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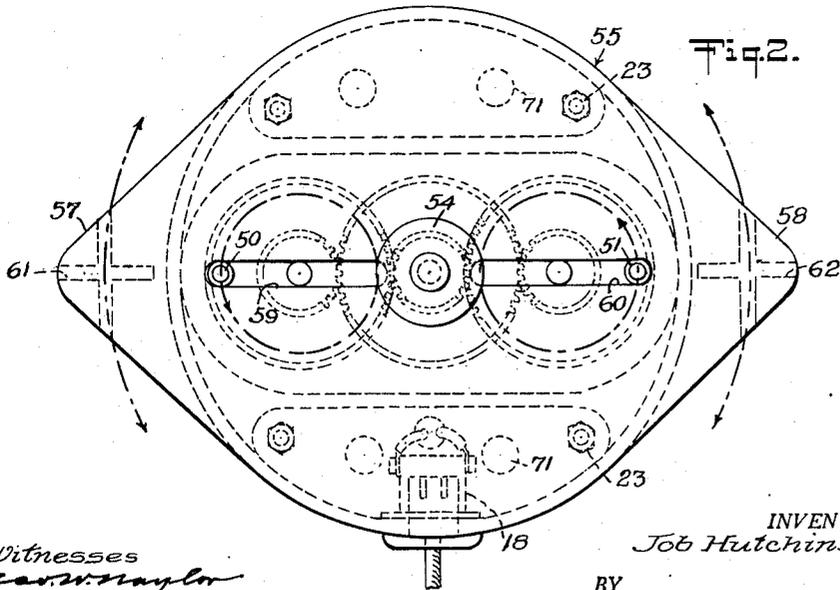
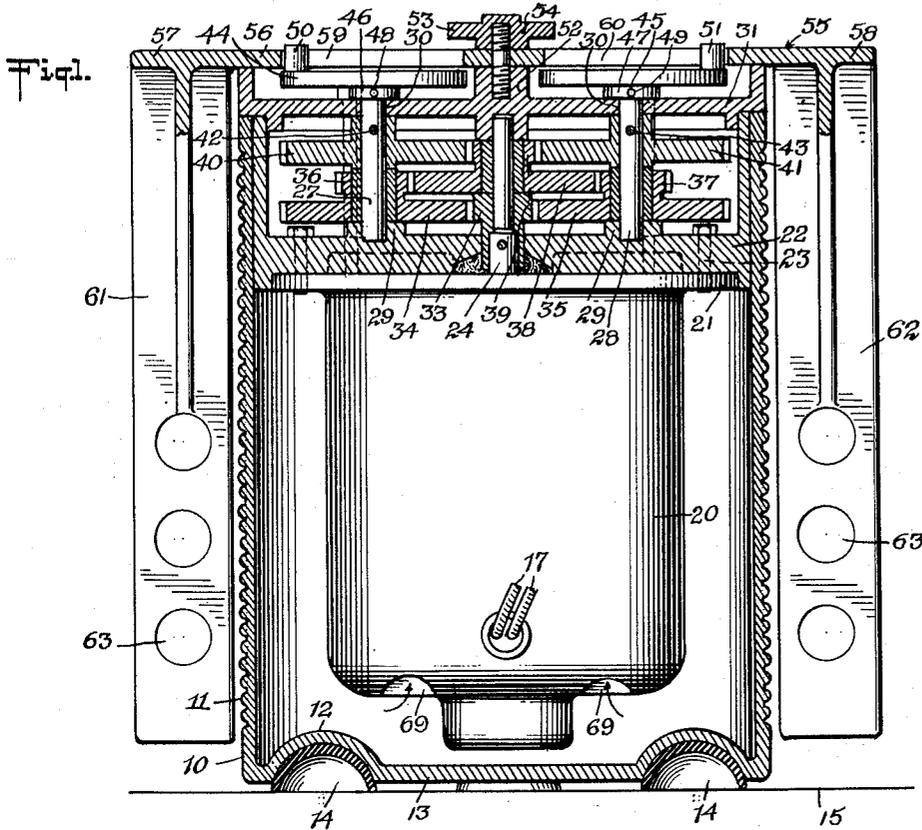
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2,430,769

