F. M. MULLIGAN.

WASHING MACHINE.

APPLICATION FILED JUNE 14, 1918.

1,307,919.

Patented June 24, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

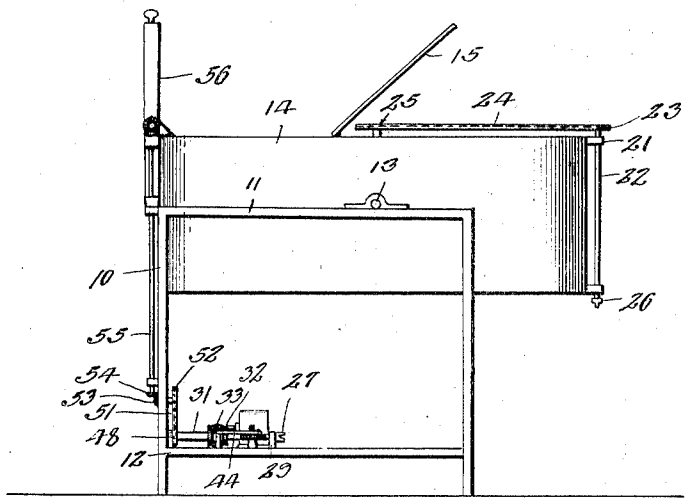


Fig. 6.

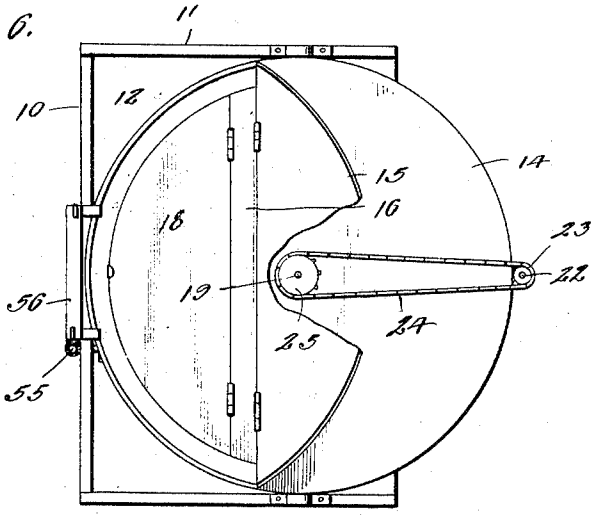
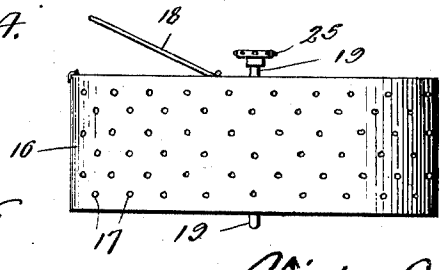


Fig. 4.



WITNESSES

E. Andrews Jr.

Inventor

F. M. Mulligan,

By Victor J. Evans

Attorney

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2 SHEETS—SHEET 2.

Fig. 2.

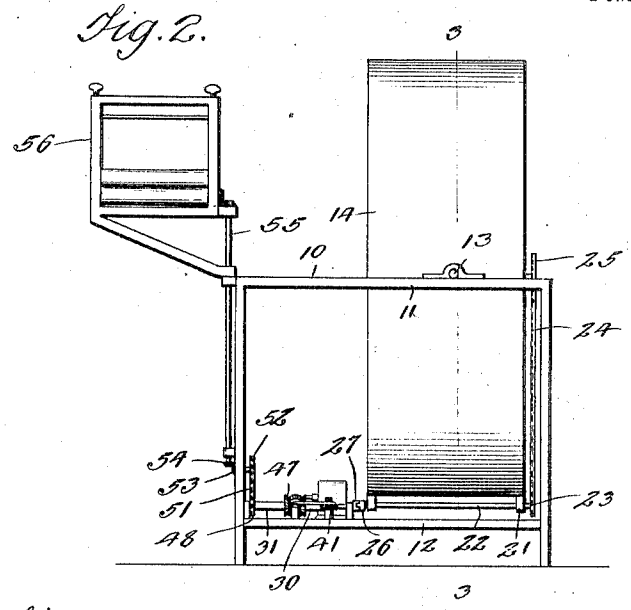


Fig. 3.

