portion 30 are formed as parts of a one

piece metallic member or unit, such parts being integral with disk portions 32, from one of which, the surface 27 gradually extends upwardly.

As disclosed in Figure 2, a marginal flange or wall 33 may completely surround the unit B and the portions 32 may be perforated as at 34.

Materials within the chamber 16 may be rinsed or washed by water entering through a nozzle 35 under control of a valve 36 and such water and washings may drain through the openings 34 and may also overflow the marginal flange 33, since the same, in some instances, is spaced as in Figure 1 from the inner surface of the container 16.

It will be understood that it is not necessary to always employ the flange 33 and that it may be omitted according to the modification shown in Figure 8, the parts of the latter figure being similar to ones employed in Figures 1 to 4 and, accordingly, it bears the same reference characters.

It will also be realized that in connection with the mixing and kneading of doughy or similar substances, that the perforations 34 and abrasive surface C, will be omitted and a unit according to such modification, is shown in Figure 5, such unit being entirely impermeate. It employs the same parts as in the preceding figures and, hence, bears the same reference characters. In the case, however, of mixing and kneading, the supply of water to the container 16 will only be intermittent. Accordingly, the flange 33 in a mixer or kneader, would directly engage the inner surface of container 16, whereby the latter would be completely closed at the bottom.

In other instances, as where washing leafy vegetables such as spinach, kale and cabbage, a unit such as is shown in Figure 6 may be substituted for that shown in Figure 2, the only difference being that the abradant surface C, is omitted. The flange 33 in this instance, may directly abut the inner surface of container 16 or be spaced therefrom as preferred.

In the form of either Figures 5 and 6, the flange 33 may be omitted according to the modification of Figure 8.

Various additional modifications and changes may be resorted to within the spirit and scope of the invention.

I claim as my invention:

1. In a machine of the class described, a centripetally impulsive agitating means having an arm-like projection on one side of its axis, said projection generally extending radially and laterally and being laterally dishd, and means carried by said projection serving to support the material engaged by the projection, substantially as described.

2. In a machine of the class described, a centripetally impulsive agitating means having an arm-like projection on one side of its

axis, said projection generally extending radially and laterally and being laterally dished, and a disk integral with said projection to support material engaged by the projection, substantially as described.

5 3. In a machine of the class described, a centripetally impulsive agitating means having an arm-like projection on one side of its axis, said projection generally extending radially and laterally and being laterally dished, a substantially segmental portion on the other side of said axis to centrifugally move material, and means integral with said projection and portion to support the material which is engaged thereby.

15 4. In a machine of the class described, a centripetally impulsive agitating projection, a plate portion with which said projection merges and from which it extends upwardly, 20 said projection following a curve extending generally radially and laterally, substantially as described.

5 5. In a machine of the class described, a centripetally impulsive agitating means having a curved arm-like projection on one side of its axis extending generally radially and laterally and a segmental portion on the other side of said axis, said portion having one portion thereof higher than the remainder, and 30 a disk portion integral with said projection and segmental portion, substantially as described.

6 6. In a machine of the class described, a centripetally impulsive agitating means having a curved arm-like projection on one side of its axis extending generally radially and laterally and a segmental portion on the other side of said axis, said portion having a ridge and sloping from said ridge downwardly, 40 and a disk portion integral with said projection and segmental portion, substantially as described.

7 7. In a machine of the class described, a centripetally impulsive agitating means having a curved arm-like projection on one side of its axis extending generally radially and laterally and a segmental portion on the other side of said axis, said portion having a ridge on its upper surface, and a disk portion integral with said projection and segmental 50 portion, substantially as described.

8 8. In a machine of the class described, a centripetally impulsive agitating means having a curved arm-like projection on one side of its axis extending generally radially and laterally and a segmental portion on the other side of said axis, said portion having a ridge, a disk portion integral with said projection and segmental portion, and a flange integral 60 with said disk portion and segmental portion at the borders thereof, substantially as described.

9 9. In a machine of the class described, a centripetally impulsive agitating means having a curved arm-like projection on one side

of its axis extending generally radially and laterally and a segmental portion on the other side of said axis, a disk portion integral with said projection and segmental portion, said segmental portion having a ridge and extending downwardly from said ridge and merging into the upper surface of said disk portion, substantially as described.

In testimony whereof I have affixed my signature.

HENRY ROBINSON.

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