J. EDENS.

GEARING.

APPLICATION FILED DEC. 9, 1915.

1,174,244.

Patented Mar. 7, 1916.

3 SHEETS—SHEET 1.

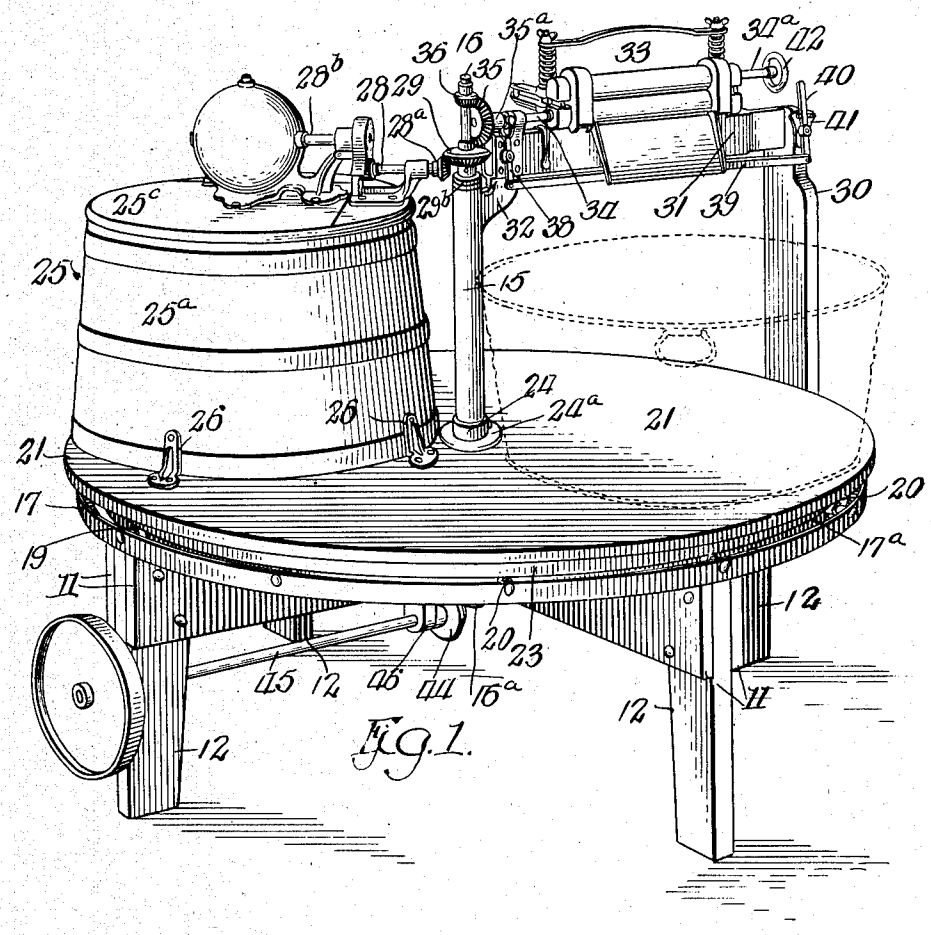
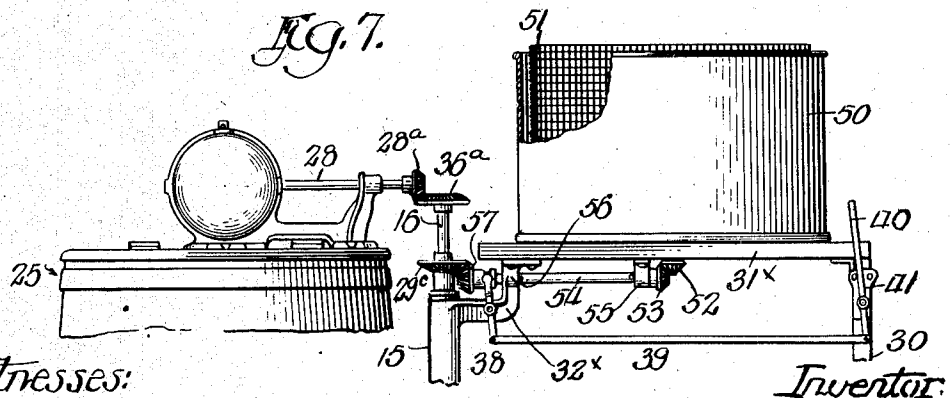


Fig. 1.

