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2,855,798

WASHING MACHINE CENTRALIZED CONTROL ARRANGEMENT

Filed Nov. 20, 1953

2 Sheets-Sheet 1

FIG. 1.

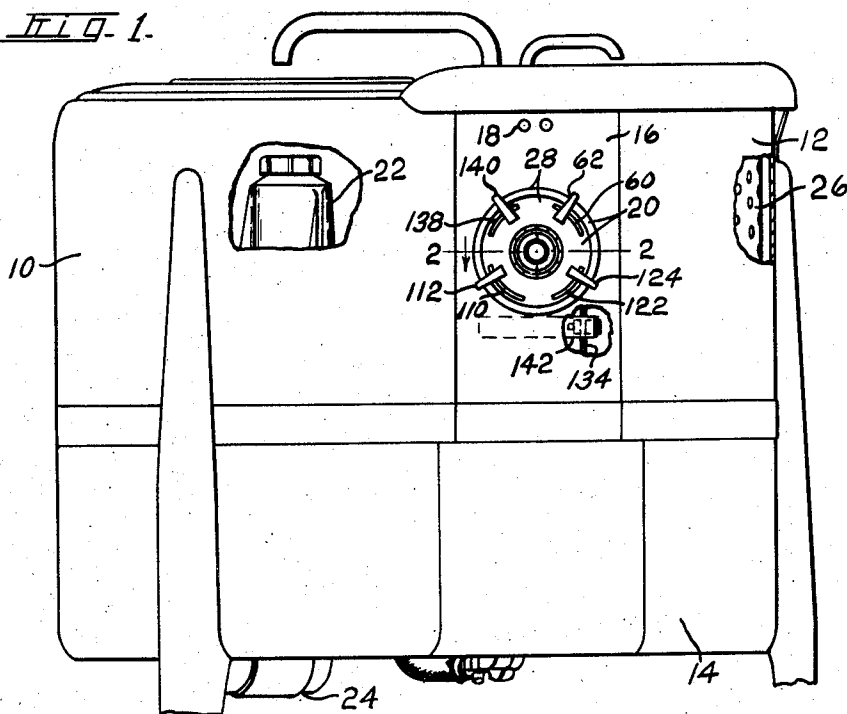
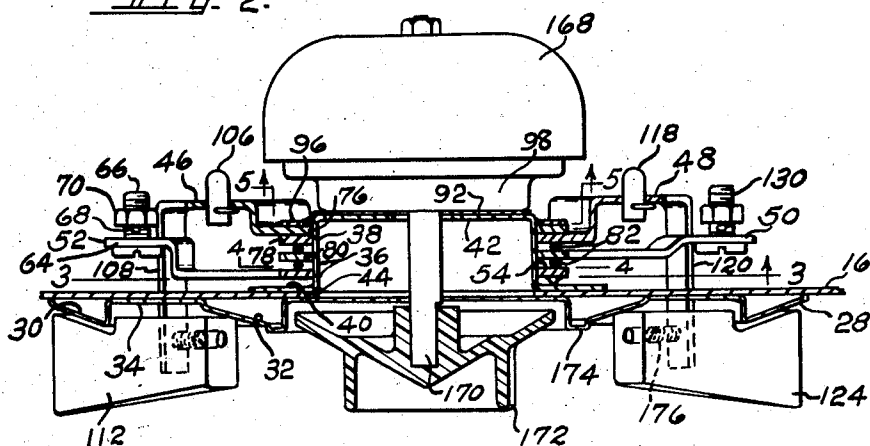


FIG. 2.



