

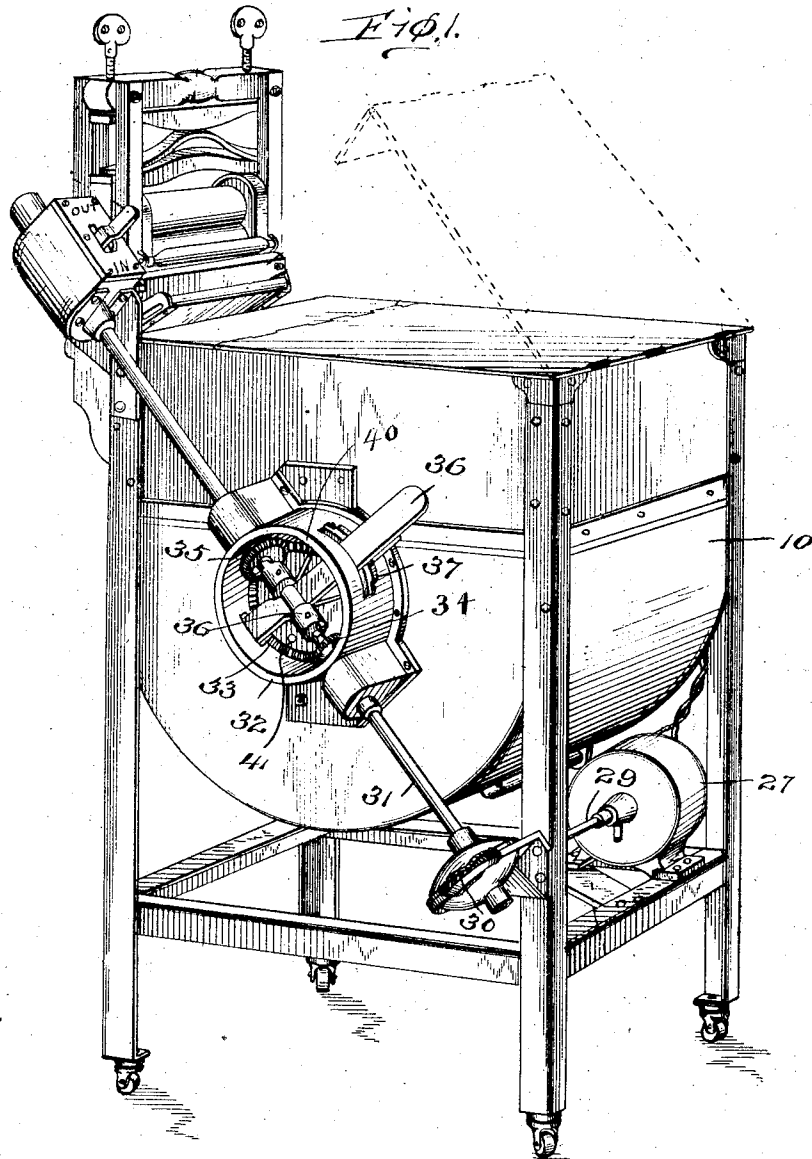
H. W. EDEN.
GEARING.

APPLICATION FILED JAN. 2, 1912.

1,037,746.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.



Witnesses

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Inventor

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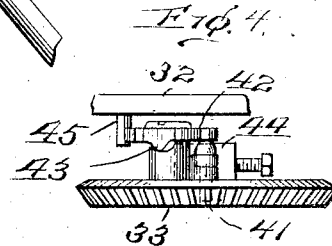
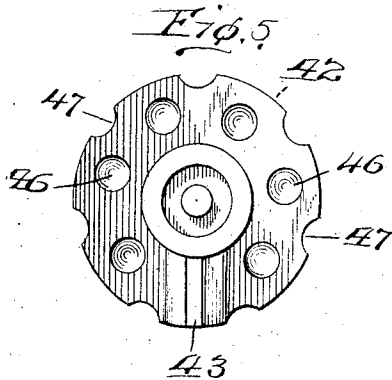
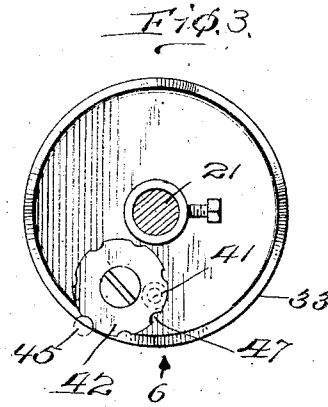
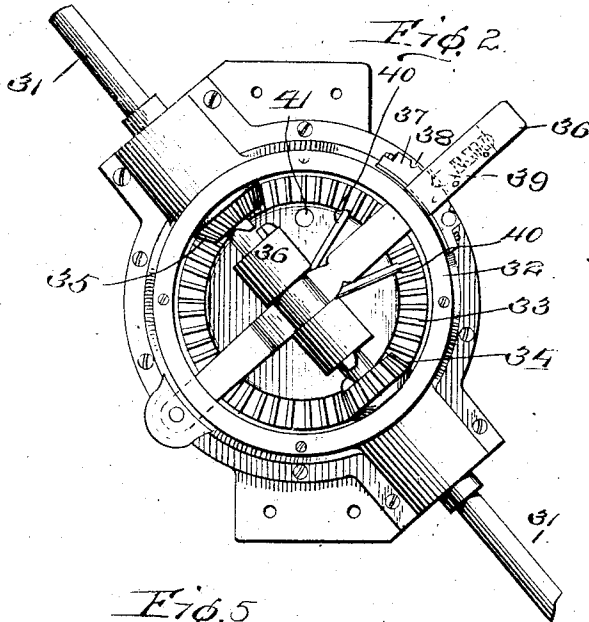
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UNITED STATES PATENT OFFICE.

