J. NESWOLD.

GEARING.

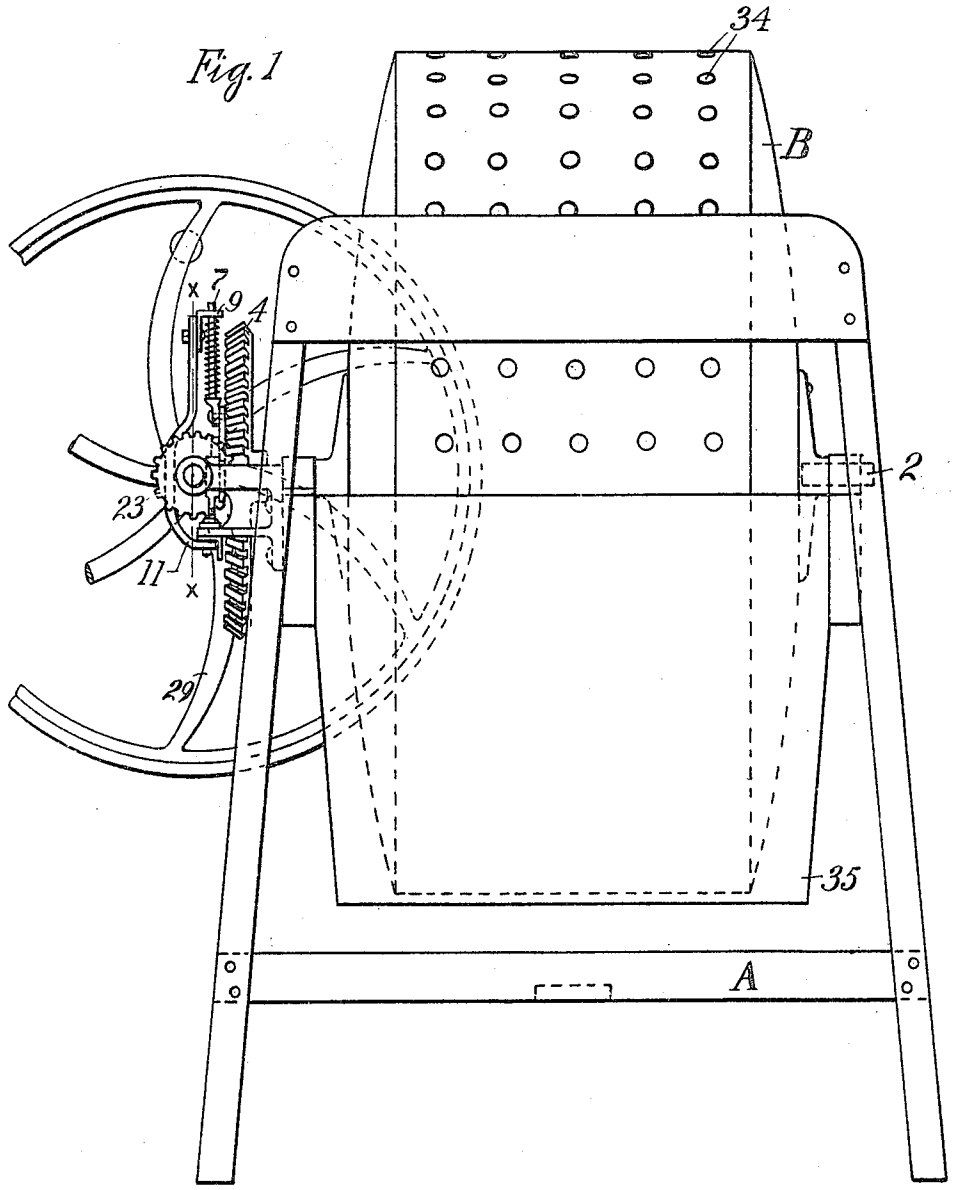
APPLICATION FILED APR. 17, 1907.

949,943.

Patented Feb. 22, 1910.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses,
George Woelker
Harris Smith.

Inventor,
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3 SHEETS—SHEET 2.

