Feb. 2, 1943. P. W. DOUGLAS 2,309,940

DOMESTIC WASHING MACHINE

Filed June 23, 1938 4 Sheets-Sheet 1

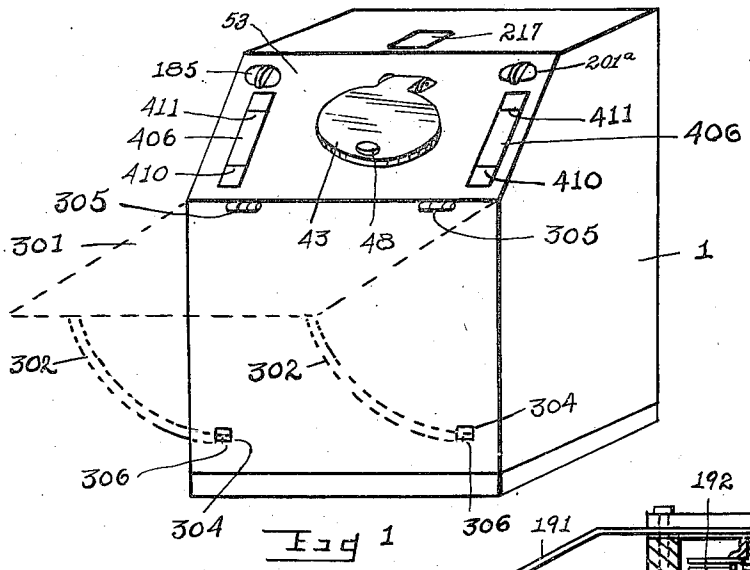


Fig 1

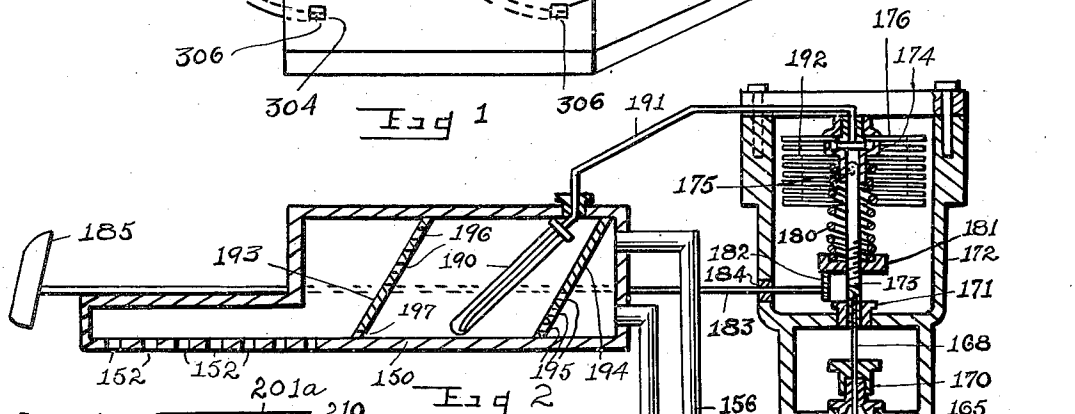


Fig 2

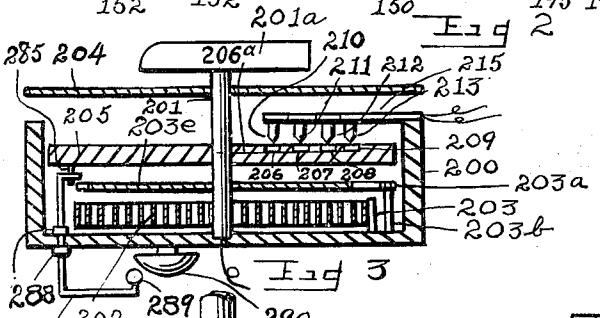


Fig 3

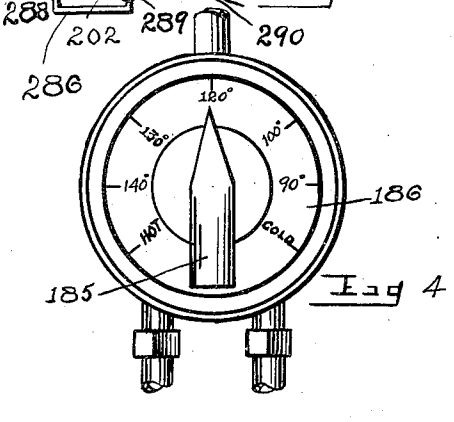


Fig 4

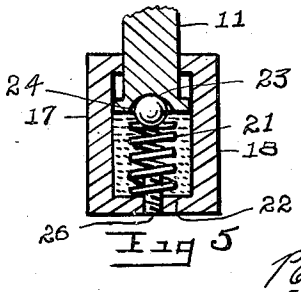


Fig 5

Inventor

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Feb. 2, 1943. P. W. DOUGLAS 2,309,940

