May 14, 1929. G. C. WEISS ET AL 1,713,245

MECHANICAL MOVEMENT

Filed July 2, 1927

FIG. 1

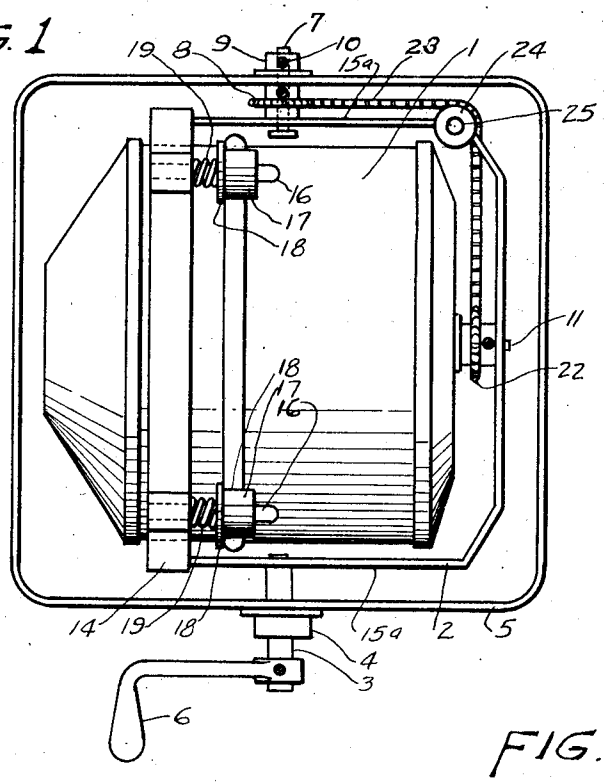


FIG. 2

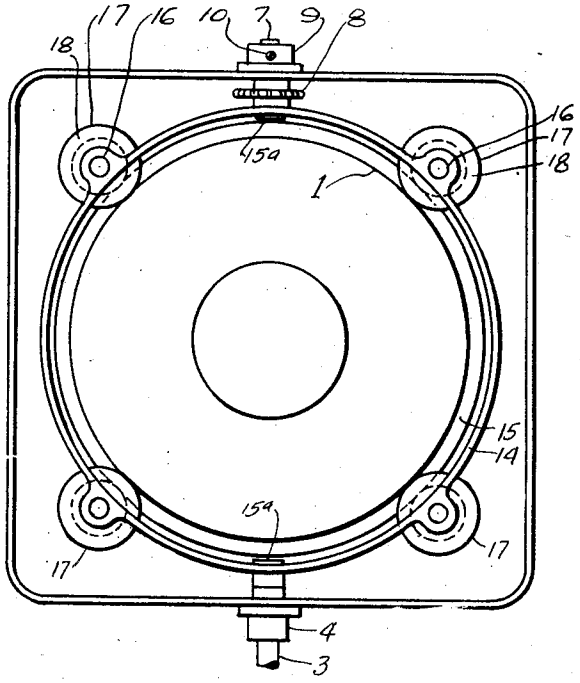
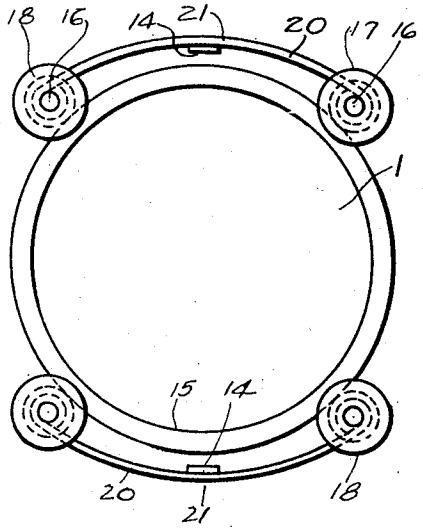


FIG. 3



INVENTORS
George C. Weiss.
Marie J. Weiss.

BY

ATTORNEYS.

Patented May 14, 1929. 1,713,245

UNITED STATES PATENT OFFICE.

GEORGE C. WEISS AND MARIE J. WEISS, OF VENICE, CALIFORNIA, ASSIGNORS TO HYDRUAC CORPORATION, OF SANTA MONICA, CALIFORNIA.

MECHANICAL MOVEMENT.

Application filed July 2, 1927. Serial No. 203,207.

Our invention is an improved and simplified mechanical movement for rotating a vessel or other object simultaneously upon two angularly disposed axes. We have illustrated our invention as applied to a washing machine, to which use it is well adapted, and have shown the axes of rotation perpendicular to each other. However, the use of our device is in no way limited to the use of washing machines but may be used as mixers of various kinds, butter churns and like uses. In the drawings,

Figure 1 is a plan view of a washing machine embodying our invention.

Figure 2 is a view similar to Figure 1 but with the vessel and its supporting frame occupying a position perpendicular to that shown in Figure 1.

Figure 3 shows a modification of the engaging means between the supporting frame and the vessel.