PORTABLE CLOTHES WASHING MACHINE

Filed April 14, 1944

3 Sheets-Sheet 1



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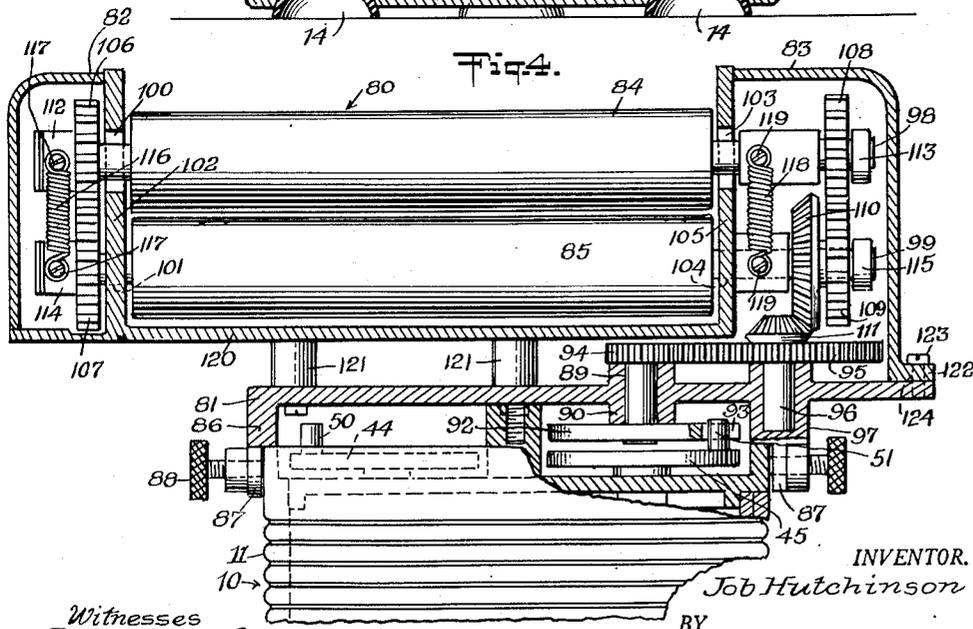
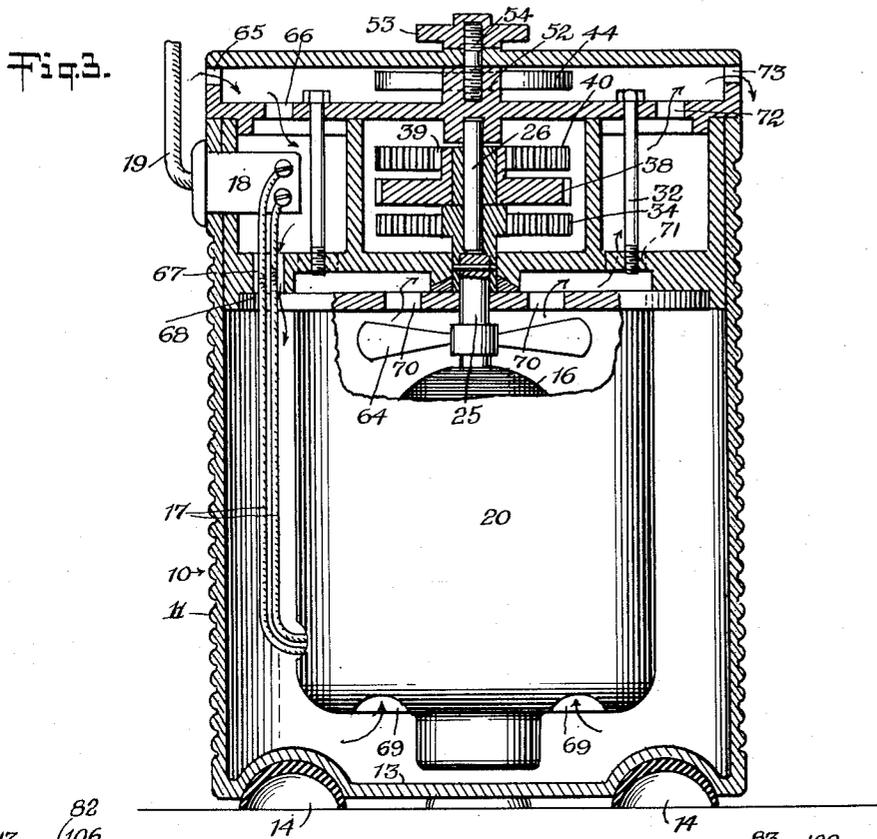
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PORTABLE CLOTHES WASHING MACHINE

