

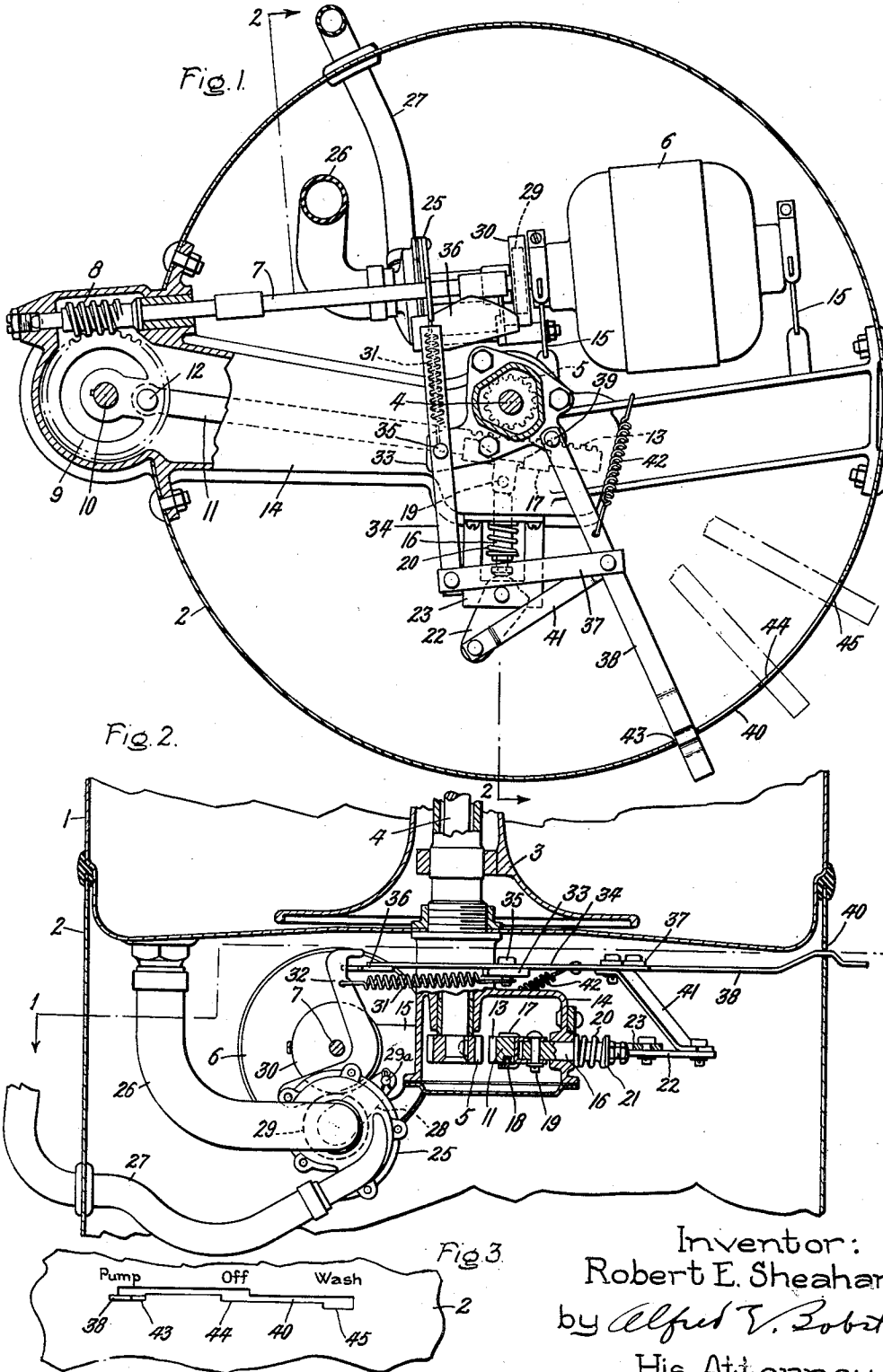
Jan. 9, 1951

R. E. SHEAHAN
CONTROL LEVER ARRANGEMENT FOR
CLOTHES-WASHING MACHINES

2,537,795

Filed April 14, 1948

2 Sheets-Sheet 1



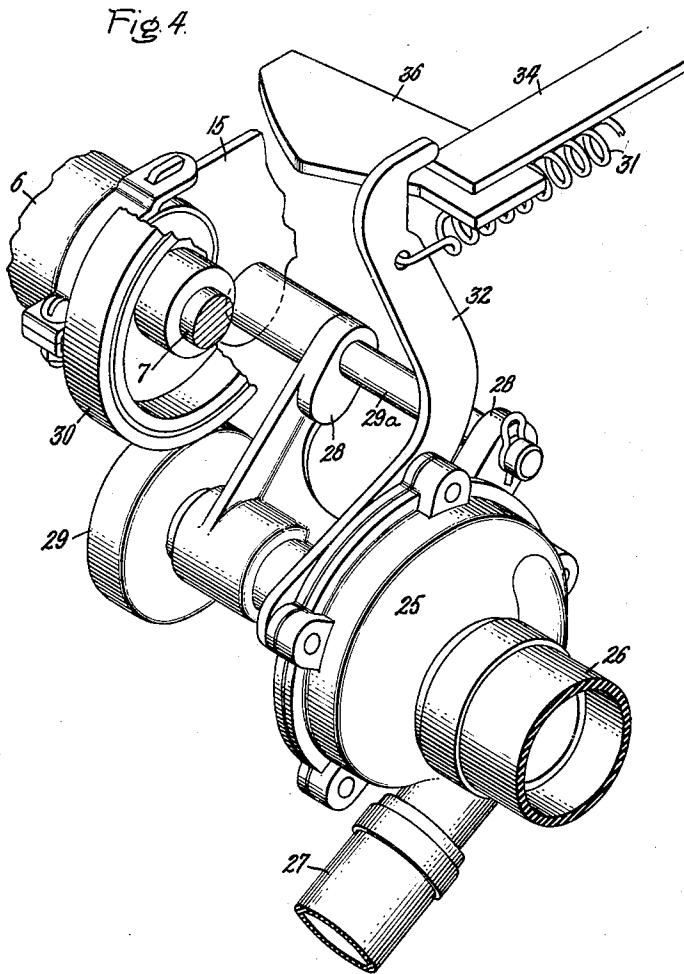
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UNITED STATES PATENT OFFICE

2,537,795

CONTROL LEVER ARRANGEMENT FOR
CLOTHES-WASHING MACHINESRobert E. Sheahan, Bridgeport, Conn., assignor
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3 Claims. (Cl. 68-133)

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It is the practice in marketing home clothes washing machines to supply the same machine either without or with a pump for emptying the tub, the emptying pump being supplied at additional cost. Such machines have a control handle or lever for the washing mechanism and an additional control handle or lever for the pump when a pump is furnished. This means that in the case of a clothes washing machine having an emptying pump, control means for both the washing mechanism and for the pump must be provided. Heretofore, as far as I am aware, it has been the practice to provide two separate control handles, one for the washing means and the other for the emptying pump.

An object of my invention is to provide in connection with a clothes washing machine having an emptying pump a single control lever or control handle for both the washing mechanism and the emptying pump, the lever or handle having three positions, a "neutral" or "off" position, a "wash" position, and a "pump" position, and the construction being such that it may or may not be supplied with the machine depending on whether or not the machine is equipped with an emptying pump.

A further object of my invention is to provide a control leverage arrangement which is simple in structure, reliable and convenient in operation, and capable of being provided at relatively low cost.

For a consideration of what I believe to be novel and my invention, attention is directed to the following description and the claims appended thereto.

In the drawing, Fig. 1 is a sectional plan view taken on line 1-1 of Fig. 2 of a clothes washing machine equipped with control mechanism embodying my invention; Fig. 2 is a sectional view taken on line 2-2, Fig. 1; Fig. 3 is a detail fragmentary view; and Fig. 4 is a perspective view of certain parts. Only those portions of the washing machine are shown in the drawing as are required for the illustration and an understanding of the invention.