DOMESTIC WASHING MACHINE

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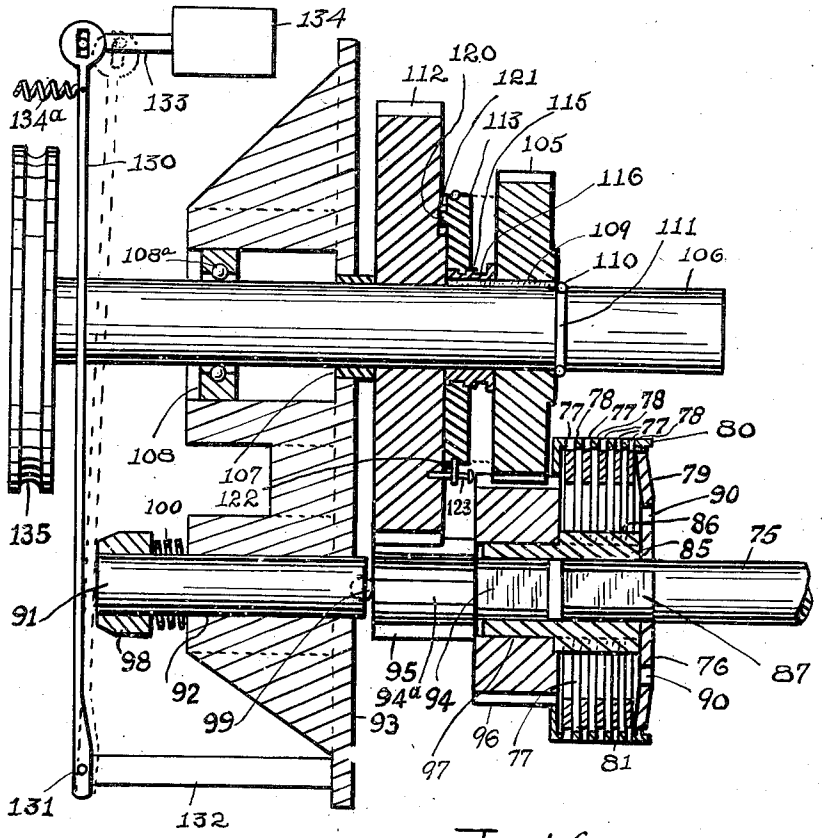


Fig 6

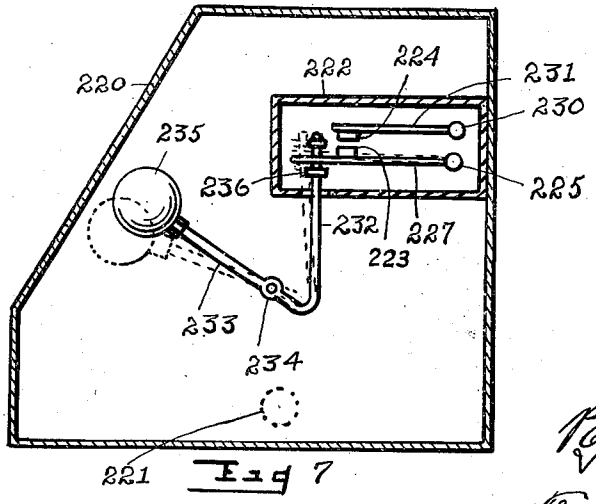


Fig 7

Inventor

Peyton W. Douglas

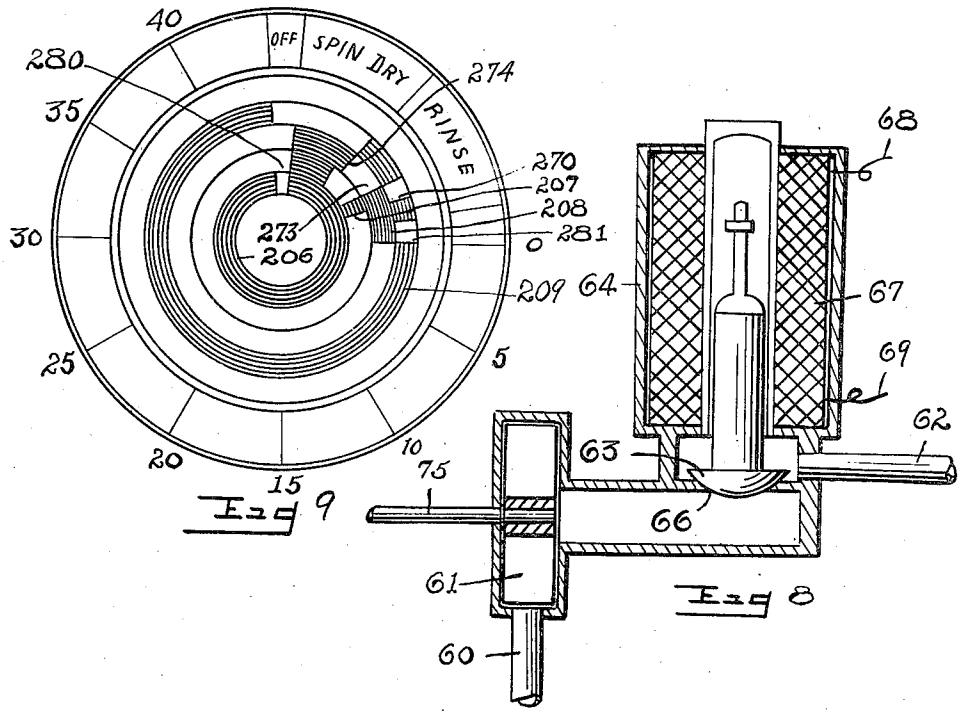
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Feb. 2, 1943. P. W. DOUGLAS 2,309,940

