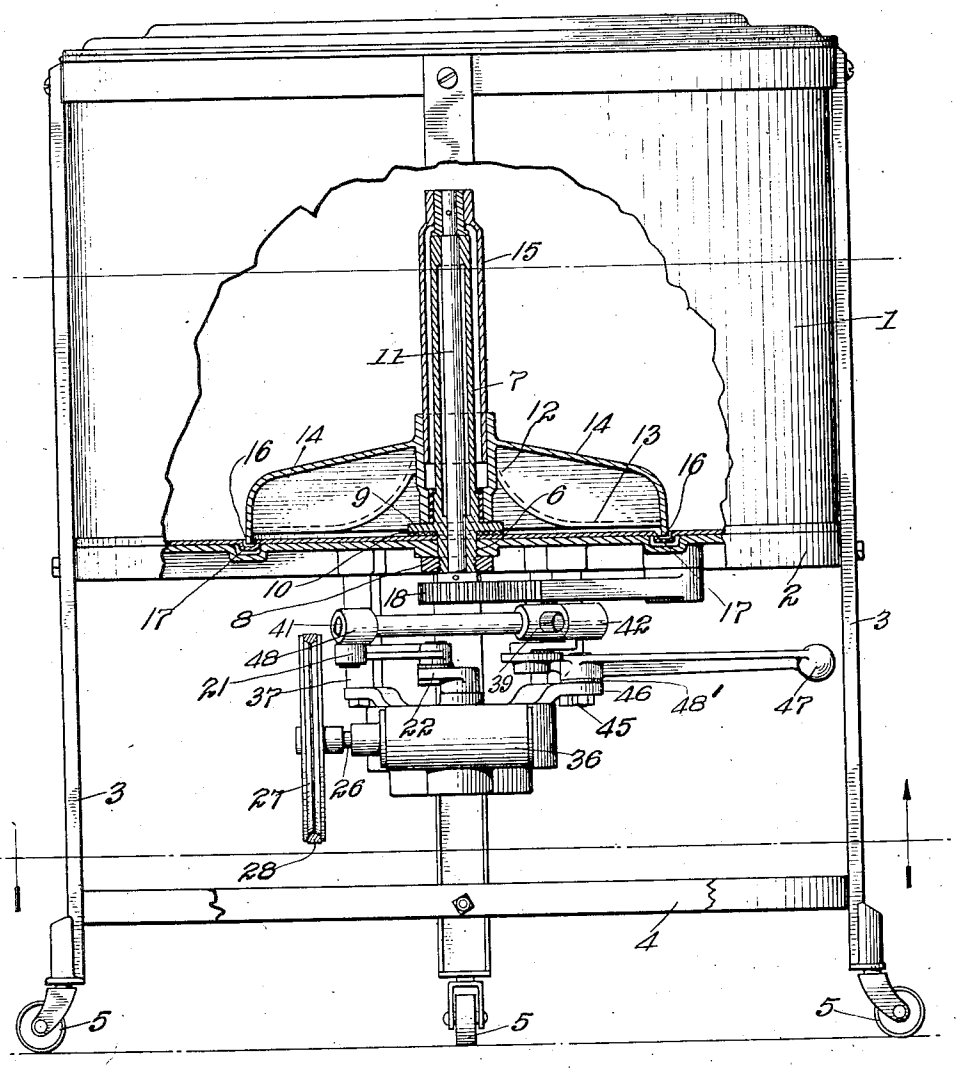
July 3, 1934. B. E. GETZ 1,965,183

WASHING MACHINE

Filed June 27, 1929 2 Sheets-Sheet 1

FIG. 1.



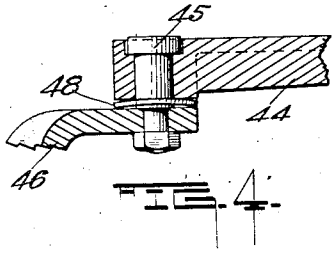


FIG. 4.

INVENTOR.