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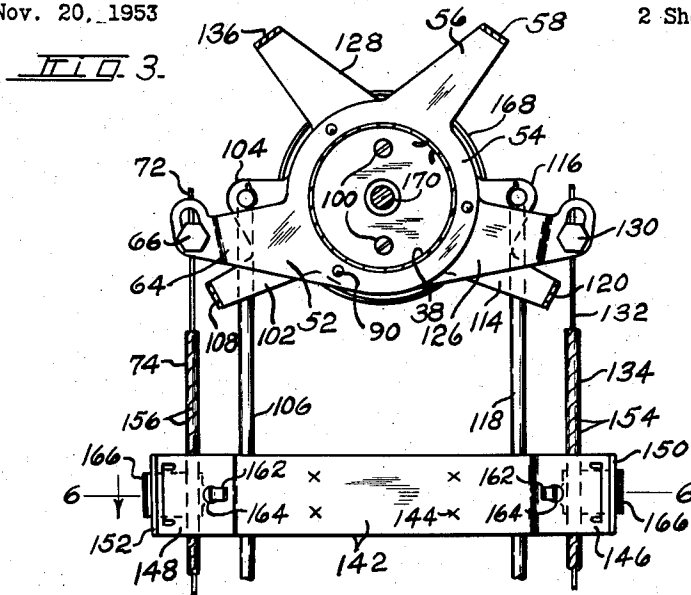
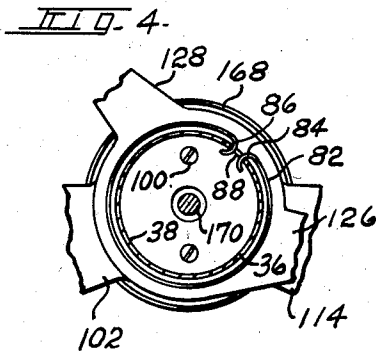
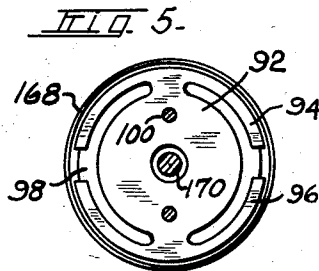
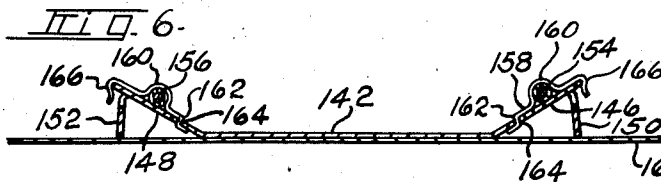
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WASHING MACHINE CENTRALIZED CONTROL ARRANGEMENT

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Application November 20, 1953, Serial No. 393,397

2 Claims. (Cl. 74—491)

This invention relates to washing machines, and more particularly to centralized controls therefor.

In washing machines, there are generally provided various valves and power clutches, manually actuated for controlling the various operations of the machine. In an application Serial No. 247,869, filed September 22, 1951, now Patent No. 2,669,932 issued February 23, 1954, for example, there are disclosed drain valves which are manually controlled, according to whether the wash tub or the centrifugal extractor tub are to retain or be drained of water contained therein. In an application Serial No. 353,465, filed May 7, 1953, there are disclosed power-actuated clutches which are manually controlled, one of such clutches controlling the operation of the agitator in the wash tub, and the other the rotation of the centrifugal extractor located in the centrifugal extractor tub.

The present invention is directed to centralized controls adapted to be located conveniently on a panel of the washer, such controls being concentrically disposed with respect to one another for ease of operation. The invention further has to do with the arrangement and construction of such controls so as to provide a unit which may be economically produced and afford convenient manipulation.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein like reference characters indicate like parts:

Figure 1 is a side elevation of a washing machine, with parts broken away, showing the control unit applied thereto;

Figure 2 is a substantially full size transverse sectional view taken through the control unit, substantially on the line 2—2 of Figure 1;

Figure 3 is a sectional view taken transverse of the axis of the control unit substantially on the line 3—3 of Figure 2;

Figure 4 is a fragmentary sectional view taken substantially on the line 4—4 of Figure 2;

Figure 5 is a sectional view taken substantially on the broken line 5—5 of Figure 2; and

Figure 6 is a transverse sectional view through the conduit and cable clamps taken substantially on the line 6—6 of Figure 3.

Referring to Figure 1, there is shown a two-tub washer of the centrifugal extractor type having a wash tub 10, and an extractor tub 12, both of which tubs are circular and supported adjacent one another above the skirt structure 14. Bridging the gap between the tubs 10 and 12 is a control panel 16, having thereon a start and stop switch 18 and a centralized control unit 20 referred to more in detail hereinafter. Within the tub 10 is an oscil-

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latory agitator 22, which is driven by a motor 24 and transmission (not shown), the transmission having therein a clutch, so that the oscillatory motion of the agitator may be started and stopped at will. Within the tub 12 is a perforate centrifugal extractor basket 26, which is adapted to rotate on a vertical axis at high speed, such extractor basket being driven by the transmission, not shown, and the motor 24 through a clutch and brake arrangement, such clutch and brake also being adapted to be manually controlled to stop and start the rotation of the basket 26.