Referring to the drawing, 1 indicates the tub of a washing machine, 2 a skirt which surrounds the legs (not shown) of the machine, 3 the agitator, 4 the agitator shaft provided with a pinion 5 at its lower end, and 6 the electric motor which, through a shaft extension 7, worm 8 and worm wheel 9, drives the wringer post 10, and through an eccentric bar 11, pivotally connected to wheel 9 at 12, and a rack 13 on the bar drives the agitator shaft 4. The gearing is suitably

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mounted in a gear casing 14 supported by skirt 2 as shown clearly in Fig. 1. The motor is supported on casing 14 by brackets 15. Rack 13 is moved into and out of engagement with pinion 5 by a short rod 16 slidably mounted in an opening in a wall of casing 14 and connected to bar 11 by a head 17 which is U-shaped in cross-section. Bar 11 is slidably positioned between the two sides of the U-shaped head and is guided therein by a tongue 18 on the head located in a longitudinally extending slot in the bar as shown in Fig. 2. Head 17 is pivotally connected to the end of rod 16 as is indicated at 19. Bar 11 is biased to a position where rack 13 is out of engagement with pinion 5 by a spring 20 which surrounds the outer end of rod 16 and is positioned between the outer surface of a wall of casing 14 and an adjustable collar 21 on rod 16. Rod 16 is moved to bring rack 13 into engagement with pinion 5 by a cam lever 22 pivoted on a bracket 23 fixed to casing 14, an end of the cam lever 22 having a cam surface which engages a head on the end of rod 16. When cam lever 22 is in the Fig. 1 position, the rack 13 is out of engagement with pinion 5. When cam lever 22 is turned counterclockwise as viewed in Fig. 1, the cam surface on the end of lever 22 rides across the head on the end of rod 16 and moves the rack 13 into engagement with the pinion 5.

The construction so far described is a known one. It is disclosed generally in Patent 2,143,705, Lowe, patented January 10, 1939, assigned to the same assignee as the instant application. My invention has to do with a leverage arrangement for actuating cam lever 22 and for effecting operation of an emptying pump.

The emptying pump is indicated at 25. Its inlet is connected to the bottom of tub 1 by a length of flexible hose 26 and its outlet is connected to a discharge hose 27. On the pump casing is a pair of rigid bracket arms 28 by means of which the pump as a unit is pivotally mounted on a stationary shaft 29a fixed at one end to one of the motor mounting brackets 15 (see Fig. 4). For driving the pump, the pump shaft has fixed thereon a friction wheel 29 adapted to be brought into and out of engagement with a friction wheel 30 on the motor shaft by swinging the pump bodily on pivot shaft 29a. The pump is biased to a position wherein friction wheel 29 is in engagement with friction wheel 30 by a spring 31 fixed at one end to an upwardly projecting arm 32 rigidly attached to the pump casing and at the other end to a pin 35 in a lug

33 on gear casing 14. It is moved against the biasing action of spring 31 to a position wherein friction wheel 29 is out of engagement with friction wheel 30 by a cam lever 34 pivoted between its ends on the pin 35 on lug 33 and having at one end a cam head 36 which engages the free end of arm 32. The other end of lever 34 is connected by a pivot link 37 to an actuating arm 38, which at its inner end is pivoted on gear casing 14 as shown at 39. The free end of arm 38 projects out through an elongated slot 40 in skirt 2. Cam lever 22 is connected to actuating lever 38 by a pivot link 41. Actuating lever 38 is biased toward the lower edge of slot 40 by an angularly extending spring 42 which at one end is connected to lever 38 and at its other end to casing 14. Slot 40 has offset notches 43, 44 and 45 which are marked "pump," "off" and "wash" to indicate the operating positions of control lever 38.

When control lever 38 stands in notch 44, the intermediate "off" position, cam levers 22 and 34 are so positioned that rack 13 is out of engagement with pinion 5, and cam head 36 is in engagement with arm 32, holding friction wheel 29 from engagement with friction wheel 30. It will be understood that friction wheel 29 need be separated from friction wheel 30 by only a small fraction of an inch so that the swinging movement of the pump on its pivoted support need be but very slight. For washing, lever 38 is moved from "off" position to "wash" position. This movement, through link 41, turns cam lever 22 to bring rack 13 into engagement with pinion 5. Cam head 36 moves with respect to arm 32 toward the left as viewed in Fig. 2, thus continuing to hold friction wheel 29 from engagement with friction wheel 30. When control lever 38 is moved from "off" position to "pump" position, cam head 36 is moved from engagement with arm 32, permitting spring 31 to bring friction wheel 29 into engagement with friction wheel 30 to drive the pump. Cam lever 22 moves with respect to rod 16 but does not effect movement of the rack 13 into engagement with pinion 5. In the drawing, the control is shown as being in "pump" position.