Benjamin E. Getz

LaPorte & LaPorte

ATTY'S

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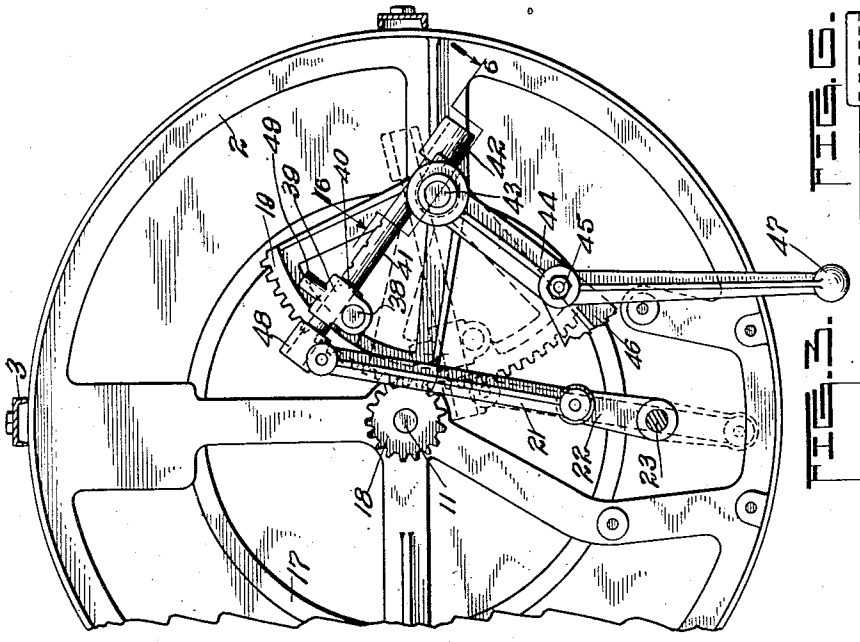


FIG. 3.

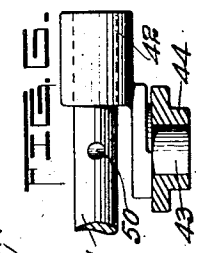


FIG. 6.

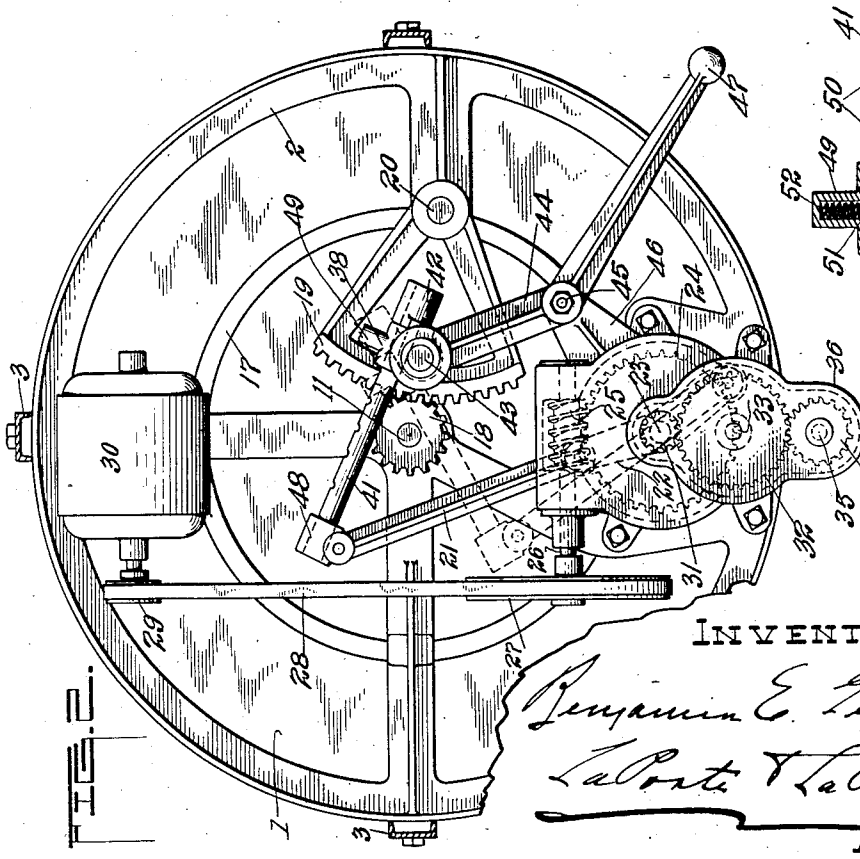


FIG. 2.

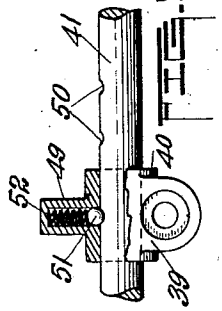


FIG. 5.

