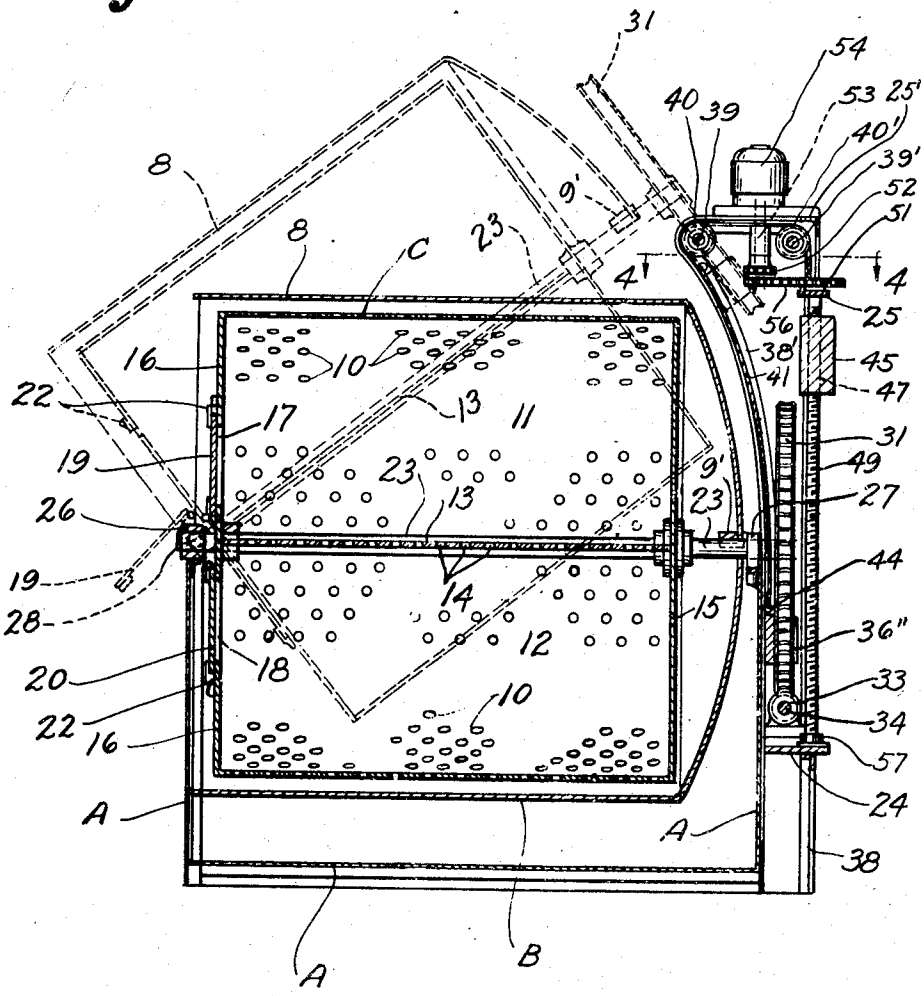
Oct. 7, 1947. W. F. GOODREAU 2,428,489

TUMBLER TYPE CLOTHES WASHING MACHINE HAVING TILTABLE DRUM

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Fig. 