DOMESTIC WASHING MACHINE

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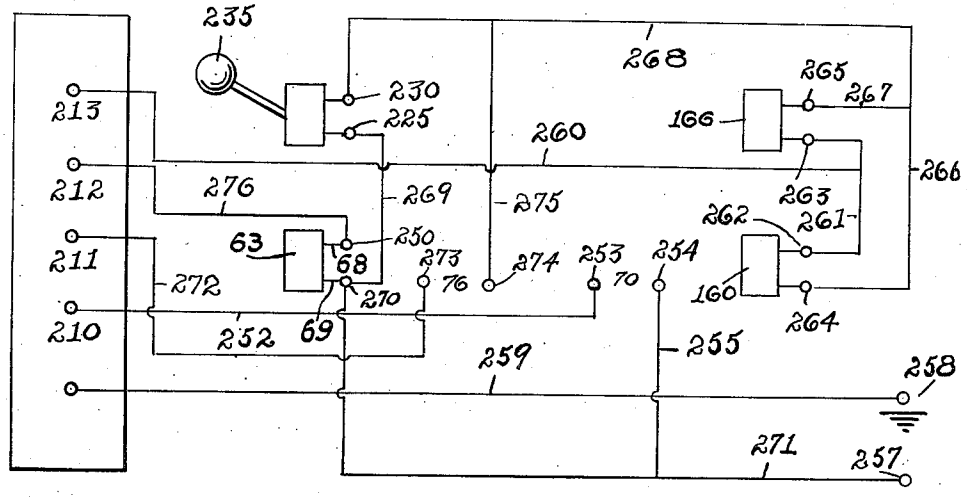


Fig 10

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DOMESTIC WASHING MACHINE

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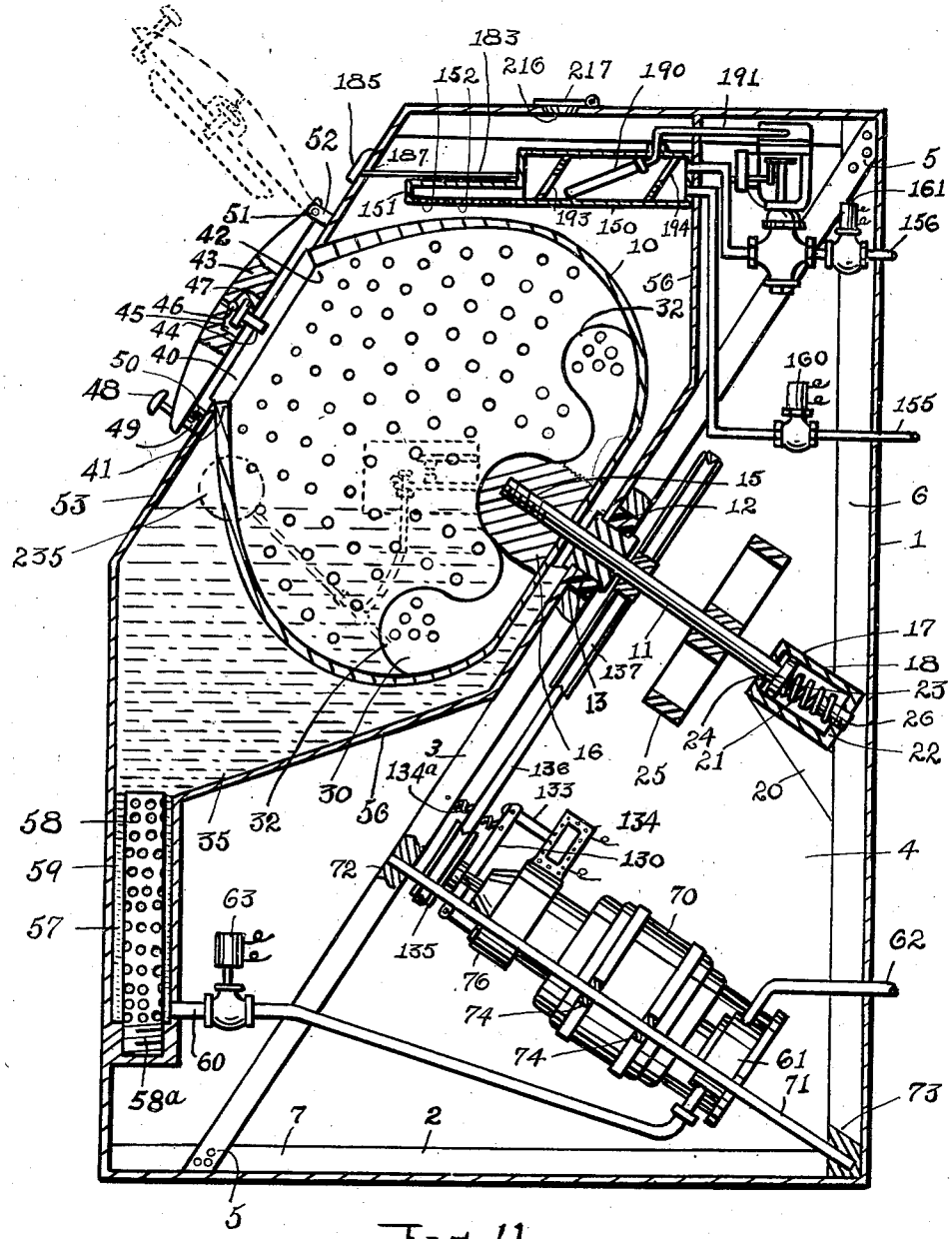


Fig 11

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Patented Feb. 2, 1943

2,309,940

UNITED STATES PATENT OFFICE

2,309,940

DOMESTIC WASHING MACHINE

Peyton W. Douglas, Utica, N. Y., assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., a corporation of Pennsylvania

Application June 23, 1938, Serial No. 215,361

2 Claims. (Cl. 68—24)

My invention relates to a domestic washing machine and I declare the following to be a full, clear, concise and exact description thereof sufficient to enable anyone skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout the specification.