INVENTOR.

Benjamin E. Getz

LaPorte & LaPorte

ATT'YS

Patented July 3, 1934

1,965,183

UNITED STATES PATENT OFFICE

1,965,183

WASHING MACHINE

Benjamin E. Getz, Morton, Ill., assignor, by direct and mesne assignments, to Getz Power Washer Company, Morton, Ill., a corporation of Illinois

Application June 27, 1929, Serial No. 373,962

4 Claims. (Cl. 259—101)

This invention has reference to washing machines and it has for its object to improve the mechanism for imparting movement to the agitating or washing element (sometimes called the impeller thereof).

In the present form of the invention the agitator or impeller is connected for oscillation with the upper end of a vertically disposed shaft which passes up through the bottom of the clothes container or tub of the machine.

The invention has for its principal object to provide, in association with the operating means for the agitator or impeller, an adjustable means movable to different positions whereby to selectively vary the amplitude of oscillations of the agitator or impeller and including means preferably adapted for manual control of said adjustable means.

In the present form of the invention the operating means for the agitator or impeller shaft is preferably located beneath the clothes container or tub to have operative or gearing connection with said shaft to impart to it and the said agitator or impeller an oscillatory movement, and likewise the adjustable means associated therewith is also arranged below the container or tub and the means for adjusting the same is disposed conveniently for manipulation by an attendant who may desire to change or vary the extent of oscillatory movement of the agitator or impeller, due to the character and kind of materials washed or because of the volume of water and materials within the container or tub.

The broad idea of a controllable means for varying the amplitude of oscillations of a washing element is disclosed in the Thomas Litwiller and John Leader patent, No. 1,460,203, dated June 26th, 1923, while a particular application and a form of the invention is disclosed in Letters Patent issued to me May 15th, 1928, No. 1,669,514 of which a reissue application is filed of even date herewith, bearing Serial No. 374,253.

The controllable means, as it is applied to an agitator or impeller of the type shown, is so constructed and arranged that on the manipulation of the control by an attendant, and in its adjustment to different positions, the operating means may be caused to impart a complete stroke to the agitator or impeller, or a half stroke, or more or less of a full stroke, or the agitator or impeller held in a firm stopped position without stopping the means for actuating the operating means. The term "complete stroke" is a relative term, likewise any predetermined stroke less than a "complete" stroke, as it is not material whether the "complete" stroke is a complete rotation of the agitator or impeller, or not, as such a stroke may be whatever is determined as the best practice and predetermined strokes less than a complete stroke may be what, in practice, seems best.

That the invention may be more fully understood, reference is had to the accompanying drawings, forming part of the description, illustrating a preferred embodiment of the invention, in which:—

Fig. 1 is an elevation, partly in section, showing a washing machine with my improved operating and controllable means applied to the shaft of an agitator or impeller, where the shaft extends up through the bottom of the tub;

Fig. 2 is a bottom plan view of the container or tub, looking upward, showing the operating means and the controllable means, agitator or impeller, the latter shown in an inoperative position and the agitator or impeller stopped, but without stopping the means for actuating the operative means, dotted lines illustrating idling movement of operating and control parts;

Fig. 3 is a view somewhat similar to Fig. 2, with the exception that certain operative parts to the wringer have been removed and the controllable means adjusted to permit the operative parts to the agitator or impeller shaft to impart a "complete" stroke thereto, dotted lines illustrating extent of stroke of the operating parts and controllable means;

Fig. 4 is a detail in section of parts in the controllable means which may be employed to stop and hold the controllable means at predetermined points between the extreme positions shown in Figs. 2 and 3, whereby the amplitude of oscillations of the agitator or impeller may be varied;

Fig. 5 is a detail partially in section of other parts which may be employed in the controllable means to effect a similar action obtained by the parts shown in Fig. 4, and

Fig. 6 is a detail partially in section (see line 6—6, Fig. 3) showing elements included in the means for adjusting the controllable means.

Like characters of reference indicate corresponding parts throughout the figures.