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3 Sheets-Sheet 2



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Fig. 5.

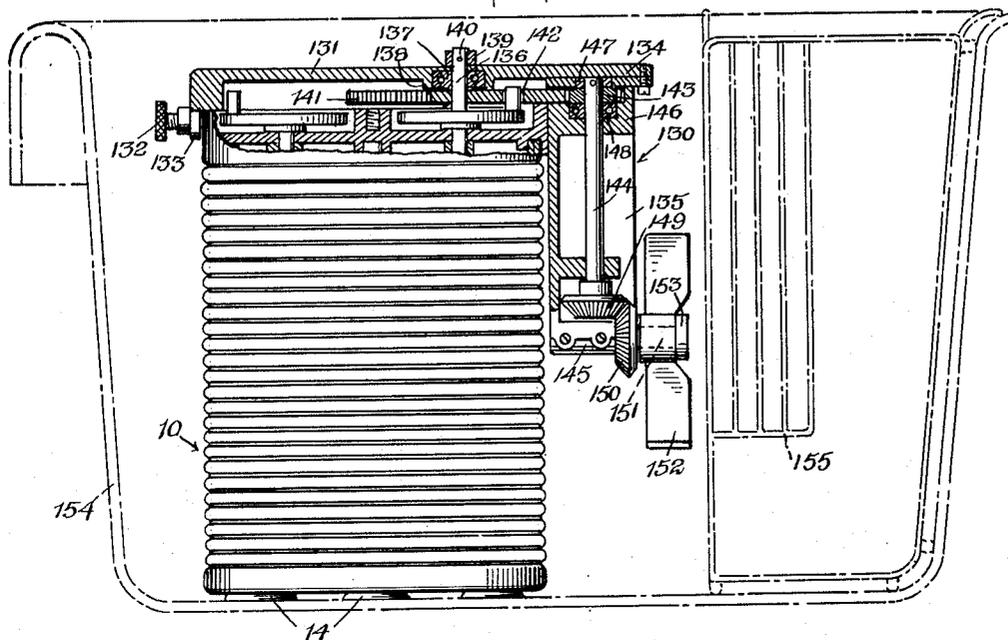
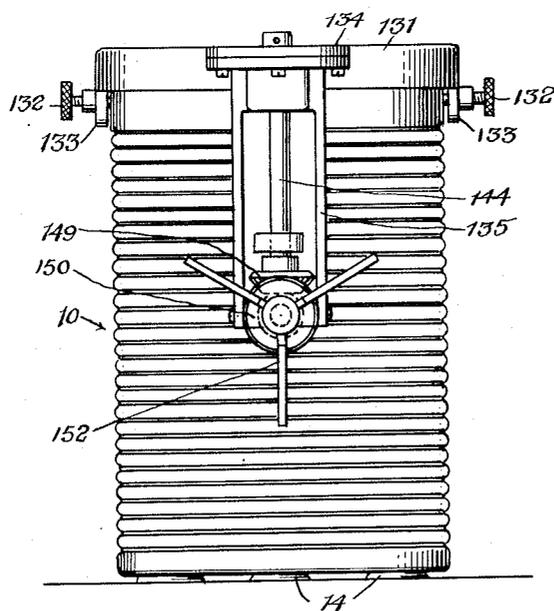


Fig. 5.



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UNITED STATES PATENT OFFICE

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PORTABLE CLOTHES-WASHING MACHINE

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4 Claims. (Cl. 68-4)

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The present invention relates to washing machines, clothes wringers and dish washing machines for the home.