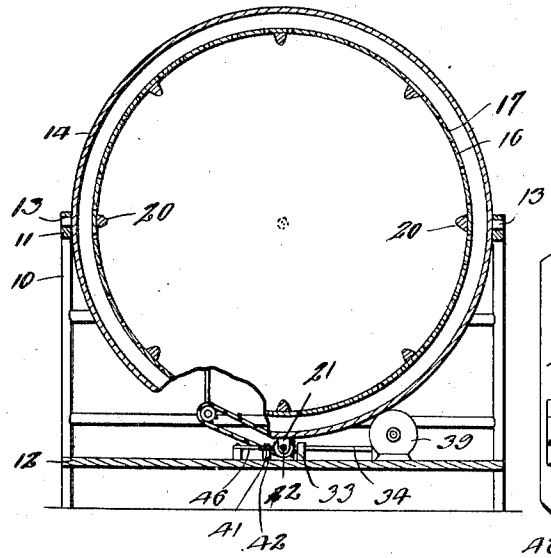
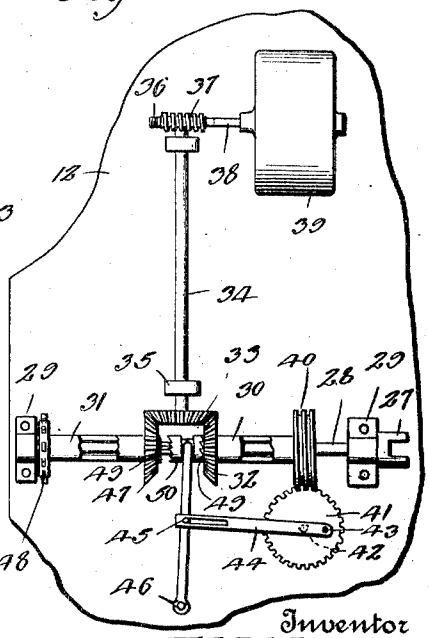


Fig. 5.



WITNESSES

Inventor

F. M. Mulligan,

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

FRANCIS M. MULLIGAN, OF BOZEMAN, MONTANA, ASSIGNOR OF ONE-FOURTH TO JOHN S. HALEY, OF BOZEMAN, MONTANA.

WASHING-MACHINE.

1,307,919. Specification of Letters Patent. Patented June 24, 1919.

Application filed June 14, 1918. Serial No. 240,038.

To all whom it may concern:

Be it known that I, FRANCIS M. MULLIGAN, a citizen of the United States, residing at Bozeman, in the county of Gallatin and State of Montana, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to washing machines and aims to provide a machine for washing clothes or other articles in a sanitary manner and without injury thereto.

To this end the invention includes a casing mounted for pivotal movement upon a suitable frame or support and containing a revolving cylinder or drum for the reception of the articles to be washed, the said cylinder or drum being rotated by a suitable mechanism with which it is engaged when in position for operation and disengaged when in an inoperative position.

The invention also consists in mounting a wringer upon the framework or support in a manner to engage the casing to hold the latter in position for the insertion or removal of the articles to be washed.

The invention further consists in a novel form of reversing mechanism which will alternately rotate the drum in opposite directions so as to prevent the articles therein from becoming rolled or bunched and to present new surfaces to the action of the machine.

With the above and other objects in view the invention consists of the following novel construction, combination and arrangement of parts to be hereinafter more fully described and illustrated in the accompanying drawings, in which:—

Figure 1 is an elevation of a washing machine constructed in accordance with the present invention, the machine being shown in an inoperative position;

Fig. 2 is a side elevation of the machine in an operative position;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is an elevation of the receiving cylinder or drum;

Fig. 5 is a detail horizontal sectional view showing the mechanism for operating the machine.

Fig. 6 is a top plan view showing the cylinder in inoperative position.