In the present form of the machine, a container or tub 1 is provided which may be of any design or shape, and said container or tub is supported on a base 2, and tub and base mounted on a frame comprising suitable standards or legs 3 connected and braced by a frame 4 and the legs having connected therewith usual caster-

wheels 5 to facilitate the easy movement of the machine from one place to another. The base and the tub have correspondingly arranged central openings 6 through which is disposed the lower end of a tubular post or gland 7 and on the exposed lower end thereof below the tub is secured a nut 8 to removably lock the post to the tub and base. A water seal is provided about the openings 6, within the tub by flanging the post, as at 9, and placing a packing 10 around the post and between the bottom of the tub and the said flange. The upper end of the post or gland extends to a suitable point above, what may be termed, the "normal water level" in the tub. An agitator shaft 11 is disposed vertically within the post or gland 7 and has a journal bearing therein at both ends and protrudes both above and below said post or gland. Connected to be oscillated by the said shaft is an agitator or washing element 12, which includes a disk or base-like portion 13 having a series of upstanding radially arranged baffles or impellers 14 thereon and rising centrally from said disk is a sleeve 15 which surrounds the post or gland 7 and has a removable driving connection with the upper end of the shaft 11, at a point above the "normal water level" in the tub. To prevent materials being washed from getting under the disk it may have a depending flange 16 which is complementary to an annular recess 17 formed or provided in the bottom wall of the container or tub.

The operating means for imparting alternate oscillations to the agitator shaft and agitating element comprises a gear pinion 18 secured to the exposed lower end of said shaft, with which a segment gear 19 has a meshing relation. Said segment has a pivotal connection at 20 with the base 2 of the machine. Adapted for imparting oscillatory movement to the segment is a connecting bar or pitman 21 which receives its movement from a crank arm 22 having connection with a shaft 23 to which is connected a worm gear 24 meshing with a worm 25 on a shaft 26 which carries a pulley wheel 27 belted, by a belt 28, to a smaller pulley 29 connected with the driving shaft of an electric motor 30 suitably supported or suspended from beneath the base of the frame. The shaft 23 also has connected thereto a gear pinion 31 which meshes with a gear wheel 32 on a short shaft 33 and said gear wheel 32 meshes with a smaller gear wheel 34 on the lower end of a connecting shaft 35 to the wringer mechanism, not shown. The worm and other gearing described, together with the shafts for carrying and operating the same, are preferably housed and journaled in a suitable housing 36 located beneath the tub and supported and braced from the base 2 by connecting supports 37. The wringer connecting shaft 35 is off set to the main body of the housing 36 whereby to position the shaft 35 outside of the tub 1 to allow it to extend up alongside the same to the wringer mechanism, not shown, but usually disposed next the upper part of the tub.

The adjustable controllable means by which an attendant may vary the amplitude of oscillations of the agitating element and cause a stopping and starting of the same without stopping the movement of the certain gearing and connecting bar or pitman, comprises a pivot member 38 arranged in spaced relation to the axis 20 of the segment 19 and on said member 38 is carried a casting 39, provided with a barrel or sleeve-like part 40, through which is slidable a rod or bar 41 having its outer end connected with a casting 42, and said casting provided with a pivot member 43 to which is connected a lever member 44 fulcrumed at 45 to the frame beneath the tub or to an arm 46 of the housing 36, the handhold or gripping portion 47 of said lever member projecting out from below the tub for convenient gripping by an attendant who may desire to manipulate the same to adjust the control whereby to vary the amplitude of oscillations of the agitating element or stop and start it, as the case may be. The inner end of the rod or bar 41 has connected thereto, a casting 48 with which the connecting bar or pitman 21 has a pivoted connection.

I have illustrated two different forms of holding means for the control which are operative to secure the same in different adjusted positions, i.e. complete or full stroke positions, in stopped position and at variable positions between such full and stopped positions, whereby the change in amplitude of oscillations of the agitating element are obtained. One is shown in Figs. 1 and 4 and the other in Figs. 2, 3 and 5.