Fig. 2

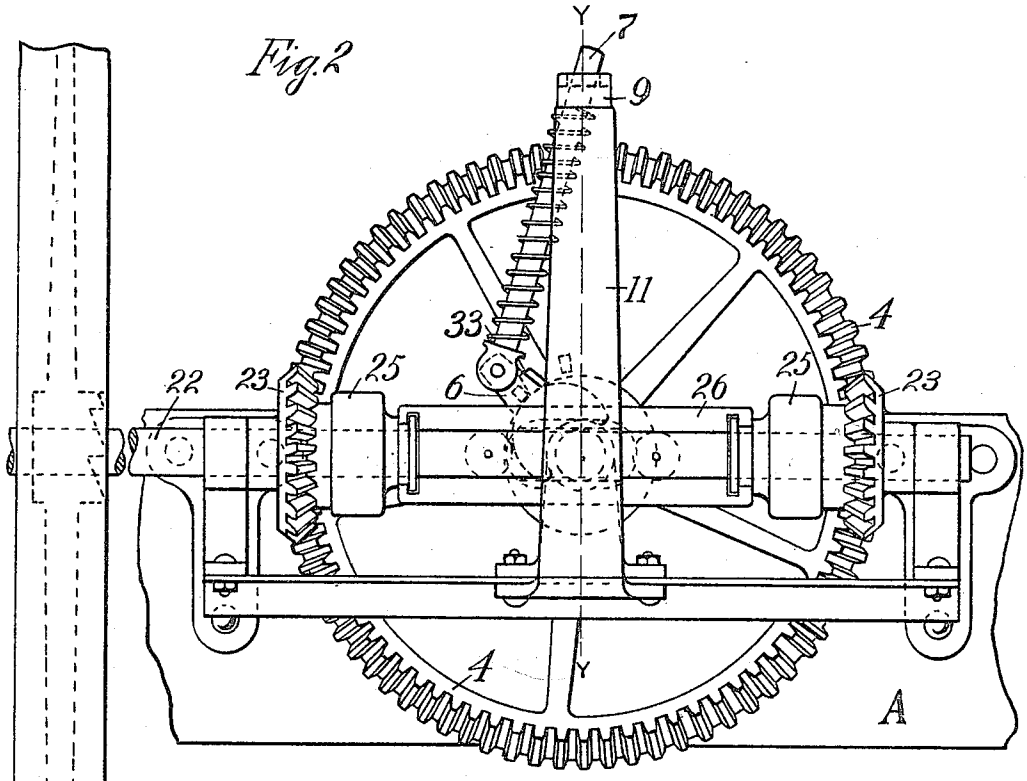


Fig. 4

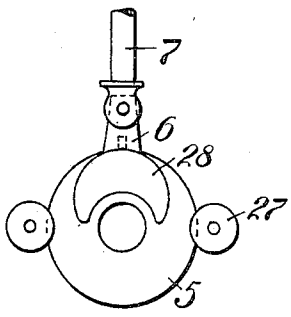


Fig. 3

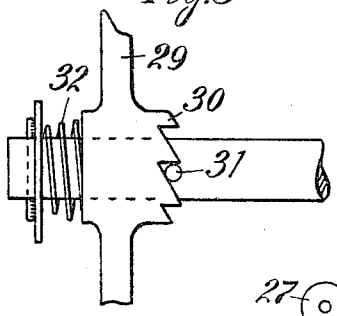
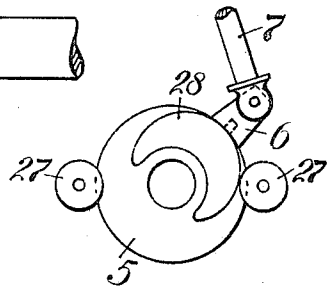


Fig. 5



Witnesses,
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3 SHEETS—SHEET 3.