1



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Fig. 3

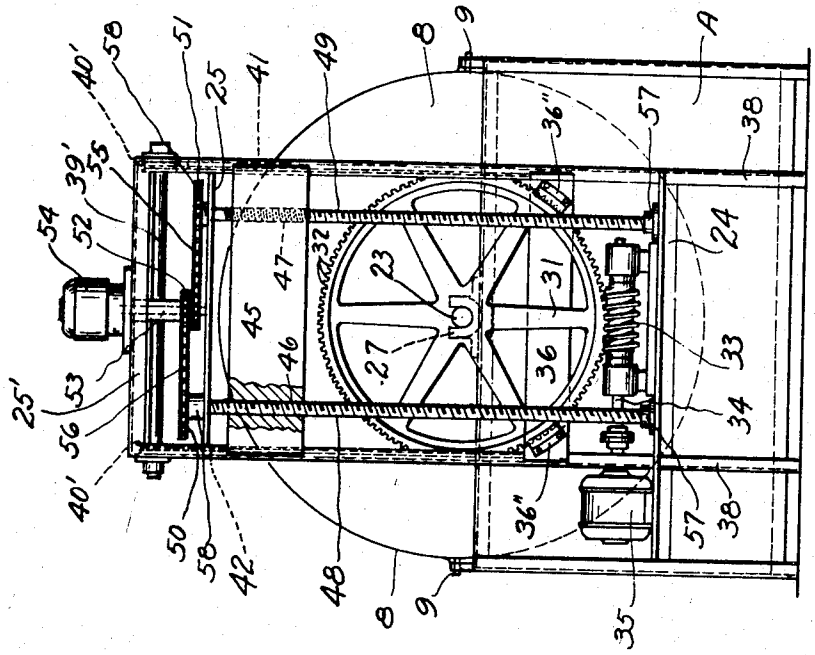
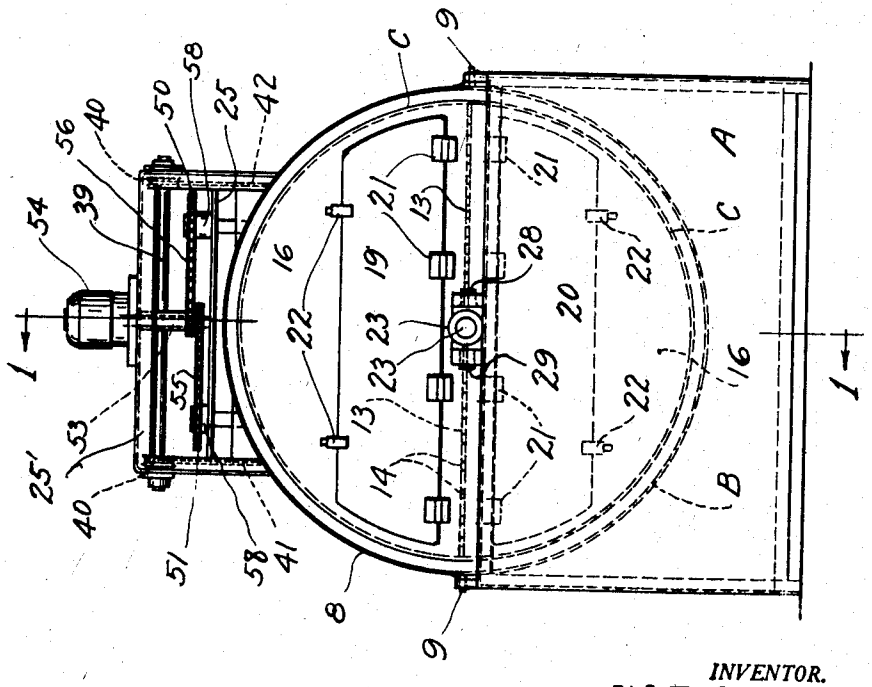