The object of the invention is to provide a washing machine that can be placed in the kitchen, bathroom, basement or any other convenient location for the washing of soiled clothes. Furthermore, the machine is automatic in every respect. The operator simply puts into the machine a convenient amount of soiled clothes, closes the door, turns the timer control on one graduated dial to the number representing the minutes duration of the wash desired, on the other graduated dial the operator turns the dial to the temperature of water desired to wash the soiled clothes with. The operator then turns the timer graduated control which starts the machine through various cycles of washing, rinsing, drying and stopping of the machine.

In operation the machine will go through the cycle or process of automatically filling the tub with clean, warm or hot, water for washing, then draining the tub automatically and again opening the inlet valves and giving the clothes a spray-rinse, then spin-drying the clothes and again filling the tub with clean luke warm water giving the clothes an agitated rinse and emptying the tub and then spinning it for drying the clothes, damp dry, and at last stopping the machine, all automatically.

The object will be understood by referring to the drawings in which:

Fig. 1 is a perspective view of the washing machine.

Fig. 2 is a detail enlarged view showing certain temperature control means employed, parts being in section and parts in full.

Fig. 3 is a detail enlarged view showing a central section of a timing mechanism employed.

Fig. 4 is a detail enlarged view of a temperature dial employed.

Fig. 5 is a detail enlarged view showing a central section of plunger shaft and immediate parts employed.

Fig. 6 is a detail enlarged view showing parts in section and parts in full of the clutch mechanism employed.

Fig. 7 is a detail enlarged view, parts being in section and parts in full of a float valve employed.

Fig. 8 is a detail enlarged view showing a central section of a pump and solenoid valve employed, parts being in full.

Fig. 9 is a detail enlarged view showing a plane of a control switch employed.

Fig. 10 is a diagrammatic view of the wiring employed.

Fig. 11 is a central vertical section of the washing machine showing parts in full and parts in section.

Referring more particularly to the drawings the washing machine embodies a casing 1 having a frame work of angle iron corner pieces 2, 2 and a bar 3 disposed across the frame work at the middle of the chamber 4. Bar 3 is anchored or fastened at either end 5, 5 to suitable supporting angle irons 6 and 7 disposed across the center of the framework. They are fastened to the corner angle irons 2.

A metal perforated basket 10 somewhat pear shaped is circular in cross section and is mounted to turn with thrust shaft 11 which has a bearing at 12 formed on bar 3. Bearing 12 is held in bearing block 13 composed of rubber to aid in eliminating vibration. Said bearing block 13 and bearing 12 therein are mounted rigidly in an aperture in bar 3.

Shaft 11 is disposed at an angle to support basket 10 also at an angle as shown particularly in Fig. 11. The upper end of shaft 11 is screw threaded at 15 to the base part 16 of basket 10.

The lower end of shaft 11 is mounted to turn in thrust bearing 17, whereby to force said shaft 11 and basket 10 attached thereto normally upward. Moreover, thrust bearing 17 has a casing 18 secured in a recess in vertical bar 6. A bracket 20 also aids in supporting casing 18.

Within casing 18 is a coiled spring 21 that bears at one end against the lower surface 22 of casing 18 and is held in place by screw plug 26 and at its upper end against ball 23. Ball 23 rests within a corresponding open socket 24 in the lower end of shaft 11 as shown in Figs. 5 and 11. The compression of spring 21 will force shaft 11 and basket 10 normally upward as well as to yieldingly support a portion of the weight of said basket. A counterweight fly wheel 25 is fixed to turn with shaft 11 and is intended to balance the weight of the metal basket 10.

An agitator 30 is formed integral with the base 16 of basket 10. It has upstanding paddles 32 formed integral with the other parts of agitator 30. The upper surface of agitator 30 is curved upwards to aid in forming said paddles 32. These curving sides serve in agitating the water in tank

35 and furthermore prevent the paddles 32 from whipping the water.

The means for further preventing the basket 10 from vibrating and for holding it in correct position embodies an annular cover 40 which has a beveled edge 41 adapted to fit into the corresponding enlarged beveled edge adjacent the opening 42 of basket 10 and turns with said basket 10. Cover 40 is fastened to false or auxiliary cover 43 by a short headed shaft 44 which has a tight fit in cover 40 and a loose fit in bearing 45 mounted in auxiliary cover 43. An anti-friction ball 46 is disposed in bearing 45, whereby to aid in the rotation of the headed part 47 of shaft 44.

The means for locking cover 40 and auxiliary cover 43 in closed position embodies handle 48 that is mounted to turn in auxiliary cover 43. It has a lug 49 that engages a cooperating lug 50 fastened rigidly to casing 1.