Its principal object is to provide a small, inexpensive washing machine to fit into the tub of the kitchen sink or in the laundry tub, to perform its function as washing machine there, and to be stored there when not in use.

Another object is the provision of a small, inexpensive combination clothes washing, clothes wringing and dish washing machine.

These objects and others which will hereinafter become apparent, are attained by mechanism illustrated in the accompanying drawing in which—

Figure 1 is a vertical section of the entire washing machine;

Fig. 2 is a top view thereof;

Fig. 3 is a vertical section of the same machine shown in Figure 1, the plane of this view being perpendicular to the plane of the view in Figure 1;

Figure 4 is a sectional view of the wringing attachment to said washing machine, shown connected therewith;

Fig. 5 is a side view, partly in section, of the entire machine including the dishwashing attachment thereto; and

Fig. 6 is a front view of the machine shown in Figure 5.

Referring to Figures 1, 2 and 3, the waterproof casing 10 of the machine is a horizontally corrugated cylindrically shaped container. The corrugations serve a threefold purpose: to provide a strong yet light casing, and to provide greater surface area for cooling contact with the surrounding water, and to provide a washboard surface. Four cup-shaped recesses 12 are formed in the outer surface of the bottom 13 of said casing 10. Fixed in said recesses are suction cups 14. These suction cups are the only points of contact between the washing machine and the tub 15. The machine is maintained in upright position by means of these suction cups which cling, after the manner of suction cups, to the tub bottom.

The heart of the washing machine is electric motor 16 which is preferably of the vertical type. Electric wires 17 lead from said motor to box 18, and electric wire 19 from said box to an outside electric-socket (not shown). Motor 16 is encased in casing 20 having an outwardly flaring upper peripheral flange 21 by which it is affixed to horizontal, upwardly flanged partition 22 of casing 10. Screws or bolts 23 connect said flange 21 to said partition 22.

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Coupled by means of coupling 24 to motor shaft 25 is a vertical shaft 26. Spaced from the vertical shaft 26 are two vertical shafts 27 and 28 which are journaled into recesses 29 in flanged partition 22 and into shaft holes 30 in upper partition 31. The upper partition 31 is affixed to flanged partition 22 by means of screws or bolts 32. Upper partition 31 serves the additional purpose of a cover to the casing 10. The space between the two partitions houses the reduction gears of the washing machine, hereinafter described.

Affixed to shaft 26 is a pinion 33 which meshes with idler spur gears 34 and 35 on shafts 27 and 28. Pinions 36 and 37 integral with or connected to idler spur gears 34 and 35 mesh with idler spur gear 38 on shaft 26. A pinion 39 integral with or connected to idler spur gear 38 meshes with spur gears 40 and 41 which are connected, respectively, to shafts 27 and 28 by means of set screws 42 and 43. The gears and pinions on shafts 26, 27 and 28 comprise, in combination, a set of reduction gears through which the motor drives shafts 27 and 28 at reduced speed.

Shafts 27 and 28 project through and beyond upper partition 31. Disks 44 and 45 are affixed to the protruding portions of shafts 27 and 28, respectively, by means of collars 46 and 47 and set screws 48 and 49. Eccentrically located pins 50 and 51 are affixed to disks 44 and 45. Removably and rotatably fastened to boss 52 which is integral with the center portion of upper partition 31, by means of screw knob 53 and on stud bolt 54 is the oscillating agitator 55. Agitator 55 comprises a disk-like member 56 which completely covers the top of the casing 10. Two lugs 57 and 58 project outwardly from disk member 56, diametrically opposite each other. Along the diametric line leading from one to the other lug, are two slots 59 and 60 whose width is such that they can and do slidably accommodate pins 50 and 51, their length being substantially equal to the diameter of disks 44 and 45, the center portions of said slots being in axial alignment, respectively, with shafts 27 and 28. Downwardly projecting agitator arms or paddles 61 and 62 are either integral with, or affixed to, lugs 57 and 58. These arms are almost as long as the entire washing machine is high. Holes 63 in the lower portions of paddles 61 and 62 are intended to reduce water resistance to movement of said paddles when the machine is in operation.