Fig. 2



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Fig. 4

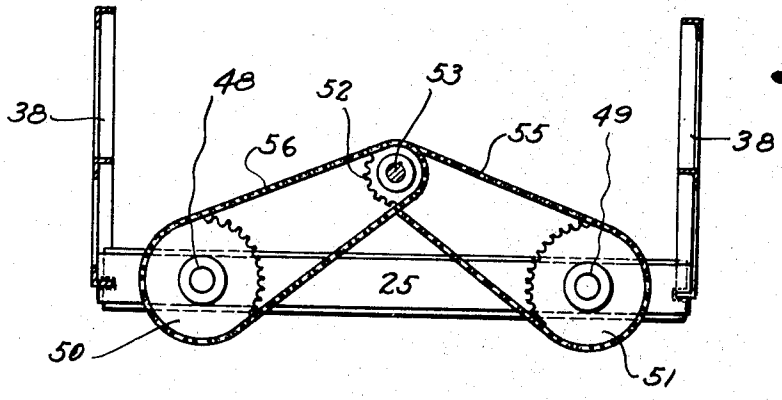


Fig. 5

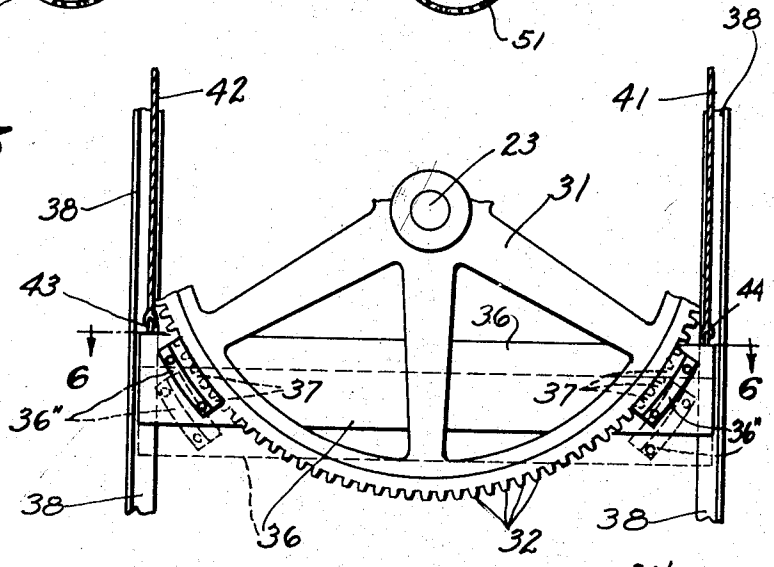


Fig. 6

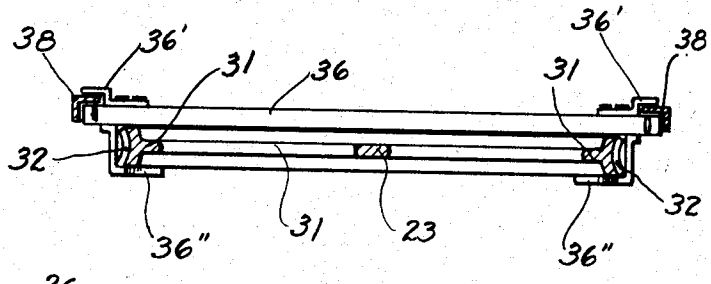
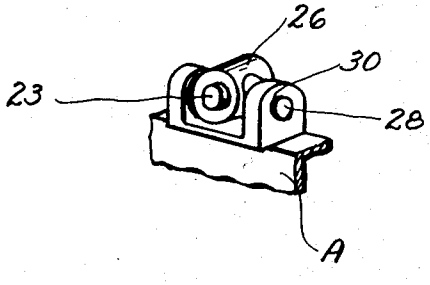


Fig. 7



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UNITED STATES PATENT OFFICE

2,428,489

TUMBLER TYPE CLOTHES-WASHING MACHINE HAVING TILTABLE DRUM

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Application October 12, 1945, Serial No. 621,957

3 Claims. (Cl. 68—210)

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This invention relates to washing machines and particularly to such machines for discharging washed clothes therefrom by gravity.

In the operation of laundries, much time and effort is required for removing the clothes from the usual cylinders or drums after they have been washed therein, and it is an object of this invention to provide a washing machine with an elongated drum mounted horizontally in a tub of water for rotation therein, said drum being divided horizontally into two chambers, together with means for discharging the clothes from the chambers through doors in the ends thereof by gravity, when washed.

A further object is to provide such a machine with a drum rotatably mounted in the tub and hingedly connected to the tub at one end of the drum adjacent to the doors, together with threaded rods mounted adjacent to the closed ends of the chambers, and a relatively heavy block or bolster in mesh over the rods for guiding the bolster and for a counterweight for lifting the closed end of the drum, for sliding the clothes therefrom by gravity, outward through the doors.

With these and other objects to be hereinafter stated, I have illustratively exemplified my invention by the accompanying drawings, of which:

Figure 1 is a side elevation of the apparatus mostly in section and showing the drum elevated in dotted lines. Figure 2 is a front elevation. Figure 3 is a rear elevation. Figure 4 is a fragmentary top plan taken on lines 4—4 of Figure 1. Figure 5 is an enlarged fragmentary rear view showing the lifting cradle in raised position for lifting and in dotted lines for normal position. Figure 6 is an enlarged detailed plan of the cradle and parts of the gear wheel in section. Figure 7 is an enlarged detailed view of the hinge joint for connecting the drum and frame at the front ends thereof.

Like characters on the different figures represent like parts.

The letter A represents a base frame in which a semi-circular tank or tub B is mounted for containing a suitable supply of water for washing clothes, and the letter C represents generally an elongated drum for retaining the clothes to be washed. The walls of the drum are provided with ordinary perforations 10 for circulation of water therethrough; and the drum is divided into two parallel chambers 11 and 12 by a partition 13, with similar perforations 14 for water circulation therethrough and through the clothes that may be disposed separately in the two chambers.

The rear end of the drum is closed by a head 15

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and the front end by head 16, the latter however is provided with doorways 17 and 18, over which doors 19 and 20 are respectively connected by hinges 21 at their bases, and normally retained closed by latches 22 at their outer edges. The drum is rotatably supported longitudinally in the tub B on a centrally fixed shaft 23. The front and rear portions of the shaft are respectively rotatably disposed in journal box 26 at the front end and a yoke 27 at the rear end, and thereby normally supported over the respective ends of the frame A. The box 26 is hingedly connected to the front end of the drum by a hinge joint including pintles 28 and 29 and sockets 30 attached to the frame adjacent to permit the drum to be tilted, for discharging the clothes. The rear end of the drum being adjustably supported by the yoke 27 to permit the rear end of the drum to be raised for tilting the same.

