

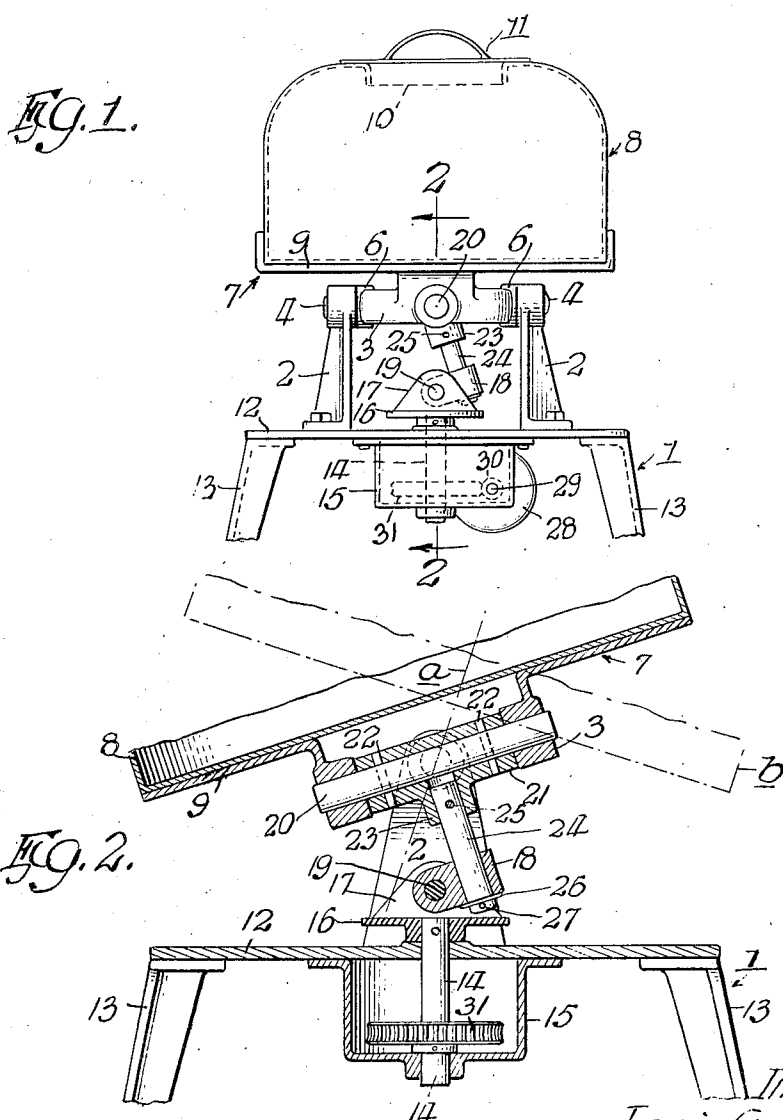
Dec. 17, 1929.