In Figure 3 the cooling facilities incorporated into the washing machine are clearly shown. Mounted on motor shaft 25 adjacent the motor is

a cooling fan 84 which draws air from the atmosphere into and through motor casing 20 through apertures 85 and 86 in upper partition 31, aperture 67 in flanged partition 22, aperture 68 in flange 21, and apertures 28 in the bottom of motor casing 20. The air thus drawn into motor casing 20 is forced out therefrom by means of fan 84 through apertures 70 in the top of said casing, thence through aperture 71 in flanged partition 22, and apertures 72 and 73 in upper partition 31.

In Figure 4 the wringer attachment 88 is shown, operatively fastened to the washing machine hereinabove described. The wringer comprises a base plate 81, two gear boxes 82 and 83 and rollers 84 and 85, together with a driving mechanism connecting the wringer gears with the eccentrically disposed pin 51. The base plate 81 has a downwardly projecting flange 86 adapted to fit onto the top edge of casing 10. Ears 87 which extend downwardly from flange 86 carry clamping screws 88 by which base plate 81 is clamped to casing 10.

A shaft hole 89 is formed in a thickened portion 90 of base plate 81 to receive a short shaft 91 in axial alignment with shaft 28, said shaft 91 projecting both above and below thickened portion 90. Affixed to its lower projecting end is a disk 92 which is similar in all substantial respects to disk 45 except that, in place of pin 51 on disk 45, disk 92 has an aperture 93 corresponding to pin 51 in location, but being somewhat larger than pin 51 in diameter. Disk 92 is so disposed, relative to disk 45, that pin 51 protrudes into aperture 93. Affixed to the upper projecting end of short shaft 91 is a spur gear 94 which meshes with a larger spur gear 95, the latter gear being affixed to shaft 96 which is journaled into thickened portion 97 formed in said base plate 81.

Rollers 84 and 85 are mounted, respectively, on shafts 98 and 99, which shafts are rotatably fixed in shaft holes 100 and 101 in the right hand wall 102 of gear box 82 and shaft holes 103 and 104 in the left hand wall 105 of gear box 83. Shaft holes 100 and 103, which hold shaft 98 are elongated in a vertical direction to permit of limited vertical movement of said shaft. Spur gear 106, affixed, in gear box 82, to shaft 98, meshes with spur gear 107, affixed, in the same gear box, to shaft 99. Spur gear 108 affixed, in gear box 83 to shaft 98, meshes with spur gear 109 affixed, in the same gear box, to shaft 99. Bevel gear 110 affixed to shaft 99 in gear box 83, meshes with beveled pinion 111 which is connected with spur gear 95.

A cap 112 is rotatably mounted on shaft 98 in gear box 82 and a collar 113 is rotatably mounted on the same shaft in gear box 83. Cap 114 is rotatably mounted on shaft 99 in gear box 82 and a collar 115 is rotatably mounted on the same shaft in gear box 83. Tension spring 116 affixed by means of screws 117 to caps 112 and 114 and tension spring 118 affixed by means of screws 119 to collars 113 and 115 tend, yieldingly, to pull shaft 98 (and hence roller 84) toward shaft 99 (and hence roller 85).

A plate 120 carries gear boxes 82 and 83, said plate being fastened to base plate 81 by means of supports 121. Gear box 83 is further fastened to base plate 81 by means of flange 122 and a screw or bolt 123 which engages base plate 81 through a hole 124 in flange 122.

In Figures 5 and 6 the dishwashing attachment 130 is shown mounted on the washing machine first above described. Cover portion 131 which

serves substantially the same function as base plate 81 covers casing 10 and is fastened thereto by means of clamping screws 132 carried by cover ears 133. Cover portion 131 has an overhanging portion 134 to which is affixed an elongated, downwardly projecting, gear housing 135. A shaft 136, in axial alignment with shaft 28 is rotatably fixed in bearing 137 which is set into a recessed thickened portion 138 of cover 131. Shaft 136 projects upwardly through cover 131, its projecting portion carrying collar 139 which is fixed to it by means of set screw 140. Affixed to the lower end of shaft 136 is a large spur gear 141 in which aperture 142 is formed, corresponding in all respects to aperture 93 in disk 92.