In the form shown in Figs. 1 and 4, a yielding gripping member 48' is incorporated in the pivotal connection 45 between the lever member 44 and the arm 46, enabling an attendant to shift the lever member 44 to vary the positions of the bar or rod 41 and the pivot member 43 and the lever member be held in any such adjusted positions. Varying positions may be easily felt out by an attendant, to give the desired oscillatory movement to the agitating element, depending on the character and kind of materials being washed, as well as the volume of water used and quantity of materials being washed, and if desired, an indexing device of some sort could be employed to fix any predetermined points of adjustment desired. One such indexing device is shown in Figs. 2, 3 and 5, which consists in forming or providing the casting 39 with a chambered portion 49 and providing the bar or rod 41 with a plurality of spaced seats or depressions 50 with which coact a ball member 51 located in the casting 39 at the lower end of the chamber 49 in which is carried a spring 52 to normally hold the ball member in contact with the rod or bar 41. As the rod or bar 41 is moved back and forth through the casting 39, through the manipulation of the lever member 44, the ball member will ride or roll on the surface of said bar or rod and enter into each successive seat or depression 50 brought coincident therewith. The lock formed by the ball and seats or depressions will hold the rod or bar in different positions, whereby varying amplitude of oscillations of the agitating element may be obtained and very little, if any, effort is necessary on the part of the attendant to vary these positions or to move the control to extreme positions, either way.

When the parts are in operative position, that is, in such position as to impart movement through the segment gear 19 and gear pinion 18 to the agitator shaft and agitator, the pivot member 43 is in axial coincidence with the axis 20 of the segment and may be at different points between the axis 20 and the pivot member 38. In the extreme position, that is, with the points 43 and 20 in coincidence, the rod or bar 41 has been moved outwardly, bringing the casting 48 on the inner end thereof adjacent the casting 39 on the pivot member 38, see Fig. 3. In such position of the parts, the rod or bar 41 may be oscillated up and down around the pivot member

43, as the connecting bar 21 is moved forward and back, due to the rotation of the crank-arm 22, the thrust of the said bar 21 being substantially in the direction of the pivot member 38 on the toothed segment and oscillating said segment, resulting in an oscillatory movement being imparted to the gear pinion 18, the shaft 11 and agitating element connected therewith, somewhat as illustrated in Fig. 3. When the parts are in inoperative position, that is, so far as the movement of the segment 19, pinion 18, shaft 11 and agitating element are concerned, the pivot member 43 is in axial coincidence with the pivot member 38 on said segment and the casting 42 on the outer end of the bar or rod 41 has been moved to a position adjacent the casting 39. In this position of the parts, as the connecting bar 21 is moved up and down, the rod or bar 41 will be oscillated, but will idle on the pivot member 43, somewhat in the manner shown in Fig. 2, and without imparting movement to the segment 19 or the agitating element geared thereto. The firm stopped position, which, which the agitating element is caused to assume, as a result of the positioning of the parts last described, is the initial starting position when the segment 19 is again oscillated.

It should be obvious from the foregoing, that an attendant may, by manipulating the lever member 44, adjust the controlling means to different predetermined positions between "complete" stroke and "stopped" positions, whereby to vary the amplitude of oscillations of the agitating element or to give greater or less movement thereto. This is particularly desirable in the handling of coarse and fine fabrics and clothing.

What I claim is:—

1. In a machine of the character described, in combination, a tub, an agitating shaft extending up through the bottom of the tub, an agitating element connected to be operated by said shaft, an operating means located beneath the tub, gearing between said operating means and the lower end of said shaft, including a controllable means movable to predetermined positions and in selective positions therebetween to impart a variable movement to said agitating element, and in one of such positions to stop the movement of the agitating element.

2. In a machine of the character described, in combination, a tub, an agitating shaft extending up through the bottom of the tub, an agitating element connected to be operated by said shaft, gearing operatively connected with said shaft to impart oscillatory movement thereto, and means to actuate said gearing including an adjustable means for varying the amplitude of oscillations of said shaft and said agitating element adapted when adjusted to one position to stop the movement of the agitating element, without stopping the movement of said actuating means.

3. In a machine of the character described, in combination, a tub, an agitating shaft extending up through the bottom of the tub, an agitating element connected to be operated by said shaft, gearing operatively connected with said shaft to impart oscillatory movement thereto, and means to actuate said gearing including an adjustable means for varying the amplitude of oscillations of said shaft and said agitating element adapted when adjusted to one position to stop the movement of the agitating element, independently of the amplitude of oscillations of said agitating element.

4. In a machine of the character described, in combination, a tub, an agitating shaft extending up through the bottom of the tub, an agitating element connected to be operated by said shaft, gearing operatively connected with said shaft to impart oscillatory movement thereto, and means to actuate said gearing including an adjustable means for varying the amplitude of oscillations of said shaft and said agitating element adapted when adjusted to one position to stop the movement of the agitating element independently of the amplitude of oscillations of said agitating element and without stopping the movement of said actuating means.

BENJAMIN E. GETZ.