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1,739,587

OSCILLATING DEVICE

Original Filed July 26, 1923 2 Sheets-Sheet 1



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 Louis Greenberg
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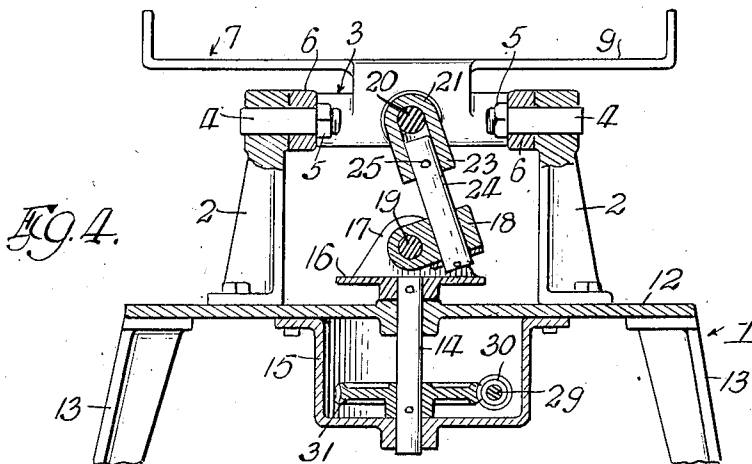
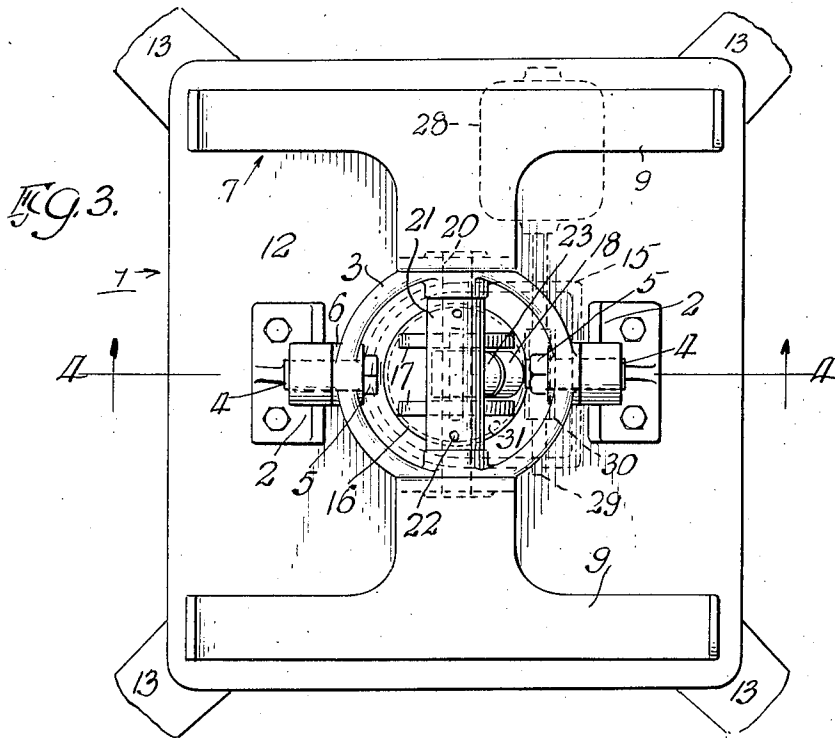
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UNITED STATES PATENT OFFICE

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OSCILLATING DEVICE

Application filed July 26, 1923, Serial No. 653,974. Renewed May 10, 1929.

This invention relates to an oscillating device particularly adapted for washing machines, and consists in the matters hereinafter described and more particularly set forth in the appended claims.

In the accompanying drawings—

Fig. 1 is a side elevational view of said mechanism as applied to washing machines;

Fig. 2 is an enlarged vertical sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the parts shown in Fig. 2 with the container omitted; and

Fig. 4 is a vertical sectional view taken on line 4—4 of Fig. 3.

The device of my invention has a base or stand 1, provided with two laterally spaced, upright standards 2, 2. Located between the standards 2, 2 at or adjacent their upper ends, is a member 3, which as shown in the drawings takes the form of an open frame or ring, although it may have any other shape desired. Said member 3 is arranged to extend across the space between the standards 2, 2 and is pivotally connected therewith at opposed points by pivot pins or trunnions 4, 4. These, as shown in Figs. 3 and 4, are in the form of bolts inserted through the standards 2, 2 from the outside with clamp nuts 5, 5 on the inner ends inside of the member or frame 3. Where the bolts 4 pass through said member 3, the latter is machined or otherwise provided with circular bosses 6, 6 making flat bearing surfaces for the nuts and standards, respectively.

Arranged above the member or frame 3 is a platform 7. This may have any shape desired and, as shown in Fig. 3, is built on square lines to support a square bottomed container 8. The platform 7 is connected with the members 3 at diametrically arranged points between the pivot pins or trunnions 4, 4, as shown in Fig. 3. Said platform comprises flat plates 9, 9 on opposite sides of the trunnions 4, 4 and integrally or otherwise rigidly secured to the member 3. The container 8 may be releasably secured to said plates 9, 9, the latter being in the same plane. The articles to be washed are placed in the container 8 with a suitable quantity of soap and water through an opening 10 in the top wall of the

container. This opening is closed by a removable lid 11. The member 3 and platform 7 constitute a walking beam to support the container.

The base or stand 1 is provided with a top plate 12 and side members or supporting legs 13, 13. Extending through the plate 12 is a vertical shaft 14 journaled at its lower end in a case 15 hung from the under side of the plate 12. Said shaft 14 extends above the plate 12 into the space between the standards 2, 2 and is disposed with its axis between the ends of the beam and intersecting the tilting axis of the beam at the center thereof and also parallel to the plane in which the beam tilts. The shaft 14 carries at its upper end a member 16 having spaced ears 17, 17 extending upward therefrom and between which extends a block or member 18. Said block 18 is fixed between the ears 17, 17 by a pin 19.

