E. J. PERRY.

WASHING MACHINE.

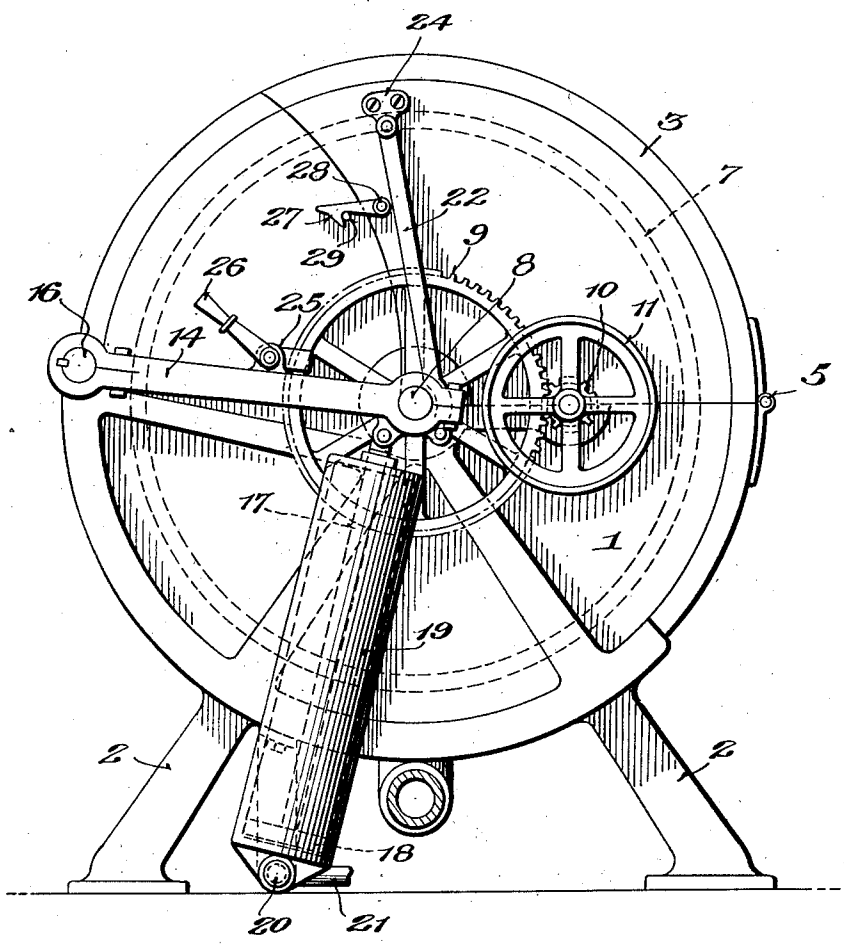
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1,400,977.