Said auxiliary cover 43 is pivoted to casing 1 by means of trunnions 51, 51, having bearings in upstanding bearing brackets 52, 52. Part 53 of casing 1 in which cover 40 is located is disposed at an angle, whereby to allow the user to drop the clothes into the basket 10 without stooping over to do so. Also the operator can stop the machine and put in an extra amount of soiled clothes or take out any amount desired without letting water run out onto the floor.

Basket 10 is located in a water tight chamber 35 formed by the partition wall 56 that narrows down to an annular depending drain part 57. A removable perforated cylindrical open ended trap member 58 is disposed in part 57. Its sides are perforated, whereby to form a screen or filter to trap any foreign matters such as tooth picks and matches. The lower part of member 58 has screw threads 58a formed on the exterior surface which cooperate with the threads in the lower part of partition wall 56, whereby to hold trap member 58 in assembled position. There is sufficient room between the adjacent surfaces of trap 58 and wall 59 to allow water to pass but not pins or tooth picks which will lodge in trap 58. Trap 58 can be removed, whereby to empty said pins and tooth picks or other foreign matter. The annular wall of basket 10 is spaced from the surrounding stationary wall, whereby to leave an interrupting intervening pasageway for the free circulation of water.

A drain pipe 60 is connected at one end with the lower end of part 57 of wall 56 and at the other with pump 61. A second pipe 62 is connected at one end with pump 61 opposite the entrance of pipe 60 and leads outside of casing 1 to some source of drainage. A solenoid operated valve 63 is located in drainage pipe 60, whereby to allow the tank 35 to drain synchronously with the other processes performed by the washing machine as hereinafter described.

Solenoid operated valve 63 embodies a casing 64 in which is located said valve 63. Casing 64 is connected to drain pipe 60. It has a valve seat 66. The vertical movement of valve 63, whereby to open and close the same is controlled by electric solenoid coil 67 connected by wires 68 and 69 with the electric wiring system, hereinafter described.

Valve 63 will be elevated to allow for the drainage and when the solenoid 67 is demagnetized it will allow valve 63 to fall by gravity to close the drainage.

The means for actuating pump 61 contemplates a one-fourth or other suitable horse power electric motor 70. Motor 70 is supported by a rod 71 having a rigid bearing at its upper end in bushing 72 mounted to frame bar 3, and at its lower end in bearing 73 mounted to bar 6. Clamping members 74, 74 are used to hold said motor 70 to rod 71.

Motor 70 is used also to rotate basket 10. To this end master shaft 75 which extends at one end into pump 61 extends at the other end into clutch member 76. Clutch member 76 embodies a series of light discs 77 and 78 which are disposed alternately with each other. Said discs 77, 78 and end member 79 are housed in casing 80. Discs 77 are provided with extensions which project into suitable apertures 81 in casing 80, whereas the center part is cut away, whereby said discs 77 will turn with casing 80 but not with master shaft 75 except as hereinafter explained. On the other hand discs 78 have central apertures with notches therein that fit over the sleeve member 85. Sleeve member 85 is mounted on master shaft 75 and is equipped with keys 86 formed integral therewith which fit into the notches in said discs 78, whereby said discs 78 will rotate with sleeve member 85. As stated above discs 77 turn with casing 80 and discs 78 with sleeve member 85.

Sleeve member 85 is caused to rotate with master shaft 75. For this reason the contiguous end of shaft 75 is flattened on opposite sides as 87, 87 and fits into the corresponding matrix of sleeve member 85. End member 79 also has a corresponding recess through which the flattened part of shaft 75 projects, whereby to cause said end member 79 to rotate with shaft 75. Apertures 90 are made in end member 79 to provide an oil inlet.

Furthermore, the means for pushing discs 77 and 78 together into frictional contact with each other, whereby they will turn as a unit embodies plunger member 91 which has a sliding fit in bearing 92 of frame 93. Its opposite end has embedded therein an anti-friction ball 99 which bears against the end of gear 95. Gear 95 is mounted to turn with the extended part 94a of shaft 94. Shaft 94 has flattened opposite sides similar to the sides 87, 87 of shaft 75, and rests in and rotates with sleeve 85. Gear 95 has one end resting against spur gear 96 mounted to turn freely on reduced part 97 of sleeve 85. Moreover gear 96 is firmly fixed to casing 80, whereby said casing 80 will rotate therewith. A head 98 is rigidly fixed to the free end of plunger 91. A coiled spring 100 is disposed between head 98 and the end of bearing 92, whereby to force plunger 91 normally out to the left as shown in Fig. 6 and thereby disengage discs 77 and 78. A push upon the free end of plunger 91 will move gear 96 and casing 80 to the right, as shown in Fig. 6, and against the end member 79 mounted on that portion of master shaft 75 having the flattened sides 87, 87. Said member 79 will resist said push and thereby force said discs 77 and 78 into frictional engagement, whereby they will turn together to cause gear 96 to turn with master shaft 75.

Gear 96 is in mesh with spur gear 105 which is mounted to turn with auxiliary shaft 106. Shaft 106 is carried in bearings 107 and in 108 having antifriction balls 108a mounted in casing 93. A key 109 formed integral with shaft 106 causes said gear 105 to turn with shaft 106. A spring 110 engaging an annular recess 111 in shaft 106 holds said gear 105 from moving longitudinally to the right as shown in Fig. 6.

A spur gear 112 is mounted to turn idly upon auxiliary shaft 106. A locking disc 113 is disposed between spur gear 112 and gear 105, where-

by to cause said gear 112 to rotate with shaft 106 under certain circumstances now to be explained.