Extending diametrically across the ring 3 at right-angles to the trunnions 4, 4 is a shaft 20 with its ends journaled in said ring. On the shaft 20 is a sleeve 21 fixed thereto by pins 22. Said sleeve 21 is provided over the center of the shaft 14 with a downwardly extending tubular projection 23 open at its lower end to receive the upper end of an inclined connecting rod 24. Said rod 24 is fixed by a pin 25 or otherwise in the tubular projection 23 and has its lower end extending through the block 18 at a point offset outward from the pin 19, as clearly shown in Figs. 2 and 4. The rod 24 extends loosely through the block 18 and is held from being drawn up from the same by a pin and washer 26, 27 on said rod below the block 18.

For rotating the shaft 14, an electric motor 28 is employed. This is hung from the under side of the top plate 12 or secured to the case 15 in position to have its armature shaft 29 horizontal or transverse to the shaft 14 and at one side of the same. A direct drive is had between the armature shaft 29 and the shaft 14 by a worm 30 on the former meshing with a worm wheel 31 on the latter, as shown in the drawings.

In operation, the rotation of the shaft 14 carries the lower end of the permanently inclined rod 24 continuously in a circular path

around the axis of said shaft 14 in eccentric relation thereto, and effects the tilting of the beam or frame 7 on trunnions 4, 4 in opposite directions in a single plane only at right-angles to the axis of said trunnions. This causes the container 8 to be tilted or oscillated with the frame or beam to agitate the contents of the container. When the rod 24 is brought into the position shown in full lines in Fig. 2, the frame or beam 7 with the container 8 are tilted to the opposite side of the axis of the trunnions 4, 4, as shown in full lines in said Fig. 2. When the rod reaches a position on the opposite side of said axis, as indicated by the dot and dash line *a* of Fig. 2, the beam 7 and container 8 are tilted to the opposite side of said axis, as indicated by the dot and dash lines *b* in Fig. 2. The sleeve 21 in rocking with the shaft 20 allows the lower end of the rod 24 to be carried around with the shaft 14 between the positions just described, without binding through the beam. As the rod is carried between these positions, it rights the frame or beam 7 and its container 8 to a horizontal position on each quarter turn of the rod between these positions, as shown in Fig. 4. The rod 24, as shown in the drawings, is at an angle of approximately 20 degrees to the axis of the shaft 14.

When used in connection with a washing machine, the axis (4—4) of the tilt imparted to the container 8 is below the bottom wall of the latter. The result is that the entire body of water in the container is above this axis and is thus agitated throughout its entire mass. It follows, therefore, that sufficient agitation or throw of the water and articles therein is gained to effectively accomplish washing purposes.

While I have shown and described the device of my invention as used for oscillating or tilting the container of a washing machine, it is of course to be understood that my invention is not to be so limited, in that the device may be used for agitating any liquid or material. Moreover, I do not wish to be restricted to the details of construction inasmuch as they may be variously changed or modified without departing from the spirit and scope of my invention.

I claim as my invention:

1. In a washing machine, the combination with a support, of a container having pivotal connection with said support on an axis permitting tilting of the container in one plane only, a driving member disposed for rotation in a plane transverse to the plane in which the container is tilted with the axis of rotation of said driving member intersecting the tilting axis of the container, a rod extending between the container and the driving member and permanently inclined to the rotary axis of the latter with the end of the rod at the driving member connected therewith in

eccentric relation to its rotary axis, and means pivotally connecting the opposite end of the rod at the container with the same on an axis transverse to and intersecting the tilting axis of the container to effect tilting of the latter in one plane only on the rotation of said driving member.

2. In a washing machine, the combination with a support, of a member pivoted between its ends on said support on an axis for tilting in one plane only, a container carried by said member to tilt therewith, a driving member disposed for rotation in a plane transverse to the plane in which the container is tilted with the axis of rotation of said driving member intersecting the tilting axis of said tiltable member, a rod extending between the tiltable and driving members and permanently inclined to the rotary axis of the latter with the end of the rod at said driving member connected therewith in eccentric relation to its rotary axis, and means connecting the opposite end of the rod at said tiltable member to the same in a manner effecting tilting thereof in one plane only on the rotation of said driving member.