Patented Dec. 20, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



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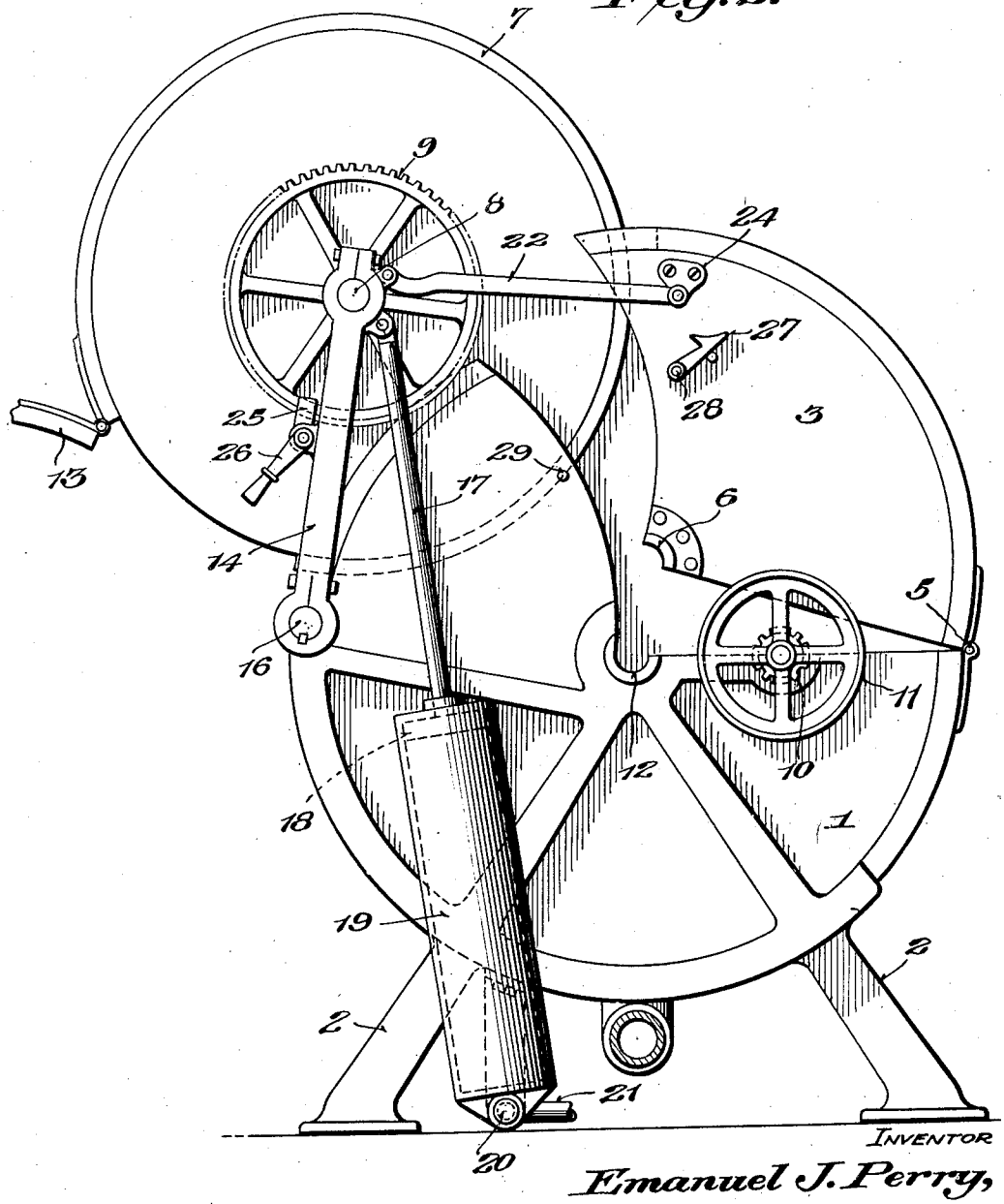
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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WASHING-MACHINE.

1,400,977. Specification of Letters Patent. Patented Dec. 20, 1921.

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To all whom it may concern:

Be it known that I, EMANUEL J. PERRY, citizen of the United States of America, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

The invention relates to improvements in washing machines.

It is an object of the invention to provide a washing machine having a washing cylinder therein, which may be swung from the casing to permit a discharge of clothes therefrom that have undergone a washing treatment.

The invention more particularly aims to provide a washing machine with a movable clothes containing cylinder, which may be shifted from the machine by power means to expeditiously permit the clothes to be removed.

From a more specific aspect, the invention comprehends a power washing machine, wherein the washing cylinder is connected with swinging arms attached to the casing, which arms are shifted by power cylinders to lift the cylinder bodily from the casing upon the completion of a washing action to allow the clothes to rapidly drop from the cylinder, thereby saving the excessive time generally heretofore employed in removing clothes from the older types of washing machine.

In the accompanying drawings I have disclosed the preferred embodiment of the invention, but this disclosure is made for the purpose of illustration only, and the construction and arrangement of the parts are subject to many changes without departing from the invention.

In the drawings Figure 1 represents an end elevation of one end of the washing machine; and,

Fig. 2 an end view of the machine, with the clothes cylinder in an extended position.

Referring now more particularly to the drawings, wherein like reference characters indicate corresponding parts, the numeral 1 designates the casing of a washing machine, which may be of any preferred or conventional structure, the same being shown as being supported upon the legs 2. The casing of the washing machine is provided with a movable segment section 3, hinged to the main portion of the casing by the hinge 5, said segment carrying a part of the bearing 6, for a purpose which will hereinafter appear.

Mounted within the washing machine is the washing cylinder 7. This cylinder may be of the usual open work construction, or any other desirable form, being supported upon a shaft 8 carrying a gear wheel 9 that meshes with a gear 10 driven by a pulley 11 carried by a suitable shaft, and operated from any source of power. The cylinder normally is maintained within the washing machine, as disclosed in Fig. 1 of the drawings, at which time the segment section 3 is closed, and the shaft 8 is resting upon the bearings 12, it being understood that steam or water is introduced to the casing 1, and the cylinder revolved for cleansing a supply of clothes placed therein through the movable door 13. This construction is all common in the various washing machines now in use.

Considerable time is generally lost in removing a supply of clothes from a cylinder after a washing action, it having been the practice to rotate the washing cylinders to a point where the door could be opened, and to then open a door in the casing and remove by hand the supply of washed clothes. This has required much time and labor, and it has been appreciated by those skilled in the art that a simple and efficient mechanism for controlling the washing cylinders whereby a supply of clothes could be expeditiously removed and a new supply placed therein, would be a marked advance in the art.