Locking disc 113 has a threaded central aperture that engages the complementary threads 115 formed on sleeve 116 which is keyed at 109 to turn with auxiliary shaft 106. A tooth 120 is formed integral with the lateral surface of locking disc 113 and engages an elongated recess 121 made in the lateral adjacent side of gear 112, whereby said gear 112 and locking disc 113 will turn together when said locking disc is in contact with gear 112. Moreover, locking disc 113 is held yieldingly against gear 112 by a wire 122 engaging an annular peripheral groove formed in disc 113 and is looped at one end about screw 123 mounted in the side of gear 112.

When power shaft 75 is working through gears 96 and 105 rather than gears 95 and 112 it will speed up the rotation of auxiliary shaft 106. This increase in velocity of auxiliary shaft 106 will cause said locking disc 113 to move laterally away from said gear 112 to the right as shown in dotted lines in Fig. 6. In this instance locking disc 113 will turn on the threads 115 of sleeve 116 away from gear 112. Tooth 120 of locking disc 113 will clear recess 121 in gear 112 and simultaneously with the lateral movement of locking disc 113 to the right in Fig. 6, gear 96 will turn with reduced part 97 of sleeve 85 and power shaft 75. Inasmuch as said gear 96 is in mesh with gear 105, said auxiliary shaft 106 will rotate faster when the power of the motor works through gears 96 and 105 than when it works through gears 95 and 112 because of the difference in ratio between said sets of gears. When gear 112 idles on auxiliary shaft 106, gear 96 is connected to turn with power shaft 75 and through gear 105 will rotate said auxiliary shaft 106. When gear 96 idles, gear 112 is connected to turn with power shaft 75 and through gear 95 and locking disc 113, it will rotate said auxiliary shaft 106.

The means for pushing plunger 91 longitudinally or to the right in Fig. 6 embodies rod 130 pivoted at its lower end 131 to bracket or support 132 and at its upper end to solenoid plunger 133 which is actuated by solenoid 134 similar to the one for actuating the valves, hereinafter described. Plunger 133 is actuated to the left in Fig. 6 by coiled spring 134—*a* fastened at one end to the upper end of rod 130 and at the other to bar 3.

A grooved pulley 135 is mounted to turn with auxiliary shaft 106. A belt 136 connects pulley 135 with grooved pulley 137 carried to turn with plunger or thrust shaft 11.

The means for filling water tight chamber 35 with water embodies a casing 150 fastened rigidly to the inside surface of partition wall 56. The forward portion 151 is reduced in size and is equipped with apertures 152, whereby to allow the water to fall into tank 35. A pipe 155 emptying into casing 150 and connected with some source of cold water supply furnishes water to casing 150. Another pipe 156 also emptying into casing 150 and connected to some source of hot water supply furnishes hot water to casing 150.

The means for automatically regulating the flow of cold water through cold water pipe 155 contemplates a solenoid actuated valve 160 as hereinabove more particularly described. Said valve 160 is joined to pipe 155, whereby the water will pass through said valve 160. Likewise, solenoid 161, is joined to hot water pipe 156, whereby to control the passage of water therethrough automatically.

The means for automatically governing the temperature of the hot water supply embodies a "Sylphon" temperature regulator having a valve 165 seated at 166 in casing 167 which is joined to hot water supply pipe 156 for the passage of hot water therethrough. Valve 165 is connected to rod 168 that passes up through glands 170, 171 mounted in frame 172. Its upper end is screw threaded to depending shaft 173. A cup shaped member 174 is fixed by a rivet or bolt 175 to the upper end of shaft 173. Cup shaped member 174 rests against the under surface of plate 176.

A coiled spring 180 disposed between member 174 and adjustable plate 181 forces valve 165 normally downward towards its seat 166. Plate 181 is screw threaded to shaft 173, whereby to allow for vertical movement of said plate 181 and the resultant adjustment of coiled spring 180.

The means for holding valve 165 temporary in adjusted position embodies a cam 182 fixed to turn with shaft 183 which has a bearing at 184 in frame 172 and at 187 in part 53 of casing 1. A handle 185 is fixed to the outer end of shaft 183, whereby to turn cam 182 for adjusting the position of valve 165 relative to its seat 166. A graduated dial plate 186 showing the degrees from 90 to 140 and the words "cold" and "hot" is displayed on plate 186, whereby to aid the operator when turning handle 185 to the degree of hot water desired.

The means for automatically regulating valve 165 relative to its valve seat 166 embodies a thermostat bulb 190 disposed in casing 150. Bulb 190 contains a thermo-sensitive liquid which gives off a vapor, thereby generating a pressure in bulb 190 relative to the temperature to which it is exposed. A flexible conduit 191 leads from bulb 190 to the bellows or motor element 192 and transmits the pressure generated in the bulb 190 to bellows 192.

Bulb 190 will come in contact with the water entering casing 150, whereby to respond to any variation in temperature thereof. Baffle plates 193, 194 are disposed in casing 150 at an angle to shield said bulb 190. Baffle 194 has apertures 195 therethrough at its lower end and baffle 193 at its upper end as at 196 and one aperture at 197 adjacent the lower surface of casing 150.

