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D. G. SMELLIE

WASHING MACHINE

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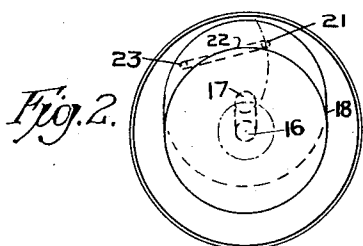
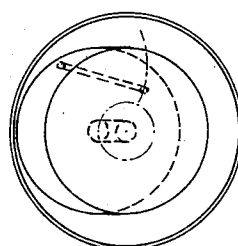
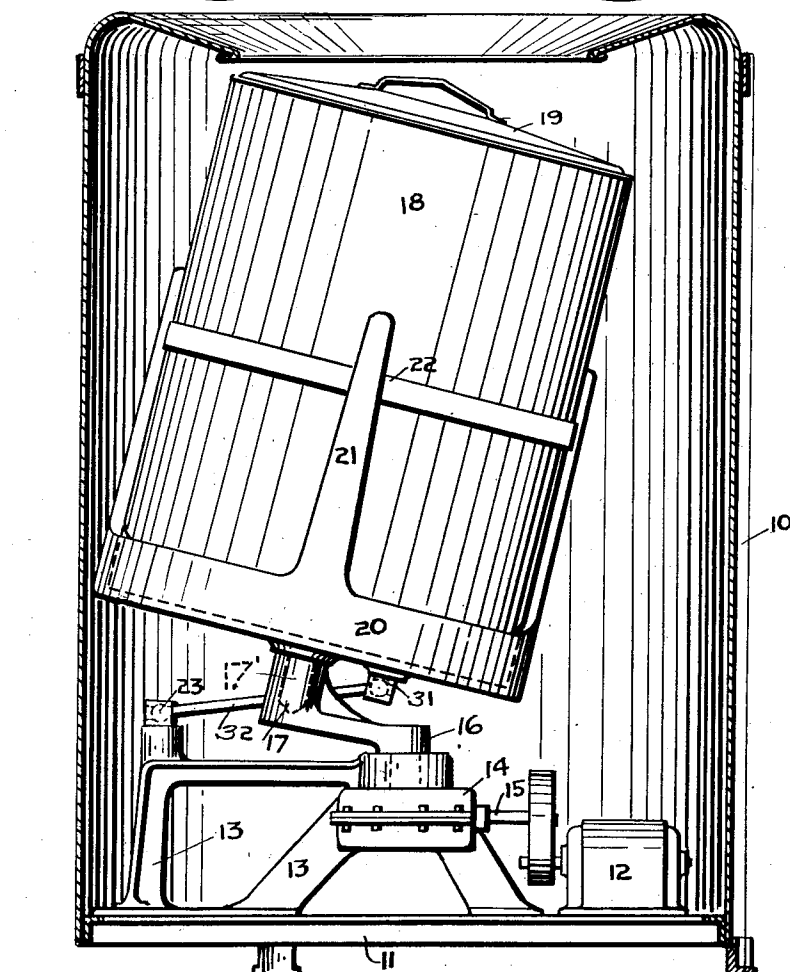


Fig. 1.

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UNITED STATES PATENT OFFICE.

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WASHING MACHINE.

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My invention relates to washing machines and more particularly to such machines as are especially constructed for washing soiled clothing and other fabric materials.

5 My invention is more particularly directed to a washing machine wherein operating means are provided to cause a clothes container to have what may be termed a substantially gyratory motion, in combination
10 with means for imparting at the same time a more or less oscillating motion to the container.

The primary object of my invention is to produce a machine that will thoroughly agitate the clothes and water introduced into the container by imparting to the container more than one particular type of motion, and thus avoid the entangling and matting of the clothes usually encountered in machines
20 where the container is given a unidirectional movement; the various motions being more particularly a substantially gyratory motion, or what might be termed rotation of an angularly mounted container as a whole in a circular horizontal orbit, combined with an
25 oscillating movement caused by a restraining member provided for this purpose.

The invention discloses a clothes container mounted upon a support, and eccentric with respect to the axis of the driving means; the
30 container is driven in a continuous circular course about the axis of the driving means, and through a restraining means for controlling the container and accordingly prevent it from rotating on its own axis, an oscillatory
35 motion is imparted to the container.