The partition 13 is preferably formed in two portions or sections of equal dimensions one half on each side of the shaft 23. The ends of each section being affixed to the heads 15 and 16 of the drum C, and the outer edges of the sections affixed to the side walls of the drum, while the inner edges of the sections are thus sustained at rest adjacent to the periphery of the shaft 23, or in some cases of relatively large drums, the inner edges of the sections may be affixed to the shaft on opposite sides thereof.

The drum is rotated for washing the clothes in the chambers by a relatively large gear wheel 31 which is affixed to the rear end of the shaft 23, and has worm teeth 32 around its periphery which normally mesh in a worm thread 33 on driving shaft 34, from any suitable motor indicated as 35. An adjustable cradle 36 is slidably disposed adjacent to the lower portion of the wheel, guided in brackets 36' with teeth 37 on the ends of cleats 36'' which fit between the teeth on the wheel when the cradle is raised, and thus lock or prevent the wheel from turning, and support the wheel and rear end of the shaft when the same are elevated.

In order to so elevate the rear end of the drum, particularly when filled with heavy wet clothes, it is important to provide a cooperating counterweight and means for reducing friction, shown as follows.

A frame including side posts 38 is disposed adjacent to the gear wheel, with a cross plate 24 and cap plate 25'. Cross shafts 39 and 39' support free rolling sheaves 40 and 40' for lifting cables 41 and 42. One of the ends of the cables as 43 and 44 are attached to the ends of the

cradle, and the bights of the cables are thence carried up and over the sheaves and thence to opposite ends of the relatively heavy cross bolster or counterweight **45**, for approximately balancing the weight of the drum to be lifted. Through the ends of the weight are threaded holes **46**, **47** through which are rotatably disposed threaded guide rods **48** and **49** for raising and lowering the weight and simultaneously raising and lowering the gear wheel and drum, when the rods are turned.

In order to turn or rotate the rods, sprocket wheels **50** and **51** are affixed to the upper portions of the respective rods, and a central sprocket **52** is mounted on a stub shaft **53**, which is rotated by means of any suitable motor as indicated by **54** and interconnecting chains, as **55** and **56**. The tops and lower ends of the rods are rotatably disposed in bearings **57** on plates **24** and **25** for sustaining the rods to be turned thereon for raising or lowering the weight and drum by the meshing of the threads on the rods and in the threaded holes of the weight.

A thin cover or casing **8** is supported over the drum by hinges **9** attached to the tub, and a base bearing **9'** resting on the shaft **23**.

In operation, when the clothes in either chamber have been washed, the drum is disposed with one of the chambers to be emptied, uppermost, and the door to such chamber opened, and thereupon the rods are suitably rotated for guiding downward the weight or for regulating the movement thereof, whereby the cables lift the cradle and the rear end of the drum to suitable elevation whereupon the washed clothes slide by gravity out from the open doorway and chamber. When fresh supplies of clothes are to be loaded in the chambers the direction of the movement of the rods is reversed and the weight carried up and the rear end of the drum and shaft lowered by the lowering of the cradle as the cables are moved.

Having described my invention, I claim as new:

1. A machine for washing and discharging clothes, comprising, a tub for water, a supporting shaft, a drum affixed to the shaft, said shaft being rotatably mounted over the tub for rotating the drum in the water, a partition centrally disposed through the drum adjacent the shaft for separating clothes into two chambers, each chamber being provided with a door in the front end thereof for inserting and discharging clothes, the front end of the drum being hingedly connected to the front end of the tub to facilitate the elevation of the rear end thereof, a gear wheel affixed to the rear end of the shaft and means for turning the wheel for rotating the drum in the tub, a cradle adjacent to the wheel for lifting the same, threaded rods mounted adjacent to the wheel and vertically therewith, a relatively heavy weight threadedly connected to the rods for balancing the weight of the drum and for reducing friction on the threads when the rods are turned, operative means connecting the weight and the cradle for lifting the cradle and rear end of the drum for sliding the clothes from the respective chambers by gravity, after the washing operation.

2. An apparatus for washing clothes including a tub for water, a drum rotatably mounted over the tub and provided with chambers longitudinally disposed through the drum, doors in the front end of the chambers for entry and discharge of clothes, the front end of the drum being hingedly connected to the tub and means adjacent the rear end of the drum for elevating the same and sliding the clothes from the respective chambers after the washing operation.

3. In an apparatus for washing clothes, including a tub for water, a cylindrical drum rotatably mounted in normal position over the tub, a door at one end of the drum for inserting and discharging the clothes, hinge means at the front end of the drum connecting the same with the tub to facilitate the elevation of the rear end of the drum, and means disposed adjacent the rear end of the drum for elevating the same and discharging the clothes from the door after they have been washed by rotation of the drum.

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