The present invention, therefore, aims to provide a mechanism for rapidly shifting the cylinder from the casing so as to enable clothes to be removed therefrom. To this end I employ a pair of swinging arms 14, one being disposed at each end of the casing, which arms are mounted upon a shaft 16 connected with the casing at one end, and at their opposite ends pivotally engage the cylinder shaft 8. Connected with these arms at a point near the shaft 8, are the piston rods 17, carried by pistons 18 movable in the fluid pressure cylinders 19, which are pivoted at a point 20, and receive a source of fluid supply through the pipe 21. This fluid supply may be water, steam or any equivalent energy, and is introduced to the cylinders 19 for the purpose of reciprocating the pistons therein. While I have disclosed a cylinder as positioned at each side of the machine, it may be understood that

a single cylinder may be employed, or other power devices may be used for moving the arms 14, in a manner which will be now described.

When a fluid pressure is introduced to the cylinders 19, the pistons are caused to reciprocate and swing the arms 14 upwardly to the position disclosed in Fig. 2. To open the segmental section 3 of the casing 1, when the cylinder is to be moved from the casing, link arms 22 are employed, said arms being pivoted to the arms 14 at one end, and at their opposite ends being pivoted to brackets 24 connected with the segmental section 3. It will therefore be apparent that when the arms 14 are raised through the agency of the fluid pistons, and their cylinders, the segment 3 will be swung on its pivot 5 and the entire shaft 8 carrying its washing cylinder and operating gear 9 bodily lifted from the casing 1, to the position shown in Fig. 2. The cylinder is maintained in this position until the clothes have been removed from the opening therein, controlled by the door 13, whereupon a new supply of clothes may be introduced to the cylinder, and by exhausting the fluid pressure in the power cylinders 19, the washing cylinder 7 will be again lowered to the position shown in Fig. 1, the segmental section 3 of the casing 1 being closed so that the section 6 of the bearing carried thereby will engage the shaft 8.

It has been found preferable to provide a means for locking the cylinder 7 with respect to the arms 14 so as to prevent a relative movement of the cylinder when a supply of clothes has been washed, and it is desired to shift the washing cylinder from the casing. To this end, I provide a latch 25, which is mounted upon one of the arms 14, and is formed with separated engaging sections, adapted to be drawn toward each other upon a manipulation of the handle 26 for the purpose of locking the gear 9 carried by the shaft 8 to one arm 14. This lever 26 is actuated when the clothes in the cylinder have been washed, and the gear is locked when the cylinder is in such a position that the opening controlled by the door 13 will be in the position shown in Fig. 2 when the entire cylinder is shifted from the casing. In other words, the cylinder is preferably locked when the same is to be shifted from the casing so as to be in a position to most favorably discharge the cleansed clothes. While a locking means is preferable, it is not entirely essential, and the same may be dispensed with, should this be desirable. It will likewise be apparent that any other type of locking mechanism may be employed suitable for accomplishing the desired purpose.

Inasmuch as the segment 3 carries a section of the bearing for the shaft 8, it is preferable that a means be employed for locking this movable section to the casing 1 when the same is in operation. I have therefore shown swinging latches 27, one at each side of the movable section 3, and pivotally mounted upon pins 28. When the machine is to be operated, the latches are swung over pins 29 carried by the body 1, and serve to rigidly hold the section 3 in a closed position and against accidental displacement due to the rotation of the shaft 8. Obviously, other fastening devices may be used, and I have merely shown the present type of fastener as a convenient means of retaining the section in a lowered position.

Having thus described the invention, the operation may be briefly stated as follows:

Assuming that a supply of clothes has been introduced to the cylinder 7, and the movable section 3 lowered to the position shown in Fig. 1, the pulley 10 is then operated by a belt or any other source of power, rotating the gear 9, which correspondingly rotates the cylinder 7 within the casing. Water or steam is present therein, and the rotation of this cylinder for a sufficient period serves to cleanse the clothes contained therein. After the clothes have been washed the latches 27 are swung to the position shown in Fig. 2, and the lever 26 shifted to lock the cylinder 7 against movement relative to the arms 14. Fluid pressure is then applied to the power cylinders 19 through the feed pipes 31, serving to raise the pistons therein, which pistons, through the piston rods 17, raise the arms 14, which arms lift the shaft 8, and its cylinder 7 from the casing to the position shown in Fig. 2. It will be understood that as this cylinder is being moved from the casing, the link arms 22 also move the segment 3 on its pivot 5 so as to provide a space for the passage of the shaft 8. The door 13 is opened when the cylinder is in the position shown in Fig. 2, and the cleansed clothes removed. A new supply of clothes is then introduced to the cylinder and the fluid pressure in the power cylinders 19 exhausted, which causes the washing cylinder to again move into the casing 1, as shown in Fig. 1. The arm 26 is then actuated to release the gear 9, and the swinging latches 27 are shifted so as to engage the pins 29 and lock the segment 3 in position. After the clothes are washed, the operation herein described is repeated, as will be clearly understood.