Fig. 7.



Witnesses:
G. M. Gorton
T. H. Alfeder

Inventor:
John Edens
by Bosworth Mellen & Stillys

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3 SHEETS—SHEET 2.

FIG. 2.

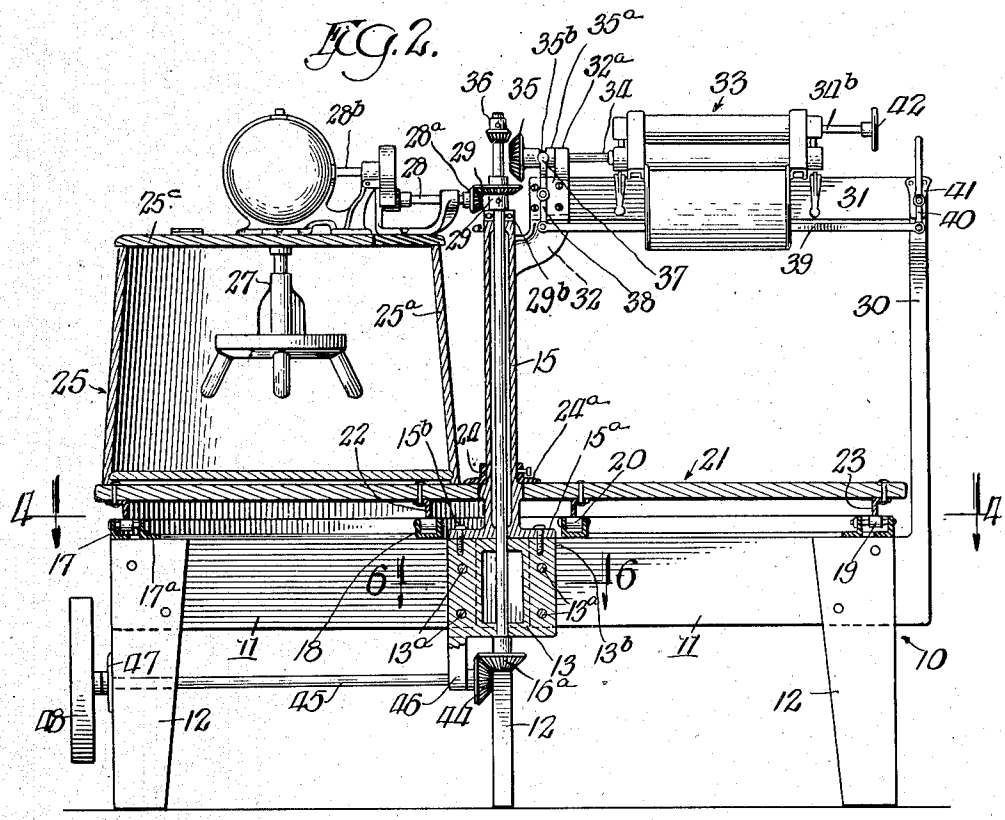


FIG. 5.

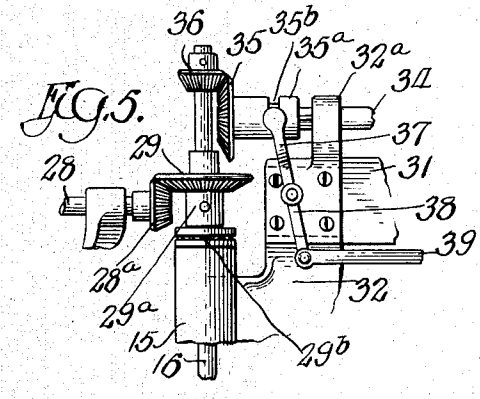
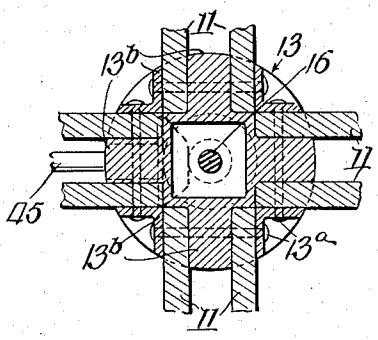


FIG. 6.



