No. 618,504. Patented Jan. 31, 1899.

W. R. GREEN.

WASHING MACHINE.

(Application filed Aug. 17, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

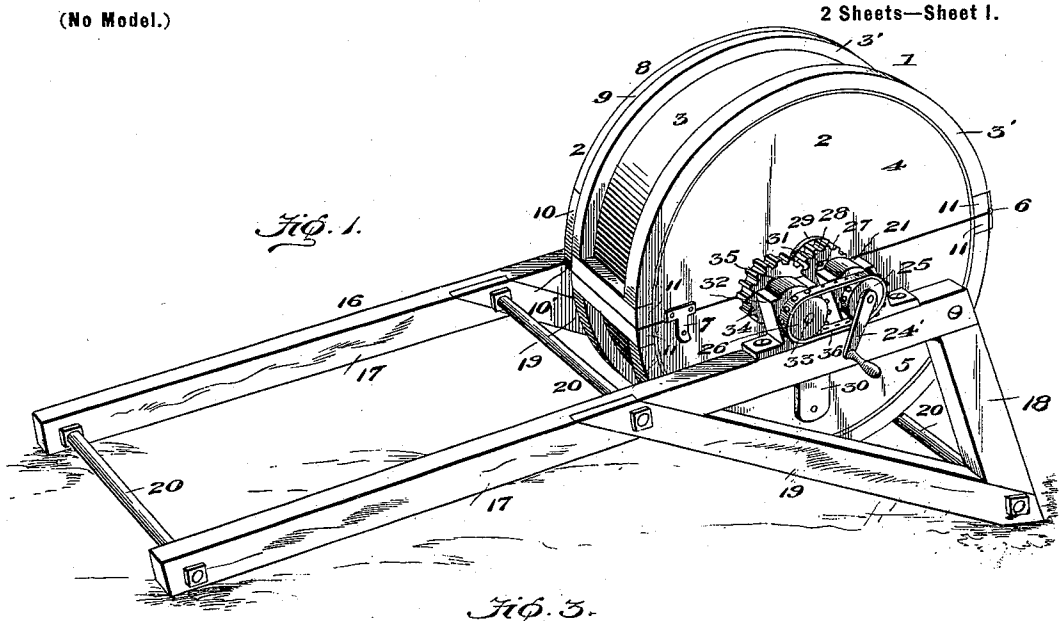


Fig. 3.

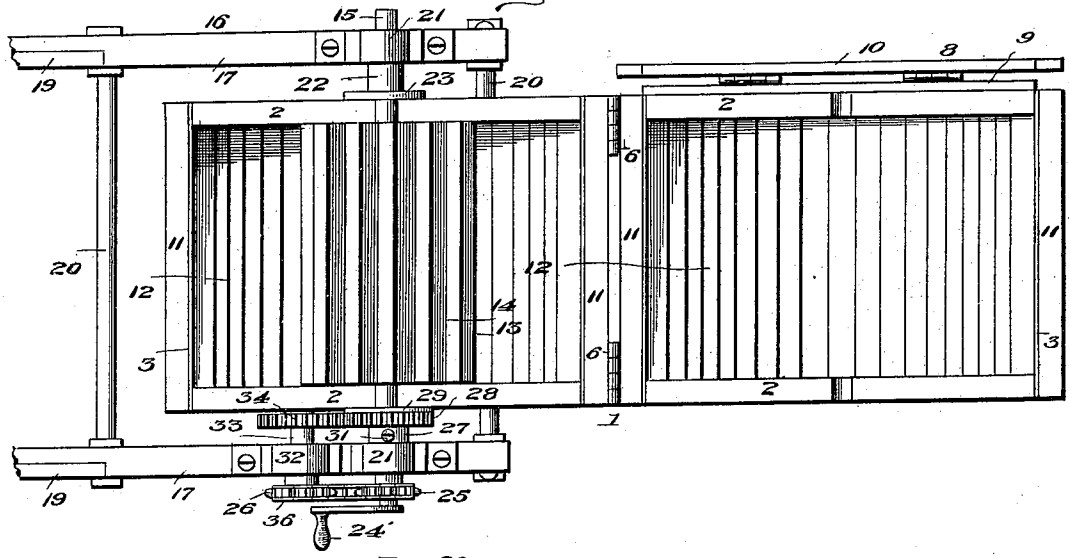
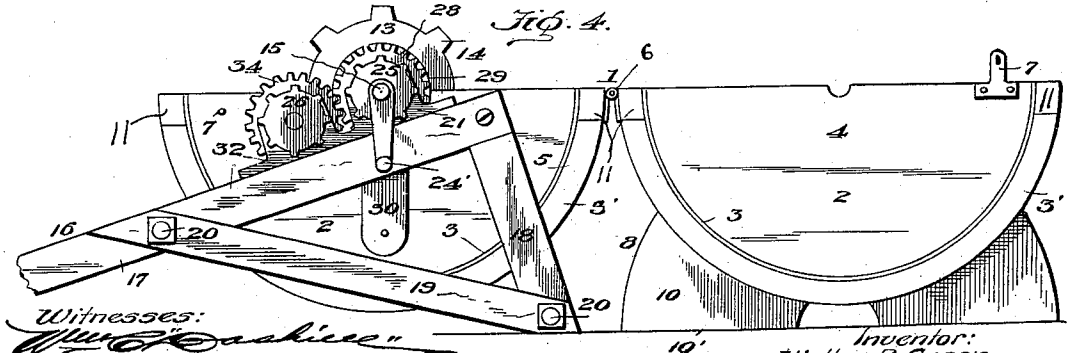


Fig. 4.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 1.