In mesh with large gear 141 is small gear 143 which is affixed to the upper end of vertical shaft 144, said shaft being rotatably mounted in gear housing 135. The lower end of vertical shaft 144 is journaled into the lower portion 145 of gear housing 135. The upper end of vertical shaft 144 is journaled into the upper portion 146 of gear housing 135 being held in place by means of collar 147 and bearing 148. Affixed to the lower portion of vertical shaft 144 immediately above lower portion 145 of gear housing 135 is a beveled gear 149 which is in mesh with beveled gear 150 mounted on horizontally disposed shaft 151, said shaft being journaled into said lower gear housing portions 145. Said horizontal shaft projects, in part, outside of gear housing 135. Affixed to the projecting portion are paddles or blades 152, said paddles being held in place on said shaft by means of collar 153. The tub 154 is shown in dotted lines in Figure 5 as is disk holder 155 hooked on said tub in such manner as to face paddles 152.

To operate the device herein disclosed, the casing 10 is placed into any household tub—laundry tub, kitchen sink tub or bath tub. The oscillating agitator is fastened thereto in the manner previously described. Water is then let into the tub, soiled clothes or linens are then put into the water together with soap—all in the usual manner—and the device is then ready to function. When the clothes are ready for wringing, the oscillating agitator is removed and the clothes wringing attachment is fastened to the casing in the manner previously set forth. The wringing attachment is now ready for use in the conventional manner.

The device operates in much the same way when it is desired to wash dishes. The dish washing attachment is fastened to the casing as previously described, the device is then put into any tub—preferably the kitchen sink tub—and the dishes are placed in a conventional dish holder opposite said device. The water is now let into the tub, soap is introduced, and the machine is ready to operate.

It is clear from the nature of the invention herein disclosed that the machine hereinabove described is but a preferred embodiment of the present invention. The description is intended to illustrate and not to limit the invention, within the confines of the broad principles of the invention.

I claim:

1. In a device of the character described, a watertight casing of a size enabling it to be received into a household tub, means for detachably securing said casing to the bottom of said tub, a motor and a set of reduction gears carried in said casing, said reduction gears being operatively connected to said motor, and means opera-

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tively connected to said reduction gears to drive a household attachment of the character described, said means including at least one rotatable disc having an eccentrically disposed pin affixed thereto.

2. A device of the character described comprising a watertight casing adapted to fit into a household tub, suction cups affixed to the bottom of the casing for detachably securing said casing to the tub, a driving mechanism in said casing, said driving mechanism including an electric motor and a gear train connected thereto, a washing attachment mounted on the outside of the casing and disconnectable means connecting said washing attachment to the gear train of said driving mechanism whereby said motor is adapted to operate the washing attachment, inlet and outlet air ports at the top of said watertight casing, inlet and outlet ducts providing communication, respectively, between said inlet and outlet ports and said motor, and a fan connected to said motor positioned to draw air into the casing through the inlet port and duct into cooling contact with the motor, and to expel said air from said casing through the outlet port and duct.

3. A device of the character described comprising a watertight casing of a size and shape enabling it to be received into a household tub, means for detachably securing said casing to the bottom of the tub, an electric motor mounted in said casing at the bottom thereof, a train of speed reducing gears mounted in said casing above said motor, said gears being operatively connected to said motor, means converting the rotary movement of said gears to reciprocating movement, a frame pivotally mounted on top of said casing and operatively connected to said means for converting the rotary movement of the gears into reciprocating movement, whereby said frame is

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caused to engage in alternating clockwise and counter-clockwise movement relative to said casing, and a pair of paddles connected to said frame and extending downwardly adjacent the sides of said casing.

4. A device of the character described comprising a watertight casing of a size and shape enabling it to be received into a household tub, means for detachably securing said casing to said tub, an electric motor mounted in said casing at the bottom thereof, a train of speed reducing gears supported in said casing above said motor, said gears being operatively connected to said motor, a washing attachment mounted on the outside of said casing adjacent to the side of said casing, and disconnectable means operatively interconnecting said washing attachment with said gear train, whereby the motor is adapted to operate said washing attachment.

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