Witnesses:
G. M. Foton
F. N. Alfuds

Inventor
John Edens
by Arnold Mehlope Attys

J. EDENS.

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3 SHEETS—SHEET 3.

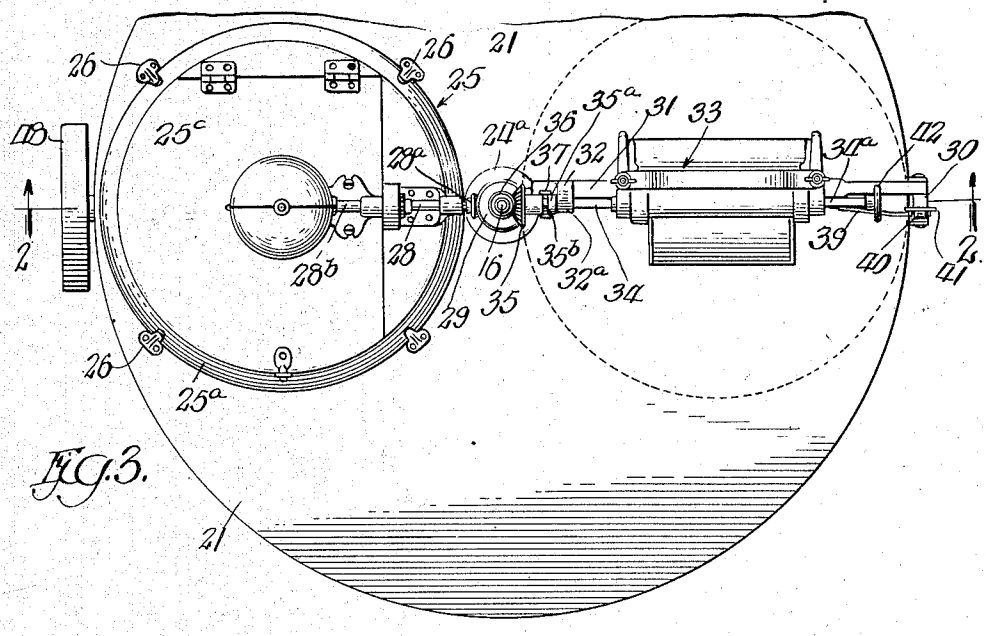


FIG. 3.