Fig. 6

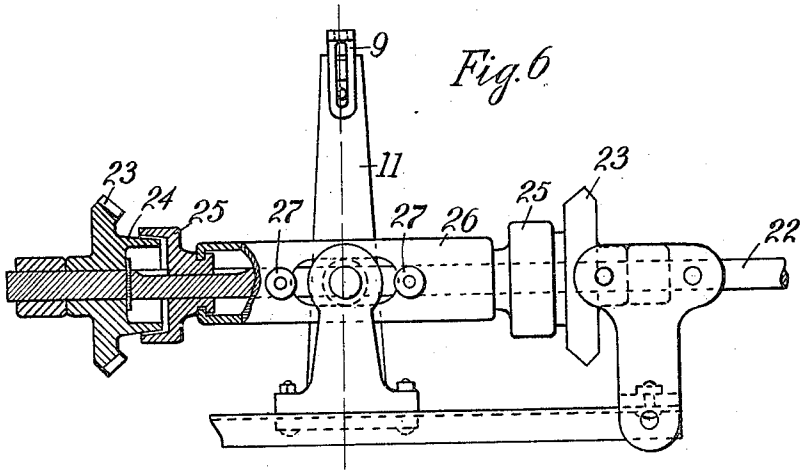


Fig. 7

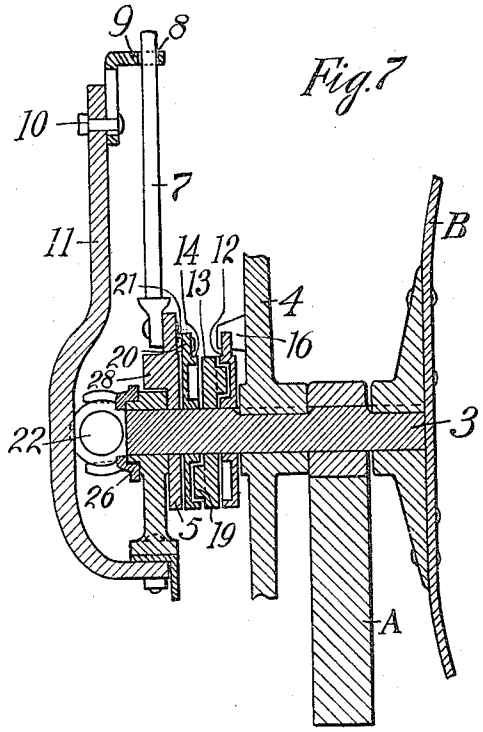


Fig. 8

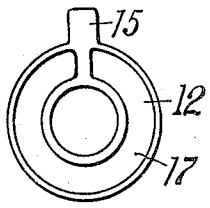
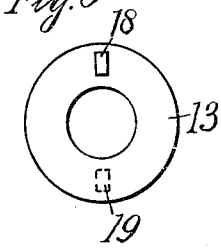


Fig. 9



Witnesses,
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Inventor,
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UNITED STATES PATENT OFFICE.

JOHN NESWOLD, OF ST. PAUL, MINNESOTA, ASSIGNOR OF FOUR-TENTHS TO SEVERIN N. SORENSEN, OF MINNEAPOLIS, MINNESOTA.

GEARING.

949,943. Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed April 17, 1907. Serial No. 368,732.

To all whom it may concern:

Be it known that I, JOHN NESWOLD, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Gearing, of which the following is a specification.

My invention relates to improvements in alternating reversing mechanism designed particularly for rotary washing machines.

To this end my invention consists in the features of construction and combination hereinafter particularly described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a front elevation of my improved machine; Fig. 2 is a side elevation of the gear; Fig. 3 is a detail of one end of the main shaft and drive wheel broken away; Figs. 4 and 5 are details of the reversing cam shown in different positions; Fig. 6 is a side view looking toward the inner side of the horizontal shaft of the reversing mechanism shown partly in section; Fig. 7 is a section on line *y—y* of Fig. 2; and Figs. 8 and 9 are details of rotary clutch members forming part of the reversing mechanism.

In the drawings A represents the frame work of the machine, and B the clothes drum. The drum B is supported by means of outwardly extending shafts 2 and 3 journaled in the sides of the frame work. Secured upon the shaft 3 is a beveled gear 4 to which alternate rotary movement is imparted, as hereinafter set forth. Loosely mounted upon the end of the shaft 3 is a disk 5 carrying an arm 6 with which is pivotally connected a bar 7 the upper end of said bar extending through an opening 8 in the bracket 9. The bracket 9 has adjustable support 10 upon frame-work 11 connected with the adjacent side of the machine as indicated in Fig. 2. Loosely mounted upon the shaft 3 between the gear 4 and disk 5 are a series of coupling parts 12, 13 and 14. The part 12 carries a lug 15 with which engages a lug 16 upon the gear 4 and is formed at its outer side with a groove 17 into which fits a lug 18 carried by the clutch member 13, the coupling part 13 carries on the opposite side a lug 19 which fits into clutch member 14 corresponding to the groove 17 in the coupling part 12. The clutch member 14 carries an outwardly extending lug 20 with which engages a rearwardly extending lug 21 carried by the disk 5. Thus rotation of the gear 4 will be transmitted to the disk 5 through the medium of the interposed coupling parts 12, 13 and 14, rotations of the gear 4 being limited by the play between the coupling parts. Journaled in the frame work 11 is a horizontal shaft 22 upon which are secured a pair of pinions 23 intermeshing with the gear 4 upon opposite sides of the disk 5. Each pinion 23 carries a friction clutch member 24 with which is adapted to engage a friction clutch member 25. The clutch members 25 are slidable upon the shaft 22 and are connected by a sleeve 26. The sleeve 26 carries a pair of anti-friction rolls 27 upon opposite sides of the disk 5, the disk 5 being formed upon its outer side with a cam 28 standing between the anti-friction rolls 27. Mounted upon one end of the shaft 22 is a drive wheel 29 to which is adapted to be imparted power either by means of a belt or suitable handle, not shown. To limit rotations of the shaft 22 to one direction I mount the wheel 29 loosely upon the shaft 22 and form the hub of the wheel upon its inner side with inclined teeth 30, the horizontal sides of which teeth engage with a pin 31 carried by the shaft. The wheel will be held against the pin 31 by means of a spring 32. Thus in rotating the wheel in one direction the shaft will be turned with it and if turned in the other direction the pin will ride over the teeth.