A rise in the temperature of the water will effect the bellows 192, whereby valve 165 will move towards closing position or the position limited by cam 182 and vice versa. A fall in the temperature of the water will effect the bellows 192, whereby valve 165 will open and let in more hot water.

The means for automatically timing the duration of the several operations of washing, rinsing and drying embodies the usual clock mechanism comprising a casing 200 supporting a shaft 201. A clock spring 202 engages shaft 201 at one end and an upstanding stud 233 fixed to the adjacent base part of casing 200 at the other end. An escapement member 203—*a* is pivoted to post 203—*b* upstanding from base part of casing 200 and engaging ratchet 203—*c* mounted to turn with shaft 201 having a handle 201—*a*.

An escutcheon plate 204 is fastened to part 53 of casing 1. Therebeneath a master dial contact plate 205 made of Bakelite or other insulating material is mounted to turn with shaft 201. Electric contacts 206, 207, 208 and 209 are embedded in the top surface of dial plate 205. Contacts 206, 207, 208 and 209 are connected by

a common wire 206a to shaft 201. Wire 206a is imbedded in dial plate 205. Corresponding contact points 210, 211, 212 and 213 are disposed above contacts 206, 207, 208 and 209 and are mounted on the free ends of spring clips 215. The opposite ends of these spring clips 215 are fastened to the top edge of casing 200 which is of a non-conductive material such as Bakelite.

The innermost contact 206 is used for operating the motor 70; contact 207 for operating the clutch 76; contact 208 for operating the drain-out valve 60; and contact 209 for operating the let-in valves 160 and 161.

A soap inlet 216 is made in the top of the casing 1. It is closed normally by hinged cover 217.

The means for controlling the drainage of water in tank 35 contemplates a separate auxiliary casing 220 secured in a water tight manner to the side of tank 35 and provided with an inlet 221 from said tank 35.

A casing 222 is fastened to the inside of casing 220 above the water line for housing the electric contact switches 223 and 224. Switch 223 is connected at 225 to an electric wire hereinafter explained. The contact point is mounted on a spring member 227, whereas contact 224 is connected at 230 to an electric wire hereinafter explained. Its contact point 224 is disposed just above contact point 223. It is mounted on a spring member 231. Rod 233 is pivoted at 234 to casing 220. A float 235 is screw mounted to the end of said rod 233. When the water is emptied from tank 35, float 235 will be down in dotted line position illustrated in Fig. 7, whereby the lug 236 fastened to arm 232 will make contact with the underside of spring 227 and force it upward into dotted line position illustrated in Fig. 7. In this latter position of spring 227, electrical contact point 223 will be in electrical contact with point 224, whereby to close an electric circuit through solenoids 160 and 161 to open the water inlet valves.

The electric circuits shown diagrammatically in Fig. 10 are as follows: the electric circuit to motor 70 for rotating the basket 10 at a slow or washing speed starts at contact point 210 to spring clip arm 215, see Fig. 3, to wire 252 to motor terminal 253 to opposite terminal 254 to wire 255 to wire 271 to terminal 257 of the 110 volt house circuit to opposite side of 110 volt house circuit to ground 258 to wire 259 to shaft 201, see Fig. 3, wire 206a to contact 206 to contact 210 or starting point.

The electric circuit to solenoids 160 and 161 which operate the water inlet valves simultaneously with the starting of motor 70 starts at 213 to spring clip arm 215, see Fig. 3, to wire 260 to wire 261 to the terminals 262, 263 respectively of solenoids 160 and 161 through said solenoids to terminals 264 and 265 respectively of said solenoids 160 and 161 to wires 266, 267 to wire 268 to terminal 230 of the float valve, see Figs. 7 and 11, through contacts 224 and 223, see Fig. 7, to terminal 225 to wire 269 to terminal 270 to wire 271 to terminal 257 through the 110 volt house circuit to ground 258 and back through wire 259 to post 201 to wire 206a to contact 209 to contact 213 or the starting point for the inlet solenoid water valves 161 and 160.

The clutch circuit for speeding up the rotation of the basket 10 for drying purposes starts at contact point 211 to spring clip arm 215, see Fig. 3, to wire 272 to clutch terminal 273 to opposite terminal 274 to wire 275 to wire 268 to float valve terminal 230, see Figs. 7 and 10, to terminal 225 to wire 269 to terminal 270 to wire 271 to terminal 257 of the 110 volt house circuit to ground 258 and back through wire 259 to post 201 to wire 206a to contact 207 to contact 211 or the starting point for the high speed cycle for drying.

The electric circuit to the drain valve solenoid 63 starts at 212 to spring clip arm 215, see Fig. 3, to wire 276 through terminals 250 and 270 of solenoid 63 to wire 271 to terminal 257 through the 110 volt house circuit to ground 258 to wire 259 to contact 209 to wire 206a to contact 208 to contact 212 or starting point for draining.

The operation of the device is effected by first setting the handle 185 to the temperature of water desired for the particular wash and then opening door 43, whereby the soiled clothes can be dropped into basket 10 without bending over to do so. After closing door 43 and locking it shut by turning handle 48 the operator will then turn control handle 201a of shaft 201 to the time desired for the wash. Assuming it is turned to 10 on dial or escutcheon plate 204 which means that the machine will wash for 10 minutes. It will take however approximately ten minutes to complete the additional processes of rinsing and drying. The machine will go through the following cycles automatically. Contact point 210 will be in electric connection with segmental contact 206 which will electrify the circuit through motor 70 to start the said motor going. The motor 70 will continue to run until it reaches the break in the contact 206 at 280.