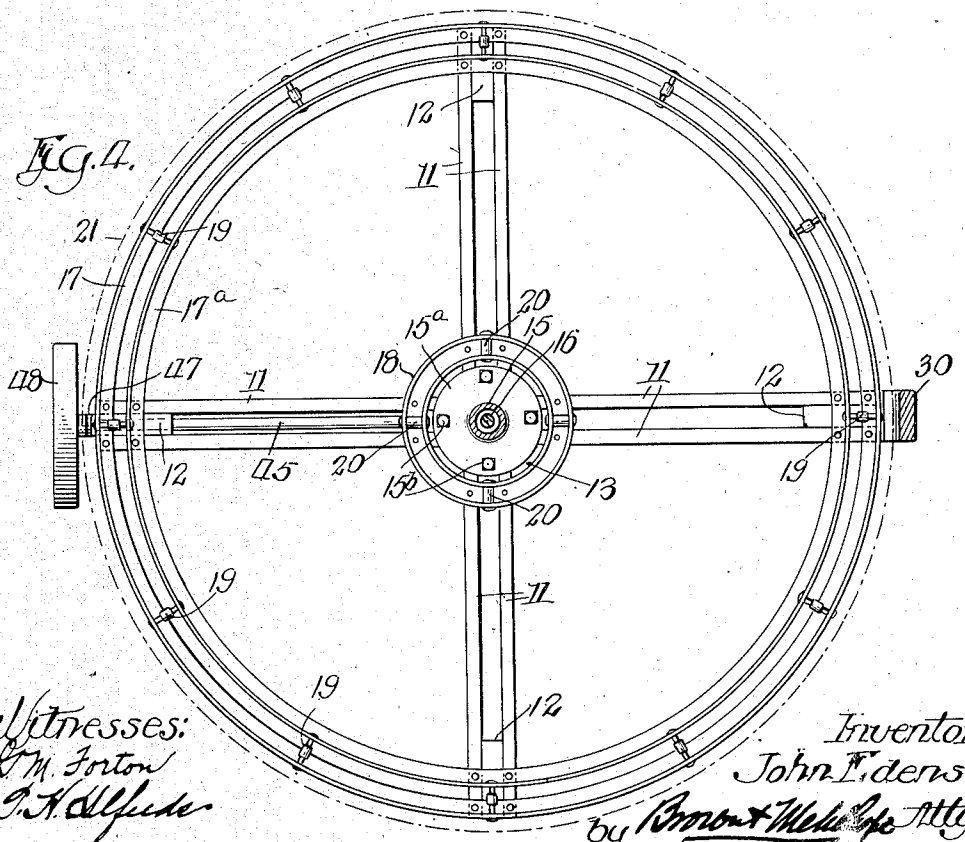


FIG. 4.

Witnesses:
E. M. Forton
P. A. Alfredo

Inventor
John F. Edens
by Brown & Wells Co Attys

UNITED STATES PATENT OFFICE.

JOHN EDENS, OF DAVENPORT, IOWA, ASSIGNOR TO H. F. BRAMMER MFG. CO., OF DAVENPORT, IOWA, A CORPORATION OF IOWA.

GEARING.

1,174,244. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed December 9, 1915. Serial No. 65,890.

To all whom it may concern:

Be it known that I, JOHN EDENS, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Gearing; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in gearing and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The invention as illustrated herein is applied to a laundry apparatus intended for domestic use. As thus applied, it includes a main support or bench upon which is mounted a secondary support in the form of a turn table; an upright, power-operated, primary driving shaft mounted upon the main support and extending up through the secondary support or turn table, which is made rotatable about it as an axis; a movable auxiliary support and gearing in the form of a washing machine and its gearing, preferably of the dolly type, attached to the top of the turn table and movable therewith; means connecting the gearing on the auxiliary support, that is, the washing machine gearing, to the said primary driving shaft so that the said washing machine gearing may be actuated no matter what the position of the secondary support or turn table; a fixed auxiliary support located above the turn table; and a second gearing for operating a water extracting device, as a wringer or the like, on said fixed auxiliary support, together with connecting gearing, and a controlling device for the same whereby said second gearing may be operatively connected to or disconnected from said primary driving shaft.

In the drawings:—Figure 1 is a view in perspective of a laundry apparatus embodying my invention. Fig. 2 is a transverse vertical sectional view thereof, the plane of the section being indicated by the line 2—2 of Fig. 3. Fig. 3 is a top plan view of the laundry apparatus embodying my invention. Fig. 4 is a horizontal plan sectional view, the plane of the section being indicated by the line 4—4 of Fig. 2. Fig. 5 is a detail view in elevation on an enlarged scale of the top end of the upright power shaft and the gearing associated therewith. Fig. 6 is a detail horizontal sectional view on an enlarged scale, the plane of the section being indicated by the line 6—6 of Fig. 2. Fig. 7 is a fragmentary view in side elevation of a modified form of laundry apparatus embodying my invention to be more specifically referred to later.

Referring now to that embodiment of my invention as illustrated in Figs. 1 to 6 inclusive of the accompanying drawings:—10 indicates a main support upon which is rotatably mounted a turn table 21 which constitutes a secondary support. The support 10 comprises transversely extending cross bars 11 arranged in spaced pairs and connected at their outer ends to upright legs 12, 12. The said cross bars are suitably connected together at their inner ends by means of a hollow bracket block 13, bolts or rivets 13^a passing through the cross bars 11 and upright flanges 13^b formed on said block. Said flanges 13^b and the legs 12 secure each associated pair of cross bars in their proper spaced relation.

15 indicates an upright hollow post which provides suitable bearing for an upright, power driven primary driving shaft 16 to be more specifically referred to later. The hollow post 15 has a radially extending flange 15^a at its bottom which is adapted to rest upon and to be secured by means of bolts 15^b to the top of the hollow bracket block 13.