Referring to the drawings in detail, the invention includes a frame or support which consists of standards 10 which are connected by means of side bars 11 and a lower shelf or support 12.

Pivotally mounted between the side bars 11 upon trunnions 13 which extend from diametrically opposite points, is a casing 14, preferably cylindrical in shape. This casing has one of its sides open and is adapted to be closed by a lid 15.

Located within the casing is a cylinder or drum 16, perforated around its edge as shown at 17 and provided upon one of its sides with an opening having a hinged lid or closure 18. The cylinder or drum 16 is mounted upon trunnions 19 so as to revolve within the casing 14 and contains upon its inner periphery transversely disposed slats 20, the purpose of the latter being to agitate the clothes and water within the cylinder or drum as is usual in machines of this character.

Mounted in bearings 21 located upon the outside of the casing 14 is a short shaft 22, one end of which has mounted thereon a sprocket 23. This sprocket is engaged by a chain 24, which also engages a sprocket 25 mounted upon one of the trunnions 19, so that when the shaft 22 is rotated motion will be imparted to the cylinder or drum 16. The opposite end of the shaft 22 carries a suitable clutch member 26, which, when the cylinder is in the position shown in Fig. 2 will engage a similar clutch member 27 mounted upon one end of a shaft 28 so as to revolve with the cylinder 14. This shaft is journaled in suitable bearings 29 and has loosely mounted thereon sleeves 30 and 31. The sleeve 30 carries at one end a beveled pinion 32 which is engaged by a pinion 33 mounted in one end of a shaft 34, the latter being also mounted in suitable bearings 35 carried by the shelf or support 12. The opposite end of the shaft 34 has mounted thereon a worm wheel 36 which is engaged by a worm 37 mounted upon the shaft 38 of a motor 39. The opposite end of the sleeve 30 has secured thereto a worm 40 which engages and drives a worm gear 41 mounted upon a short shaft 42. Pivoted to the worm gear 41 as shown at 43 is a pitman 44 which has a pin and slot connection 45 with a shift lever 46. The gear 33 also drives a gear 47 mounted upon one end of the sleeve 31, while the opposite end of said sleeve carries a sprocket 48. Each of the opposed faces of the gears 32 and 47

are provided with clutch faces 49, which are adapted to be alternately engaged by a clutch member 50 controlled by the shift lever 46. By means of this mechanism motion is imparted from the shaft 34 to the gears 32 and 47 continuously rotating both the worm 40 and the sprocket 43. The worm 40 through its connection with the shift lever 46 will shift the clutch member 50 into engagement with either the gear 32 or 47 and as the said clutch member is splined upon the shaft 28 will impart motion of the shaft in a direction governed by the particular gear engaged.

The sprocket 48 is engaged by a chain 51, which drives the sprocket 52 and operates miter gears 53 and 54, the latter being mounted upon one end of a vertically disposed shaft 55 for the operation of a wringer 56. The wringer is mounted so as to swing in a horizontal plane with the shaft 55 upon which it is pivoted and may be swung over into engagement with the upper surface of the casing 14 as shown in Fig. 1 so as to hold the said casing against tilting action. When in the position shown in Fig. 1 the clutch members 26 and 22 will be disengaged so that operation of the cylinder 16 is stopped. By swinging the wringer away from the casing, the latter may be swung downward to the position shown in Fig. 2 so that the clutch members may be engaged for the operation of the machine.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is reserved to make such changes as will properly fall within the scope of the appended claim.

Having described the invention, what is claimed is:—

A washing machine comprising a supporting frame, a cylindrical casing pivotally mounted upon said frame and capable of being moved to either a horizontal or vertical position, a clothes receiving drum mounted to revolve within said cylindrical casing, mechanism for rotating the drum, said mechanism including a shaft extending transversely of the casing upon the outside thereof, a driven shaft, engaging clutches located upon the ends of the casing carried shaft and the driven shaft, whereby the shafts will be connected when the casing is in a vertical position and disconnected when in a horizontal position and means for automatically reversing the direction of rotation of the driven shaft.

In testimony whereof I affix my signature.

FRANCIS M. MULLIGAN.