It will be noted that the pump, the control lever and the linkage mechanism all are carried by and pivoted on the gear casing 14 so that without substantial change in the machine the pump and the single control may or may not be provided. At the same time, the leverage and linkage arrangement is simple in structure and easy to operate.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a clothes washing machine, a tub, a gear casing secured relative to said tub, a washing device disposed within said tub and having an actuating shaft terminating within said casing; a drive motor; gearing within said casing for connecting the drive motor to said actuating shaft, said gearing including a shift member for optionally connecting said shaft to, or disconnecting it from, said motor; means biasing said shift member into disconnect position; cam means for positioning said shift member to effect connection of said shaft to said motor; a pump pivotally mounted relative to said motor; pump drive means connectable with said motor upon movement of said pump relative to said motor; means normally urging said pump into driven connection with said motor; cam means for mov-

ing said pump drive means out of driven connection with said motor; a control lever, and linkage means mechanically connecting said control lever with both of said cam means for conjointly operating the same to effect disconnection of the pump from the motor and connection of the said actuating shaft thereto upon rotation of said lever in one direction, and connection of the pump drive means with the motor and disconnection of the actuating shaft therefrom upon rotation of the lever in the opposite direction.

2. In a clothes washing machine, washing means having an actuating shaft, a casing affixed relative to said washing means, gearing in the casing engageable with said shaft for actuating the washing means, a motor for driving said gearing, an emptying pump pivotally mounted on the casing relative to said motor and having drive means movable optionally into or out of driving connection with said motor according to the direction of movement of said pump relative to said motor, a first lever pivoted on the casing, means controlled by movement of said first lever in one direction for effecting connection of said gearing to the shaft of the washing means and responsive to movement of said first lever in the opposite direction to effect disengagement of said gearing and shaft, a second lever pivoted on said casing, means controlled by movement of said second lever in one direction for effecting pivotal movement of said pump away from driven connection with said motor and responsive to movement of said second lever in the opposite direction to pivotally move said pump into driven connection with said motor, a single control lever pivoted on the casing, pivoted link means connecting said control lever to said first and second levers to effect movement of said levers conjointly in their said one direction when said control lever is moved to one control position and to effect movement of said levers conjointly in their said opposite direction when said control lever is moved to another control position.

3. In a washing machine, the combination of a tub, a drive motor, washing means in the tub, a gear casing supported beneath the tub, an actuating shaft for the washing means extending into said casing, gearing in the casing connected to said motor for operating the washing means by engagement with the shaft thereof, a first lever pivoted on said gear casing, means controlled by movement of said first lever in one direction to a first position for effecting connection of said gearing to the shaft of the washing means and responsive to movement of said first lever in the opposite direction toward a second position to effect disengagement of said gearing and shaft, a pump for emptying the tub having a pump casing pivotally mounted on said gear casing, a friction wheel on the pump shaft, a friction wheel on the motor shaft, means normally urging said friction wheels into driving engagement, an arm fixed to said pump casing, a second lever pivoted on said gear casing, cam means engageable with said arm and controlled by movement of said second lever in one direction toward a first position to effect pivoting of said pump to move said friction wheels out of driving engagement and responsive to movement of said second lever in the opposite direction to a second position to permit pivoting of said pump to move said friction wheels into engagement, a single control lever pivoted on said gear casing, and pivoted link means connecting said control lever

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to said first and second levers to effect movement of said levers conjointly in their said one direction to their said first positions in response to movement of said control lever to a "wash" position, to effect movement of said lever conjointly in their said opposite direction to their said second positions in response to movement of said control lever to a "pump" position, and to effect movement of said levers conjointly to a neutral position between said first and second positions in response to movement of said control lever to an intermediate "off" position between said "wash" and said "pump" positions whereby both said washing means shaft and drive gearing and said friction wheels are disengaged.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
Re. 21,020	Wales	Feb. 28, 1939
2,161,618	Dunham	June 6, 1939

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Number	Country	Date
499,264	Great Britain	Jan. 20, 1939