17, 17^a indicate radially spaced annular upright flanges of comparatively large diameter which are fixed to the support 10. Said flanges as shown are made of angle iron, and the horizontal flanges thereof engage the top edges of the cross bars 11 near their outer ends, to which they are attached in any suitable manner.

18 indicates an annular channel of somewhat smaller diameter than the upright flanges 17, 17^a. Said channel is arranged with its flanges in an upright position and with its horizontal web fixed to the cross bars 11 adjacent the hollow block 13. The flanges or angle bars 17, 17^a and channel 18 are made concentric with the drive shaft 16

and provide bearing for radially extending antifriction rollers 19 and 20 respectively.

21 indicates a platform or turn table (the secondary support), located a short distance above the main support 10 and upon which it is so mounted as to be capable of being rotated about the shaft 16 as an axis. This turn table is circular in plan and of such a diameter as to project a short distance beyond the outer ends of the cross bars 11. Fixed to the bottom surface of the turn table or platform 21 adjacent its axis and periphery respectively are rings 22, 23 of angle iron. These rings are so placed that the bottom edges of their upright flanges rest or engage upon the radially extending antifriction rollers 20 and 19 before referred to. A collar 24 having a radially extending flange 24ª which engages the top surface of the platform 21 adjacent its axis, holds said platform against vertical displacement. It is apparent from the foregoing description that the platform 21 is rotatably mounted upon antifriction bearings secured to the support 10 in a manner preventing any lateral or vertical displacement thereof.

25 indicates a power driven washing machine of a familiar type which is securely fixed to the platform 21 by means of clips 26. It comprises a tub 25ª in which is provided a rotary reciprocatory dolly 27 which is actuated by a short horizontal shaft 28ᵇ mounted on the tub lid 25ᶜ and adapted to be connected to or disconnected from a driving shaft 28 fixed to the stationary top of the tub when the lid is raised or lowered. The details of the washing machine gearing, whereby the continuous rotary movement of the shaft 28 is converted into the rotary reciprocatory motion of the dolly 27 is of no import in this application and hence a description thereof is unnecessary. The washing machine 25 is so arranged on the platform 21 that the driving shaft 28 thereof at all times extends in a direction radial to the axis of the upright power shaft 16 before mentioned. To the end of the shaft 28 adjacent the upright power shaft 16 is attached a beveled pinion 28ª which meshes with a downwardly facing beveled gear 29 fixed on said power shaft. This gear 29 has a relatively long hub 29ª (see Fig. 2) and a thrust bearing 29ᵇ is interposed between said hub and the top of the hollow upright post 15 before mentioned. It is apparent from the foregoing description that when the tub lid 25ᶜ is in its closed position, the dolly 27 will be driven through the gearing described. When the lid 25ᶜ of the washing machine is in its raised position, the shaft 28ᵇ will be operatively disconnected from the shaft 28 which is driven from the power shaft 16.

30 indicates an upright post or standard which is fixed to the main support 10, preferably to one of the legs 12 thereof. To the top of said standard is secured the outer end of a horizontal bar 31. The inner end of said bar is attached to an angular bracket 32 fixed to the top of the hollow standard 15. The bottom edge of the bar 31 is as shown arranged in a plane a trifle above the plane of the top of the washing machine and the bar as a whole extends parallel to a vertical plane that is radial to the shaft 16. Mounted on said support or board is a power driven device 33 capable of extracting the water from the clothing being washed. In Figs. 1, 2 and 3, this extracting device is shown as an ordinary clothes wringer and the lower roll shaft 34 thereof is extended through a suitable bearing 32ª on the bracket 32, into the vicinity of the upright shaft 16. Feathered to the shaft 34 is a bevel gear 35 which may be shifted lengthwise of said shaft 34 into and out of mesh with a downwardly facing bevel pinion 36 fixed to the top end of the upright power shaft 16. The gear 35 has a relatively long hub 35ª provided with an annular groove 35ᵇ which is engaged by a fork 37 of a lever 38. This lever is pivotally mounted intermediate its end on a stud formed on the bracket 32 and to the lower end of said lever is attached one end of a link 39, the opposite end of which is likewise attached to the lower end of a controlling lever 40 mounted on a stud forming a part of a plate 41 fixed to the top end of the upright 30. The plate 41 is provided with means for limiting the amount of shifting movement imparted to said lever, said means corresponding with the relative meshed and unmeshed positions of the gear 35 with the gear 36 on the shaft 16. It is apparent that a rocking movement of the lever 40 is transmitted into an endwise shifting movement of the gear 35 upon the shaft 34 to bring the gear 35 into or out of mesh with the gear 36.