HAROLD W. EDEN, OF HINSDALE, ILLINOIS, ASSIGNOR TO BROKAW-EDEN MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF MISSOURI.

GEARING.

1,037,746.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed January 2, 1912. Serial No. 668,859.

To all whom it may concern:

Be it known that I, HAROLD W. EDEN, a citizen of the United States, residing at Hinsdale, in the county of Dupage and State of Illinois, have invented certain new and useful Improvements in Gearing; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a reversing mechanism for washing machines and has for an object to provide a motor driven mechanism with improved means for applying the power thereto.

A further object of the invention is to provide improved means for reversing the rotation of the drum at the end of a predetermined number of revolutions.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:—Figure 1 is a view of the washing machine in perspective, two of the gear casings being broken away to show the construction of the gearing. Fig. 2 is an enlarged detail view of the drum operating gearing. Fig. 3 is a view in elevation of the back of the drum operating gear with part of the reversing mechanism carried thereby. Fig. 4 is a view in edge elevation of a part of the reversing mechanism as indicated at arrow 6 in Fig. 5. Fig. 5 is a reverse view in elevation of the step by step portion of the reversing mechanism.

Like characters of reference indicate corresponding parts throughout the several views.

The improved gearing forming the subject matter of this invention is adapted to be applied to any machine requiring an automatic reversal of its rotating parts, but as here shown it is applied to a washing machine 10 which is provided with a stud shaft 21 by means of which any suitable foraminous drum 16 is rotated.

Mounted in any convenient position relative to the body, is a motor 27 of any approved or convenient type, here shown as a conventional electric motor controlled from a conveniently disposed switch although it is to be understood that the type

of motor is wholly immaterial to the present invention and any convenient type of motor may be employed. The motor 27 is connected with a shaft 29 which extends to a bevel gear 30 and drives an inclined shaft 31 which extends into the gear casing 32 secured upon one end of the body 10. The gear casing 32 contains a bevel gear 33 connected to the stub shaft 21 and the inclined shaft 31 is provided with a bevel pinion 34 intergeared with the gear 33 by which the foraminous drum 16 is rotated from the motor 27. The shaft 31 also carries a second pinion 35 with a clutch 36 splined upon the shaft 31 and adapted to engage either of said pinions 34 or 35 to rotate the foraminous drum in either direction, such clutch being manually controlled by means of a lever 36. Upon the exterior of the gear casing 32 a block 37 is located having notches 38 formed therein and the lever 36 is provided with a spring-pressed detent for engaging such notches. When the lever is located with the detent 39 in the center of the notches 38 as indicated at Figs. 1 and 2, the clutch 36 is out of engagement with both of the pinions 34 and 35 so that the foraminous drum 16 remains stationary. It will be apparent that when the lever 36 is moved in one direction one of the pinions will be engaged and when moved in the opposite direction the opposite pinion will be engaged, thereby reversing the direction of rotation of such foraminous drum.