The vessel, 1, of the washing machine, shown as cylindrical in form, is mounted in an open supporting frame 2. Fixed to and rigid with the supporting frame 2 at one side thereof is a trunnion, 3, journaled in a bearing 4 mounted on a stationary supporting structure 5. If it is desirable to inclose the rotating vessel 1 in a casing the supporting structure 5 may be, as illustrated, a casing in which the moving parts are inclosed. The trunnion 3 may be fitted with a hand crank 6 at its outer end or may, of course, be rotated by an electric motor or other power. At the opposite side the frame 2 is journaled upon a trunnion 7 which projects inwardly from and is fixed to the supporting structure or casing 5. Fixed to the trunnion 7 is a sprocket wheel 8. The boss 9 is fixed to or an integral part of the stationary support 5. In the structure illustrated I have shown a set screw 10 to restrain the trunnion 7 and the sprocket wheel 8 against rotation.

At the center of its closed end a trunnion 11 is fixed to and projects from the vessel 1 and is journaled in the cross-arm of the U-shaped member of the supporting frame. The frame 2 comprises a U-shaped member and an annular member 14 lying in a plane perpendicular to the arms 15^a, 15^a of the U-shaped part and is joined rigidly thereto at their free ends. The vessel 1 is surrounded near its open end by the annulus 14. Mounted on the annulus 14 are bearing studs 16 upon which are rotatably mounted anti-friction rollers 17 bearing upon a circular rail 15 fixed to and extending around the cylindrical surface of the vessel. Each of the rollers 17 is provided with a flange 18 designed to engage the side of the rail 15 adjacent the open end of the vessel. Helical springs 19 surround the studs 16 and abut at their opposite ends against the annulus 14 and the rollers 17 respectively, thereby serving to hold the vessel with spring pressure in its position within the frame 2.

In order to insure against any play of the vessel sidewise the anti-friction rollers may be so mounted as to exert an inward radial pressure upon the sides of the vessel. We have shown such a modification in Figure 3, wherein the rollers 17 are represented as mounted in bearings upon opposite ends of a spring member 20 fixed at its central part 21 to the annulus 14 and so formed that its ends, carrying the rollers, are under tension radially against the rail 15 carried by the vessel.

A sprocket wheel 22 is fixed rigidly to the trunnion 11 and through the trunnion 11 to the vessel 1. A sprocket chain 23 passes around the stationary wheel 8, over idler wheels 24 loosely rotating on a shaft 25 mounted at the angle of the frame 2, and around the wheel 22 which, as above stated, is rigid with the vessel 1.

From the foregoing it will be apparent that as the frame 2 and vessel 1 are rotated by means of the crank 6 the orbital travel of the loop of chain 23 about the stationary wheel 8 will impart endwise movement to the chain and, through its engagement with wheel 22, cause rotation of vessel 1 on its longitudinal axis simultaneous with the rotation of the transverse axis imparted by rotation of trunnion 3. While we have referred to the use of a sprocket chain the same result can be attained by a simple straight link chain or other form of belt passing over plain or grooved pulley wheels.

We claim:

1. In a device of the class described, a vessel open at one end, a removable cover for said open end, a pulley fixed to the opposite end of said vessel, a supporting frame having a bearing for said pulley, said frame comprising means having rotative engage-

ment with the exterior of said vessel adjacent its open end and coaxial with said pulley, means for rotatively supporting said frame upon an axis at an angle to the axis of said pulley, and means actuated by rotation of said frame to cause rotation of said vessel relative to said frame.

2. In a device of the class described, a vessel open at one end, a removable cover for said open end, a pulley fixed to the opposite end of said vessel, a supporting frame having a bearing for said pulley, said frame comprising means having rotative engagement with the exterior of said vessel adjacent its open end and coaxial with said pulley, means for rotatively supporting said frame upon an axis at an angle to the axis of said pulley, a stationary pulley wheel and a belt in engagement with said stationary pulley and with said first mentioned pulley wheel.

3. In a device of the class described, a vessel open at one end, a removable cover for said open end, a trunnion at the opposite end of said vessel, a frame supporting said trunnion, anti-friction rollers mounted on said frame and engaging the exterior of said vessel adjacent its open end, means for rotatively supporting said frame upon an axis at an angle to the axis of said trunnion and means actuated by the rotation of said frame to cause rotation of said vessel relative to said frame.

4. In a device of the class described, a vessel open at one end, a removable cover for said open end, a trunnion at the opposite end of said vessel, a frame supporting said trunnion, a bearing rail encircling said vessel near its open end, spring-pressed flanged anti-friction rollers engaging said rail, said spring pressure acting radially inward upon said vessel and toward said trunnion, means for rotatively supporting said frame upon an axis at an angle to the axis of said trunnion, and means actuated by rotation of said frame to cause rotation of said vessel relative to said frame.

5. In a device of the class described, a vessel open at one end, a removable cover for said open end, a trunnion at the opposite end of said vessel, a frame supporting said trunnion, a rail fixed to and encircling said vessel adjacent its open end, flanged anti-friction rollers mounted on said frame and engaging said rail, said rollers being spring pressed against said rail, means for rotatively supporting said frame upon an axis at an angle to the axis of said trunnion, and means actuated by rotation of said frame to cause rotation of said vessel relative to said frame.

In testimony whereof, we have subscribed our names.

GEORGE C. WEISS.
MARIE J. WEISS.