The top wringer roll shaft 34ª is projected outwardly toward the upright 30 and to the end of said shaft is fixed a hand wheel 42 by means of which a reverse movement may be imparted to the wringer rolls should any of the clothing being operated upon become wound about said rolls. Of course, as is apparent, this reverse rotation can only be imparted to the wringer rolls when the gears 35 and 36 are out of mesh.

The upright power shaft 16 may be driven in any suitable manner and as shown is extended through the hollow bracket block 13 in which it has bearing and to its bottom end is fixed a bevel gear 16ª which meshes with a like bevel gear 44 fixed to the inner end of a horizontal, radially arranged shaft 45. Said shaft 45 is journaled in bearings 46, 47 formed on the hollow intersection block 13 and fixed to one of the legs 12 respectively. Said shaft is provided at its end

beyond said leg with a pulley 48 which may be suitably driven from an electric motor or gasolene engine.

The operation is as follows: The clothing to be washed is placed in the washing machine which is filled to the desired level with suds water. The lid of the washing machine is closed and the washing operation is commenced. The usual rinsing tubs and clothes receiving basket may be placed in the desired position upon the turntable or platform 21. When the clothing has been properly washed, the turntable is rotated to bring the washing machine into the proper position relative to the wringer. This rotative movement is best imparted to the turntable 21 by grasping the lid or any other convenient part of the washing machine and walking toward the upright stationary post 30. The lid of the washing machine is then raised to give access to the clothes in the tub, and the lever 40 is shifted to move the gear 35 into mesh with the gear 36. The clothing is then passed or fed through the wringer in the usual manner from which it will pass into a ringing tub placed on the opposite side of the wringer, the excess extracted water being returned to the tub of the washing machine by the usual drip board. If any part of the clothing should be wound about the wringer rolls as sometimes happens, the lever 40 is shifted to unmesh the gears 35 and 36. The wringer roll may then be reversed by means of the hand wheel 42 before mentioned. When all the clothing has been passed through the wringer rolls, the washing machine may be swung away from the wringer and a fresh batch of clothes placed therein. When the washing machine has been thus moved away from the wringer, the rinse tub will then be in the relative position formerly occupied by the washing machine and the clothing it contains may be readily fed through the wringer and into the next adjacent tub or basket, after which the clothes are ready to be dried in any convenient manner.

In Fig. 7 of the drawings, I have illustrated a different form of device for extracting water from the clothes which as shown is of the centrifugal type. The parts similar to the parts in the other figures, are indicated by the same reference numerals. 25 indicates the washing machine as before which has a horizontal driven shaft 28 to the end of which is fixed the gear 28^a. Said gear in this instance meshes with an upwardly facing gear 36^a on the top end of the upright power shaft 16. 15 and 30 indicate respectively the upright hollow post in which the power shaft 16 is located and the upright post fixed to one of the legs as before. The supplementary support 31^x in this instance is arranged flatwise and has fixed to it an open top cylindrical vessel 50 which forms the body of the centrifugal extractor proper. Mounted in said vessel is the usual clothes receiving basket 51 of wire mesh. Said basket has a concentrically arranged shaft which extends through the support 31^x and has fixed to it a bevel pinion 52 which meshes with a pinion 53 on a shaft 54 journaled in suitable bearings 55 and 56 fixed to the said support 31^x and bracket 32^x respectively. The opposite end of the shaft 54 is provided with a gear 57 which is fixed thereto in the manner described relative to the shaft 34 and gear 35. The fork lever 38 operated by the shifting lever 40 through the link 39 moves said gear lengthwise on said shaft into and out of mesh with a gear 29^c corresponding to the gear 29. When the clothing from the washing machine is placed in the wire mesh basket 51 and the lever 40 is shifted to bring the gear 57 into mesh with the gear 29^c, a continuous rotary motion at high speed is imparted to said basket by the other gearing before mentioned. This rapid rotation of the basket 51 tends to extract the water from the clothes in the manner well known, the water being deposited in the cylindric container 50 from which it may be drained.