With the parts in the position shown in Fig. 2 the left hand clutch members 24 and 25 will interlock, holding the right hand clutch members separated. By rotating the shaft 22 the gear 4 will be rotated through the medium of the left hand sprocket gear 23, the coupling parts 12, 13 and 14 being turned with the gear 4 until all the play between the coupling parts is taken up when the cam 28 will engage the right hand friction roll 27 sliding the sleeve 26 to the right upon the shaft 22 and carrying the left hand clutch members 24 and 25 out of engagement. This movement of the sleeve will carry the arm 6 and connected bar 7 past the dead center position shown in Fig. 4 allowing the spring 33, by means of its pressure upon the end of the arm 6, to force the sleeve to the extreme right position with the right hand friction clutch members 24 and 25 in closed position. Thus the continued

rotation of the shaft 22 will rotate the gear 4 through the medium of the right hand pinion 33 allowing the left hand pinion to turn freely upon the shaft 22. This alternates the rotation of the gear 4. It will thus be evident that a constant rotation of the shaft 22 will impart alternate rotary movement to the gear 4 and clothes drum, the number of rotations of the drum being regulated by the amount of play between the coupling parts 12, 13 and 14.

As shown in Fig. 1 of the drawings the drum B is formed with outwardly convexed sides, its periphery being perforated by a series of openings 34. The drum revolves in a suitable receptacle 35 supported by the frame-work. The outwardly convexed sides of the drum assist in holding the clothes being washed in the central portion of the drum and also forms a strong and stiff construction.

I claim:

1. An alternating gearing mechanism of the class described comprising a driving and driven shaft, a gear wheel secured upon said driven shaft, pinions loosely mounted upon said driving shaft in position to engage with said gear wheel, clutch mechanism slidable upon said driving shaft intermediate of said pinions, and a series of intermeshing coupling parts intermediate of said gear wheel and slidable clutch mechanism for throwing said clutch mechanism outwardly into engagement with said pinions upon predetermined rotations of said gear wheel.

2. An alternating gearing mechanism comprising a driving and a driven shaft, a gear wheel mounted upon said driven shaft, pinions loosely mounted upon said driving shaft in position to engage with said gear wheel, clutch mechanism slidable upon said driving shaft intermediate said pinions, traveling coupling mechanism interposed intermediate of said gear wheel and slidable clutch mechanism for alternately reciprocating said clutch mechanism and spring means for setting said slidable clutch mechanism, for the purpose set forth.

3. An alternating gearing mechanism comprising a driving and driven shaft, a gear wheel mounted upon said driven shaft, pinions loosely supported upon said driving shaft, slidable clutch mechanism interposed between said pinions, an actuating cam for said clutch mechanism and traveling coupling parts interposed between said cam and gear wheel for alternately actuating said cam upon predetermined rotations of said gear wheel.

4. An alternating rotary gearing of the class described comprising a driving and driven shaft, a gear wheel supported upon said driven shaft, intermeshing pinions loosely mounted upon said driving shaft, clutch mechanism slidably supported upon said driving shaft intermediate of said pinions, an actuating cam for said clutch mechanism, traveling coupling parts interposed between said gear wheel and cam to actuate said cam upon predetermined revolutions of said gear wheel, and spring means connected with said cam to hold the same in position setting said slidable clutch mechanism, for the purpose set forth.

5. An alternating rotary gearing comprising a driving and driven shaft, a beveled gear wheel secured upon said driven shaft, intermeshing pinions loosely mounted upon said driving shaft, clutch members mounted upon said driving shaft intermediate of said pinions, a rotary actuating cam for said clutch mechanism, traveling coupling parts interposed between said gear wheel and cam, a bar having offset connection at one end with said cam, and slidable support at its other end, and a tension spring for said bar, for the purpose set forth.

6. An alternating rotary gearing comprising a driving and driven shaft, a beveled gear wheel secured upon said driven shaft, intermeshing pinions loosely mounted upon said driving shaft, clutch mechanism supported upon said driving shaft intermediate of said pinions, a rotary actuating cam for said mechanism, a series of relatively rotatable coupling parts connecting said gear wheel and cam whereby said cam will be actuated to alternately reciprocate said slidable clutch mechanism upon predetermined revolutions of said gear wheel, and spring means arranged to apply pressure to said cam to hold said slidable clutch mechanism in set position, for the purpose set forth.

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

JOHN NESWOLD.

Witnesses:
H. S. JOHNSON,
HATTIE SMITH.