The general construction of the transmission and clutches for driving the parts referred to may be as shown in Scheele Patent No. 2,627,175, issued February 3, 1953, and the parts thereof may be modified in accordance with the disclosures in the aforementioned pending applications, particularly as respects the control of the clutches and the actuation of the tub drain valves.

In Figure 2, there is shown the panel 16 on the forward face of which is a circular stationary disk 28, such disk having beveled annuli 30 and 32, integrally formed therein, there being provided a flat annular space 34 between the bevel annuli. To the rear of the panel 16 is mounted an annular hat-shaped section stamping 36 having a cylindrical wall 38 and an annular flange 40, as well as a disk end portion 42. The flange 40 may be secured to the panel 16 by any suitable means, as by one or more welds such as 44, and the disk 28 may be rigidly secured to the forward face of the panel 16 by the bridging effect of the welds 44 or by other means.

The cylindrical portion 38 of the hat-shaped member 36 has journaled thereon a plurality of control levers such as 46, 48, 50 and 52, each of such levers having an annular ring portion such as 54 shown in conjunction with lever 52 in Figure 3. The lever 52 has a radial arm 56 having a forwardly projecting lug 58 adapted to project through arcuately aligned slots 60 in the disk 28 and the panel 16. Such lug 58 extends forward of the disk 28 and has fitted thereon a manual button 62 by which the lever 52 may be rotated within the limits of the slot 60. The annular ring portion 54 has projecting radially therefrom an arm 64 to which is secured a threaded stud 66, such stud having a transverse bore 68 and lock nut 70 to provide a grip for the flexible cable 72 of a cable and conduit control linkage 74.

The levers 46, 48 and 50 have similar annular rings 76, 78, and 80, respectively, the rings 76 and 78 being adjacent one another, whereas the rings 78, 80 and 54 are spaced from one another by stationary spring C-shaped spacer wires, such as 82, each of such wires having inwardly hooked ends 84 and 86, adapted to project through a slot 88 in the cylindrical portion 38 of the member 36. The ring 54 is provided with a plurality of forwardly formed blisters 90 adapted to bear against the flange 40 of the member 36 to space the lever 52 suitably therefrom. The annular rings 54, 76, 78, and 80 of the levers are held in position upon the cylindrical portion 38 by a cap-like member 92 mounted on the central circular section 42 of the member 36, such cap-like member being provided with resilient spring fingers such as 94 and 96, adapted to bear against the ring 76. The cap-like member 92 is secured in position upon the disk portion 42 of the member 36 by being clamped between the member and the bell housing 98, screws 100 being utilized for this purpose.

The lever 46 has projecting from the ring 76 thereof a radial arm 102 having a lobe 104 adapted to receive a control rod 106, the arm 102 having at its end a forward extending lug 108 extending through slots 110 in the disk 28 and panel 16, such lug having a manual knob 112 mounted on the forward end thereof.

The ring portion 78 of the lever 48 is provided with a

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radial arm 114 having a lobe 116 to which is connected a control rod 118, the arm 114 having a forwardly extending lug 120 projecting through the arcuate slots 122 in the disk 28 and panel 16, the forward end of such lug having a manual control knob 124.

The lever 50 has extending from the ring 80 thereof opposed radial arms 126 and 128, the arm 126 having a threaded stud 130, such stud being adapted to receive the flexible cable 132 of a conduit and cable control linkage 134, whereas the arm 128 at its extremity has a forward extending lug 136 projecting through the arcuate slots 138 in the disk 28 and panel 16, the forward end of such lug having a manual control knob 140.