Having thus described the invention, what I claim is:

1. In a washing machine, the combination with a casing, a cylinder therein, a shaft for said cylinder disposed within bearings in the casing, an arm, means for connecting said arm at one end to a support, and at its

opposite end to a cylinder shaft, and means for moving said arm to move said cylinder on said shaft from the casing, said means comprising a pivotally mounted fluid cylinder and a piston therein pivotally connected with the arm, said casing having a movable closure, and a link connecting the arm and said movable closure for opening said section upon a movement of the arm in one direction.

2. In a washing machine, the combination with a casing having a cylinder therein, a shaft for said cylinder, arms at each end of the casing, means for pivotally mounting said arms at one end to said casing, the arms at their opposite ends engaging the shaft, the casing being provided with a movable closure, a link connecting one of said arms with said movable closure, means for swinging the cylinder from the casing on said arms, and for simultaneously shifting the movable section to permit discharge of the clothes, said means comprising a fluid pressure cylinder mounted for a swinging movement and having a piston therein pivotally connected with one of said arms.

3. In a washing machine, the combination with a casing having a movable closure, a washing cylinder within the casing, means for rotating said cylinder, power means for swinging the cylinder from the casing to permit clothes to be removed therefrom, and mechanism for locking said cylinder from rotation when disposed outside of the casing.

4. In a washing machine, the combination with a casing having a movable closure, of a washing cylinder therein, means for rotating the cylinder, means for supporting the cylinder for a swinging movement relative to the casing to permit said cylinder to be moved from the casing to enable garments to be discharged therefrom, in combination with manually controlled locking means for locking the cylinder against rotation when disposed exteriorly of the casing.

5. In a washing machine, the combination with a casing, of a cylinder therein, a shaft for said cylinder disposed within the bearings in the casing, means for supporting said cylinder for a swinging movement to permit the same to be moved from the casing, and a fluid pressure motor operatively associated with the cylinder for moving the same from said casing.

6. In a washing machine, the combination with a casing, of a cylinder therein, means for supporting said cylinder in the casing for a rotary movement, means for pivotally connecting the cylinder to the casing to permit the same to be swung from the casing, and power means for moving said cylinder from said casing, said power means comprising a fluid motor.

7. In a washing machine, the combination with a casing, of a rotating washing cylinder therein, means for rotating said cylinder, an arm pivotally connected to the casing and connected with said cylinder, and power means adjacent the cylinder connected with said arm for swinging the cylinder from within the casing to one side thereof to permit a discharge of materials therein.

8. In a washing machine, the combination with a casing, a cylinder therein, means for supporting the cylinder in the casing for a rotary movement, an arm pivotally connected with the casing at one end, and also connected with the cylinder, and means for swinging said cylinder from within the casing comprising a motor, and a pivot connection between said motor and said arm whereby the position of the motor with respect to the arm changes as the washing cylinder is raised from the casing.

9. In a washing machine, the combination with a casing, a cylinder therein, an arm pivotally connected to said casing, and also connected with the cylinder, and means for swinging said cylinder from the casing, said means comprising a pivotally mounted motor located adjacent the casing, having a piston therein, and a piston rod operated by said piston, said piston rod being pivotally connected to said arm at a point adjacent its connection with the cylinder.

10. A washing machine comprising a casing, a movable washing cylinder having a door controlled opening disposed within the casing, means for rotating the cylinder, a swinging member pivotally connected to one end of the casing, and also connected with the cylinder, and power means connected with said member for swinging the same to move the cylinder on its pivotal support to a position wherein the discharge opening therein is disposed upon one side of the casing.

11. In a washing machine, the combination with a casing, of a rotating washing cylinder disposed therein, an arm pivotally connected with the casing and with said cylinder, and a fluid pressure motor, operatively associated with said arm for swinging said cylinder on its arm from within the confines of the casing.

12. In a washing machine, the combination with a casing, of a rotating washing cylinder disposed therein, an arm pivotally connected with the casing and with said cylinder, and a fluid pressure motor, operatively associated with said arm for swinging said cylinder on its arm from within the confines of the casing, said fluid pressure cylinder being pivotally mounted, and also having a pivotal connection with said arm.

In testimony whereof I affix my signature.

EMANUEL J. PERRY.