3. In a washing machine, the combination with a support, of a member pivotally connected between its end to said support on an axis for tilting in one plane only, a container carried by said member to tilt therewith, a rod on the side of the member opposite the container and extending therefrom at a permanent inclination to an axis transverse to and intersecting the tilting axis of said member with one end of the rod at the latter, and means pivotally connecting such end of the rod with said member in a manner to effect tilting thereof in one plane only in the movement of the opposite end of the rod in a circular path about the axis as a center to which the rod is permanently inclined.

4. In a washing machine, the combination with a main support, of a secondary support pivotally connected with said main support at diametrically opposed points, a container mounted on said secondary support, and means for rocking said secondary support about its axis including a member journaled on said secondary support and having its axis disposed in the same plane as the pivots of the secondary support and extending in a plane at right angles thereto, a driving member rotatable in a plane parallel to the axis of said secondary support, and an inclined driving rod having one end connected to said member journaled on the secondary support and its other end connected to said driving member at one side of the axis of the latter.

5. A washing machine, comprising a main support, a secondary support, a container carried thereby, said secondary support embodying an open frame, means pivotally connecting said frame with said main support on a horizontal axis, a shaft at the center of said

frame and extending transversely across the same and said axis with the ends of said shaft engaged with said frame on opposite sides of said axis, an inclined rod below said shaft and having its upper end connected with said shaft, a vertical shaft on said main support below said frame and aligned with the center thereof, means connecting the lower end of said rod with said vertical shaft offset from the axis thereof, and means on said main support for rotating said vertical shaft.

6. A washing machine, comprising a base, two upright standards thereon and laterally spaced apart, an open frame between said standards and pivoted thereto on horizontal pivots, a container supporting platform carried by said frame between said pivots, a shaft extending across said frame at its center and arranged transverse to said pivots, said shaft engaging said frame on opposite sides of said pivots, a sleeve fixed to said shaft and provided at the center of said frame with a downwardly extending inclined projection, an inclined rod fixed to said projection and extending downward therefrom, a vertical shaft on said base between said standards and below said frame, said vertical shaft having its axis aligned with the center of said frame, means connecting the lower end of said rod with said vertical shaft offset from the axis of the latter, and means on said base for rotating said vertical shaft.

7. In a washing machine, the combination with a container mounted for tilting in one plane only, of a rotary member disposed for rotation in a plane transverse to the plane in which the container is tilted with the axis of rotation of said rotary member transverse to and intersecting the tilting axis of said container, and means interposed between said container and rotary member and connected with both of the same in a manner to effect tilting of the container in one plane only in the rotation of the rotary member.

8. In a washing machine, the combination with a walking beam mounted for tilting in one plane only, of a container on one side of the beam and directly carried thereby for tilting with the beam in one plane only, and means including a rotary member on the other side of the beam and disposed with its rotary axis intersecting and transverse to the tilting axis of the beam for tilting the beam in the rotation of said member.

9. In a washing machine, the combination with a walking beam pivoted between its ends for tilting in one plane only and designed to carry a container, of a rotary member disposed with its rotary axis between the ends of the beam and intersecting the beam's axis, a rod extending between the beam and the rotary member and permanently inclined to the rotary axis of the latter, and means connecting the opposite ends of the rod with the beam and rotary member, respectively, in a

manner to effect tilting of the beam in one plane only upon the rotation of said rotary member.

10. The combination with a member pivoted between its ends for tilting in one plane only, of a permanently inclined rod disposed crosswise of said member, with the rod lying wholly on one side of the member and having one end terminating at the same, and means pivotally connecting such end of the rod with said member in a manner permitting movement of the other end of the rod in a circular path for tilting said member as the rod is brought into and out of the plane in which the member tilts.

11. In a fabric washing machine, the combination with a tiltably mounted container, of a rod extending from the container on one side thereof and being permanently inclined to an axis transverse to and intersecting the tilting axis of the container at the center thereof, means pivotally connecting one end of the rod with the container in a manner effecting the tilting of the container in the movement of the other end of the rod in a circular path about said transverse axis as a center, and means for moving the last mentioned end of the rod in said circular path.

12. In combination, a tub seat, a tub removably seated therein, an inclined driven member located eccentrically with relation to the center of the tub seat, means connecting the tub seat to the driven member, and means for preventing the tub seat from rotating about its own axis.

In testimony that I claim the foregoing as my invention, I affix my signature, this 10th day of July, 1923.

LOUIS GREENBERG.