In the operation of the drum it is desirable to rotate the drum a number of times in one direction and then to reverse the rotation and rotate it a like number of times in the opposite direction. To automatically accomplish this purpose the lever 36 is provided with diverging spring arms 40 and the gear 33 is provided with a pin 41 which at times extends beyond the surface of the gear and into position to engage one of the spring arms 40 to automatically move the lever 36. To cause the pin 41 to move upwardly into position to engage one of the arms 40 automatically a cam disk 42 is journaled upon the rear side of the gear 33, as indicated at Figs. 3 and 4, such disk having a cam 43 positioned when properly rotated to engage the rounded head 44 of the pin 41 to force it outwardly into position to engage such spring arms. The cam disk 42 is rotated with a step by step movement

by means of a pin 45 carried by the gear casing and the rounded head 44 is positioned to engage in concavities 46 at each partial movement of the disk 42 to maintain such disk in the proper position so that the notches 47 in the edge of such disk will be properly located to engage the pin 45 at the next rotation of the gear 33. As illustrated, there are six of the concavities 46 which, together with the step represented by the cam 43, insure the rotation of the disk 42 once for each seven rotations of the gear 33 and foraminous drum 16. At the completion of the seventh revolution the pin 45 will be moved outwardly to engage one of the spring arms 40 and will automatically move the lever 36 and thereby reverse the rotation of the foraminous drum. The reversing of the rotation of the foraminous drum and gear 33 will of course also reverse the rotation of the step by step disk 42 so that the pin 41 is withdrawn from the path of the spring arms 40 so that the drum may complete its seven revolutions in the opposite direction before the pin again engages the other of the spring arms 40.

I claim:—

1. The combination with a rotatable member, of a driven shaft extending at right angles to the axis of rotation of the rotatable member, a gear rigidly connected with the rotatable member, pinions carried by the shaft spaced to engage opposite sides of the gear, a clutch splined upon the shaft adapted to engage selectively either of the pinions, a lever positioned to actuate the clutch, spring arms carried by and extending upon opposite sides of the lever, a pin carried by the gear adapted to engage the spring arms, and means carried by the gear for lifting the pin at the end of a predetermined cycle of revolution.

2. The combination with a rotatable member, of a gear having its axis coincident with the axis of rotation of the rotatable member, a driven shaft extending diametrically of the gear, pinions loosely mounted upon the shaft and positioned to engage opposite sides of the gear, a clutch splined upon the shaft and adapted to selectively engage either of said gears, a lever positioned to manipulate the clutch, spring arms extending upon opposite sides of the lever, a pin carried by the gear adapted to engage said spring arms, a cam wheel journaled upon the gear, means to rotate the cam wheel with a step by step movement, and means carried by the cam wheel for raising the pin into the path of movement of the spring arms.

3. The combination with a rotatable mem-

ber, of a gear rigidly connected with said rotatable member and coinciding with its axis of rotation, of a driven shaft extending diametrically across the gear, pinions loosely mounted upon the shaft and spaced to engage the opposite sides of the gear, a clutch splined upon the shaft and adapted to selectively engage either of said gears, a lever adapted to actuate the clutch, a pin extending through the gear and positioned to move the lever, a cam wheel carried upon the rear of the gear, a rigid member adapted to engage the cam wheel and rotate said cam wheel with a step by step movement, and a cam carried by the cam wheel adapted to raise the pin into position to engage with the lever.

4. The combination with a rotatable member, of a gear having its axis coinciding with the axis of the rotatable member, a driven shaft extending diametrically across the gear, pinions carried by the shaft engaging opposite sides of the gear, a clutch splined upon the shaft adapted to selectively engage either of said pinions, a lever adapted to actuate the clutch, a pin extending through the gear and normally out of position to engage the lever, a cam wheel upon the rear of the gear, an abutment positioned to engage the cam wheel and rotate said cam wheel with a step by step movement, and a cam carried by the cam wheel adapted to lift the pin into position to engage the lever.

5. The combination with a rotatable member, of a gear having its axis coinciding with the axis of the rotatable member, a driven shaft extending diametrically across the gear, pinions splined upon the shaft and positioned to engage opposite sides of the gear, a clutch splined upon the shaft and adapted to move in opposite directions to engage alternately the pinions, a lever extending beyond the periphery of the gear and adapted to actuate the clutch, a pin extending through the gear and normally out of the path of movement of the lever, a cam wheel carried upon the rear of the gear and having a plurality of indentations positioned to be engaged by the pin to hold such cam wheel yieldingly against movement, means to move the cam wheel with a step by step movement, and a cam carried by said cam wheel adapted to raise the pin into position to engage the lever.

In testimony whereof I affix my signature in presence of two witnesses.

HAROLD W. EDEN.

Witnesses:

FRANK N. JANSEN,
MYRTLE HOFELDT.