To the rear of the panel 16 and beneath the unit is mounted a transverse bracket 142, the same being spot welded to the panel as at 144. Such bracket is provided with inclined ends or seats 146 and 148 with supporting feet 150 and 152, against which the conduits 154 and 156 of the cable and conduit linkages 134 and 74 are clamped by spring clamp members such as 158. Each of the spring clamp members has a close fitting loop portion 160 adapted to snugly grip their respective conduits 154 or 156, so as to resist lengthwise movement of the conduit, and such spring clamp members are provided with an offset lug 162 at one end, adapted to be inserted through a slot 164 in the inclined conduit seat 146, the clip having at its other end a deformed end 166 so constructed and shaped as to snap over the end of the seat 146. The clip thus provides a quick and ready means for mounting and positively securing each of the conduits of the cable and conduit linkages.

The well casing 98 is provided with a warning bell 168 adapted to be actuated by a timer mechanism (not shown) within the casing 98. The casing has projecting therefrom a manually rotated shaft 170 which projects through the member 36 and the disk 28, such shaft 170 being concentric with the disk 28. On the forward end of such shaft is a control knob 172 which is adapted to cooperate with time interval indicia carried on the knob or on the annular shoulder 174 of the disk 28, as may be desired. It will be understood in the art that the bell mechanism may be a clockwork escapement which may be wound by rotation of the knob 172 to different degrees by proportional rotation of the knob, so that upon winding the escapement a desired amount, a warning will ensue a definite period thereafter.

Each of the control knobs 62, 112, 124 and 140 is suitably shaped so as to nicely cooperate with the annular bevel 30 of the disk 28, and the disk 28 may be suitably inscribed to indicate the apparatus controlled by the various controls and to indicate as, for example, with a valve, the open and closed position, or with respect to the clutch controls, the on and off position. Each of the knobs is clamped to its respective forward extending lug by set screws such as 176.

It will be seen that the annular ring portions 78, 80 and 54 are spaced apart by the resilient C-rings 82, the C-rings being anchored against rotation, and preventing the rotation of one of the levers being transmitted to an adjacent lever. A similar C-ring might be positioned between the rings 78 and 76, if desired, but the apparatus to be actuated by the levers of such rings is such as to provide over-center stop positions capable of sufficiently resisting movement which might be transmitted thereto by the adjacent ring. In practice, the control knobs 62 and 140 may be utilized to actuate one or the other of the clutches of the type shown in application Serial No. 353,465, whereas the controls 112 and 124 may actuate the valves shown in Patent No. 2,669,932. It will be seen that the control unit essentially comprises a small number of parts, readily assembled, and adapted to form a convenient control unit of pleasing appearance.

While a single embodiment of the invention has been

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illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. A laundry appliance control unit comprising a panel, a hat-shaped member having a cylindrical bearing portion and mounting flange, said flange being mounted on the rear of said panel with the axis of the cylindrical portion normal to the panel, and a plurality of stampings formed as control levers, each having annular bearing rings mounted solely on the cylindrical portion for rotation about said axis, said panel having a plurality of arcuate apertures corresponding to the number of said levers, concentrically located about said axis, one slot being provided for each lever, each of said levers having radial arms, and an axially extending projection extending through their respective slots, a lever ring retaining plate mounted on the member at the end of the bearing portion opposite from the mounting flange, said plate having resilient finger springs bearing against the adjacent lever ring, and a split ring spaced between adjacent rings, said split ring having hooked ends, and said cylindrical portion having an aperture therein into which said ends extend to anchor each of said split rings against rotation.

2. A laundry appliance control unit comprising a panel, at hat-shaped member having a cylindrical bearing portion and mounting flange, said flange being mounted on the rear of said panel with the axis of the cylindrical portion normal to the panel, and a plurality of stampings formed as control levers, each having annular bearing rings journaled on the cylindrical portion for rotation about said axis, said panel having a plurality of arcuate apertures corresponding to the number of said levers, concentrically located about said axis, one slot being provided for each lever, each of said levers having radial arms, an axially extending projection extending through their respective slots, and a lever ring retaining plate mounted on the member at the end of the bearing portion opposite from the mounting flange, said plate having resilient finger springs bearing against the adjacent lever ring, a split ring spaced between adjacent rings, said split ring having hooked ends, and said cylindrical portion having an aperture therein into which said ends extend to anchor each of said split rings against rotation, and a timing device mounted on said plate and secured to said member, said timing device having a control shaft projecting axially through said panel.

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