Simultaneously with the running of the motor 70, contact 213 will be in electric connection with segmental contact 209, whereby to close the electric circuits above mentioned for controlling the solenoids 160 and 161 which will open the water inlet valves to allow the water to enter tank 35. The incoming water will continue to flow into tank 35 until float ball 235 raises with the water to a fixed position and then float ball 235 will break contacts 223 and 224, see Fig. 7, and thereby break the electric circuit through solenoids 160 and 161 thereby shutting off the flow of incoming water. As soon as the incoming water supply is shut off the operator then puts in enough soap through opening 216 to cause a suds reaction. The machine will now wash the soiled clothes at a slow rate of speed for the duration of ten minutes as wanted by the operator.

When the dial plate 205 has turned anti-clockwise for ten minutes to position 281, contact 212 will come in electric connection with segmental contact 208, whereby to open drain valve 63, see Fig. 8 to drain the dirty soapy wash water out by gravity and with the aid of pump 61 through drain outlet pipes 60 and 62 to some outside source. As the water level lowers in tank 220, see Fig. 7, the float ball 235 will lower also and when the water has been drained out of tank 35 and also float chamber 220 the float will cause lug 236 on arm 227 to push together contacts 223 and 224 thereby electrifying the solenoids 160 and 161 of the inlet water valves. Simultaneously therewith contact 213, see Figs 3 and 9, will contact segmental contact 209 to open the inlet water supply through solenoids 160 and 161 controlling said inlet valves; thereby giving the clothes in basket 10 a spray rinsing. This spray rinsing continues until contact 213 breaks with contact 209 at point 270 and at that same point contact 211 comes in contact with segmental contact 207 electrifying the clutch solenoid 134, see

Figs. 9 and 11, and thereby transfer the power of master shaft 75 from gears 95, 112 to 96 and 105 to rotate basket 10 at a higher speed for drying purposes. This higher speed will continue until contact 211 breaks with contact 207 at location 273. From location 281 to 273 on the dial plate 205 the drain solenoid 63 has been open to let the rinse and drying water out through pipes 60 and 62 by aid of pump 61.

When the dial plate 205 has turned to position 273 contact 213 will come into contact with segmental contact 209 to electrify the solenoids 160 and 161 of the inlet water valves to allow the rinse water to enter tank 35, which will stay in tank 35 for about four minutes whereby to give the clothes an agitated rinse. This incoming rinse water will be shut off at the proper time by float ball 235 raising to such a position on the water level to break contacts 223 and 224 thereby breaking the electric circuit to solenoids 160 and 161 of the inlet water valves which then will be closed.

When the master contact dial 205 has turned to position 274 contact 212 will come into contact with segmental contact 208 and thereby electrify the drain solenoid 63 controlling drain valve 66 which will open and let the rinse water out. As soon as the rinse water has drained the float ball 235 will be lowered and thereby press together contacts 223 and 224, whereby to close the electric circuit to the clutch 76. This will electrify the clutch solenoid 134, whereby to start the machine into a drying spin of much faster speed, as heretofore mentioned, to give the clothes a final drying. This operation will continue until dial plate 205 reaches the position 280 where all contacts are broken and the entire operation has come to an end. At this instant pin 285 extending laterally from dial plate 205, see Fig. 3, will strike rod 286 pivotally mounted to casing 200 to sound the alarm. Rod 286 is held from sliding in casing 200 by bosses 288, 288. When rod 286 is struck by pin 285 it will turn and thereby cause hammer 289 on the free end thereof to strike bell 290 fastened to casing 200, whereby to sound the aforesaid alarm.

The operator now opens door 43 and lays the clean clothes on table leaf 301 which has been raised in the meantime to a horizontal position thereby preventing any of the clothes from dropping on the floor. Table leaf 301 is connected to cabinet 1 with small hinges 305 and 305 and supported by slide braces 302 and 302 which project through opening in cabinet 1 at point 304 and 304. Open notches 306 formed in the under side of braces 302, 302 will engage the contiguous edge of cabinet 1 to hold said braces 302 in extended position.

On panel 53 of casing 1 are two inspection glass covered openings 406 to make visible the interior of tub 35. These two openings are covered with pyrex glass and fitted, whereby not to leak. Line 410 is to advise the operator that there is a low soap level in basket 10 and line 411 is to advise the operator that there is sufficient soad suds in the machine. These two glass windows will allow the operator to watch the operation of the water action during the washing process.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is as follows:

1. In a washing machine, a casing for holding water, a cover on said casing, a basket disposed within said casing, a cover mounted on said basket and swiveled to the cover on said casing, a shaft yielding axially for supporting said basket, means for biasing said basket in the direction of the cover and means for rotating said basket at a relatively low speed for washing and at a relatively high speed for drying.

2. In a washing machine, a casing for holding water, a cover on said casing, a basket disposed within said casing, a cover for said basket and swiveled to the cover on said casing, a shaft having its axis inclined at a substantial angle between the vertical and horizontal, said shaft yielding axially and attached to and supporting said basket, said cover being normal to said axis when said covers are in closed position, means for yieldingly biasing said basket upwardly towards said covers, said means acting to yieldingly support a portion of the weight of said basket and means for rotating said basket at a relatively low speed for washing and at a relatively high speed for drying.

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