It is apparent that the washing machine and various clothes receiving tubs and baskets may be easily and successively brought into a proper position relative to the water extracting device and instead of the operator walking from one tub to another the various tubs and baskets may be brought with little expenditure of energy, into the immediate vicinity of said operator, by a slight movement imparted to the turntable as before mentioned. This saves an appreciable number of steps for the operator during a washing operation and greatly reduces the labor attendant upon the usual wash day.

While in describing my invention I have referred specifically to the details of construction and arrangement of parts, I do not wish to be limited thereto except as may be pointed out in the appended claims.

I claim as my invention:—

1. A gearing, comprising in combination a main support, an upright primary driving shaft, rotatively mounted on said support, a secondary support rotatively mounted on said main support with its axis of rotation coaxial with said driving shaft, an auxiliary support mounted on and movable with said secondary support, gearing on said auxiliary support, means operatively connecting said gearing with said primary driving shaft, a fixed auxiliary support located above said rotary secondary support, a second gearing mounted on said fixed auxiliary support, and a controlling device for operatively connecting or disconnecting said second gearing to said primary driving shaft.

2. A gearing, comprising in combination

a main support, an upright primary driving shaft, rotatively mounted on said support, a secondary support rotatively mounted on said main support with its axis of rotation coaxial with said driving shaft, an auxiliary support mounted on and movable with said secondary support, gearing on said auxiliary support, means operatively connecting said gearing with said primary driving shaft, a fixed auxiliary support located above said rotary secondary support, a second gearing mounted on said fixed auxiliary support, and a controlling device for operatively connecting or disconnecting said second gearing to said primary driving shaft, said controlling device including an operating link mounted on said fixed support and extending toward the outer end thereof and a lever for operating said link.

3. A gearing, comprising in combination a main support, an upright primary driving shaft rotatively mounted on said support, a secondary support rotatively mounted on said second support with its axis of rotation coaxial with said primary driving shaft, an auxiliary support mounted upon and movable with said secondary support, a supplemental support hinged to said auxiliary support, gearing on said auxiliary support including a secondary driving shaft on said support proper, and a driven shaft on said supplemental hinged support, means connecting said two shafts whereby said supplemental support may be operated to connect or disconnect said shafts, means operatively connecting said secondary driving shaft with said primary driving shaft, a fixed auxiliary support located above said rotary secondary support, a second gearing mounted on said fixed auxiliary support including a secondary driven shaft and a gear feathered thereon, a gear fixed on said primary driving shaft adapted to be engaged by said feathered gear on said secondary driven shaft, and a controlling device for operatively connecting or disconnecting said two last named gears.

4. A gearing, comprising in combination a main support, an upright primary driving shaft rotatively mounted on said support, a secondary support rotatively mounted on said second support with its axis of rotation coaxial with said primary driving shaft, an auxiliary support mounted upon and movable with said secondary support, a supplemental support hinged to said auxiliary support, gearing on said auxiliary support including a secondary driving shaft on said support proper, and a driven shaft on said supplemental hinged support, means connecting said two shafts whereby said supplemental support may be operated to connect or disconnect said shafts, means operatively connecting said secondary driving shaft with said primary driving shaft, a fixed auxiliary support located above said rotary secondary support, a second gearing mounted on said fixed auxiliary support including a secondary driven shaft and a gear feathered thereon, a gear fixed on said primary driving shaft adapted to be engaged by said feathered gear on said secondary driven shaft, and a controlling device for operatively connecting or disconnecting said two last named gears, said controlling device including an operating link mounted on said fixed support and extending toward the outer end thereof and a lever for operating said link.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 3rd day of December, A. D. 1915.

JOHN EDENS.

Witnesses:
A. G. SAMPSON,
I. C. ANDERSON.