The container is inclined with respect to the axis of the driving means, the intersection of the axis of the container and that of the driving means being at a point at or near the plane of the top edge of the container.
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The invention herein may be readily ascertained from an inspection of the drawings herewith taken in connection with the accompanying specifications.
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In the drawings:

Figure 1 is an elevation of my machine, the casing thereof being shown as a sectional view.

50 Figs. 2 and 3 are plan views diagrammatically showing the relative position of the mechanism in two different positions of the operating cycle and taken 90 degrees apart.

In the drawings the outer housing and main stand or base are indicated at 10 and 11 re-

spectively. Mounted on the base 11 is a driving motor 12 and the mechanism support 13; and supported on members 13 is a gear box 14, in which is inclosed suitable gears or other means for obtaining the desired speed
60 of operation, there being a shaft 15 having a pulley and is accordingly adapted to be driven from motor 12.

Mounted in gear box 14 and adapted to be driven by the gear or other speed reducing means contained therein, is a crank shaft 16
65 having a bearing 17 at its outer end inclined at an angle relative to the axis of crank shaft 16.

Clothes container 18, which is closed with a lid 19, is mounted in and supported on a frame structure comprising a base portion 20, upstanding arms 21 and an upper ring 22. The container support base 20 has secured centrally thereof, and extending from
75 the bottom thereof, a pin 17' which fits into the bearing 17 and accordingly this entire structure including the clothes container is carried by the crank shaft 16.

On the bottom of base member 20, near the outer edge thereof, is mounted a small universal bearing 31 and which carries one end of the connecting rod 32, the other end thereof is retained in the universal bearing 23 as
80 mounted on the support member 13.

In Fig. 2 is shown diagrammatically the relative position of various parts of the machine when the operating crank member 16 is in a position directly away from the observer, in which position the container 18
85 would be tilted from the top to bottom away from the observer, and accordingly the universal connecting rod 22 would have the position shown.

In Fig. 3 the operating crank 16 is shown as rotated 90 degrees in a counterclockwise direction with respect to that position shown in Fig. 2, and the container is shown in the angular position corresponding to that shown in Fig. 1, and a relative position of the various parts under this condition is shown.
100 An inspection of the relative position of the various elements as shown in this figure in comparison with the relative position of those elements shown in Fig. 2, will show that universal connecting rod 22 has caused the container to partially rotate clockwise about its lengthwise axis, while the crank member 16 has rotated 90 degrees on its axis. Obviously while the crank member 16 rotates through
105 110

its complete cycle or circle the container 18 will rock to and fro on its lengthwise axis.

Attention is particularly directed to the combination of movements which would be imparted to the clothes container through the operation of the mechanism described, for instance, the container on rotation of the crank, would be rotated bodily with and about the axis of the crank member 16, but restraining through the action upon the container support as effected through the connecting rod 22, a to and fro rocking motion, or in other words, an oscillating motion is imparted to the container on its longitudinal axis, while the lower end of the container is gyrated with respect to the axis of the crank member 16, and also oscillated with respect to an axis formed by the universal bearing 31.

Having illustrated and described my invention, what I claim is:

1. In a washing machine, in combination, a supporting frame, a driven shaft supported thereon, a container support secured to the driven shaft, a container mounted thereon, eccentrically with relation to and inclined toward the axis of the driven shaft whereby the container may be gyrated about the driving axis in a continuous course, and means oscillating the container about its longitudinal axis.

2. In a washing machine, a driven shaft, a container, means connecting the container to the driven shaft with its axis inclined relative thereto for gyrating the container about the axis of the shaft, and means imparting to the container a secondary motion of oscillation about its longitudinal axis.

3. In a washing machine, a container mounted for gyration with respect to a point substantially centrally of the top thereof, and means imparting to the container a secondary oscillating movement with respect to its longitudinal axis.

4. In a washing machine, the combination of a support frame, a crank member mounted thereon, a container carried by said crank member and angularly inclined towards the axis of rotation, restraining means connected to said container and anchored to said support frame, and means for imparting gyrating movement to said container through the rotation of said crank member and simultaneously effect an oscillatory movement thereto through the co-action of said restraining means.

Signed at Chicago, in the county of Cook and State of Illinois, this 30th day of September, A.D., 1925.

DONALD G. SMELLIE.