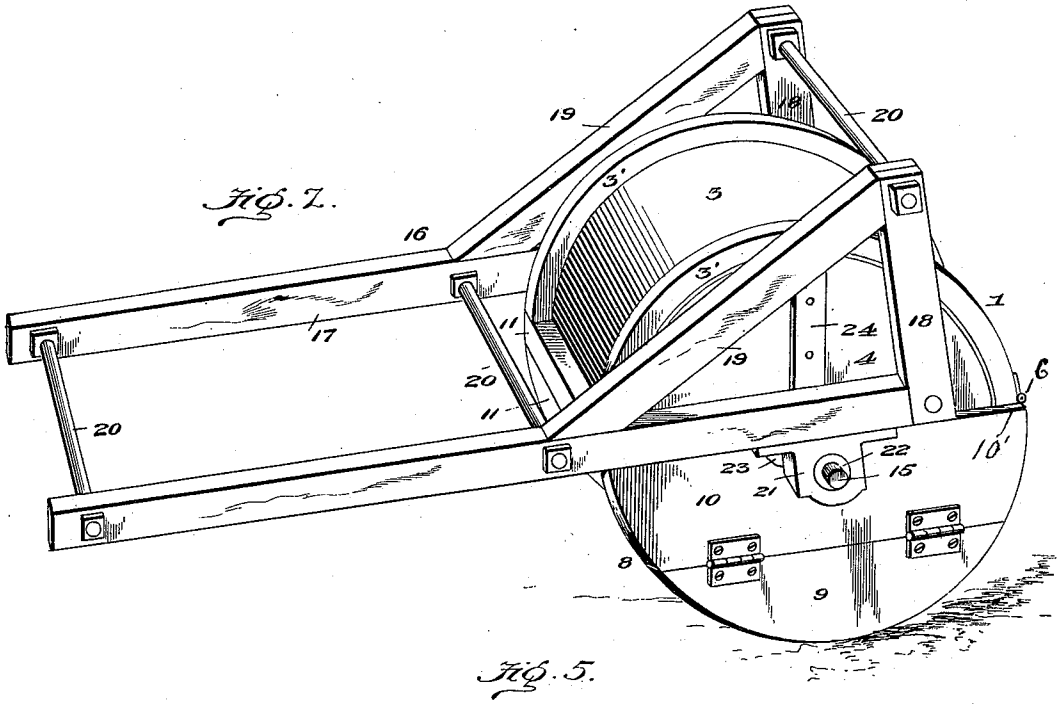


Fig. 5.

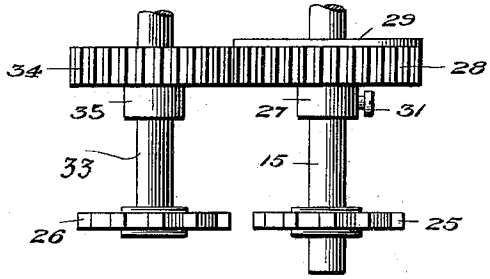
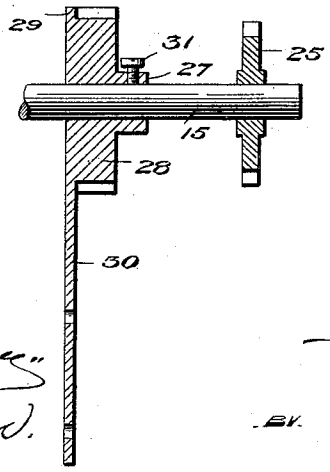


Fig. 6.



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UNITED STATES PATENT OFFICE.

WALTER ROBERT GREEN, OF SALT LAKE CITY, UTAH.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 618,504, dated January 31, 1899.

Application filed August 17, 1898. Serial No. 688,800. (No model.)

To all whom it may concern:

Be it known that I, WALTER ROBERT GREEN, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in washing-machines of that class having a rotary cylinder for receiving and cleansing the articles; and the object I have in view is to provide a machine which will be efficient in operation and easy to manipulate.

To these ends the invention consists in the combination and construction of the parts, as will be more fully hereinafter described and claimed.

I have illustrated the preferred embodiment of my invention in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view showing the machine used as a stationary washer. Fig. 2 is a perspective view of the opposite side, the machine being in a position to be propelled by rolling the same, using the supporting-frame as handles. Fig. 3 is a plan view of the device with the cylinder open. Fig. 4 is a side elevation with the cylinder opened and with the sprocket-chain removed. Fig. 5 is an enlarged plan view of the sprocket-wheels and gears. Fig. 6 is a section taken through the sprocket and gear on the main shaft.

Like reference characters denote like and corresponding parts in each of the figures of the drawings.

The cylinder 1 is composed of the sides 2 2, which may be constructed of wood or any suitable material, and the body 3, preferably made of sheet metal.

In alinement with the ends of the cylinder 1 are the rims 3′ 3′. If desired, these rims may be provided with tires. The rims or the tires thereon come in contact with the floor or ground when the machine is rolled, thus serving to protect the body 3 of the cylinder from wear, &c.

The cylinder 1 consists of two sections 4 5, which are hinged together at 6 to permit them to be opened or closed. To retain the cylinder in a closed position, I provide one or more spring-catches 7, of any suitable construction, sufficiently strong to hold the sections 4 5 together, so that it will be substantially water-tight. Secured to the side of the upper section 4 is a support 8, preferably of a form substantially the same as the side of the section, composed of two parts 9 10, hinged together, the part 9 being fastened to the body of the cylinder, while the part 10, having the straight surface or edge 10′, is adapted to be folded against the part 9, in which position its edge 10′ will extend beyond the periphery of the cylinder. This section 10 is adapted to have its edge 10′ rest on the floor or ground and serve to support the section 4 when the cylinder is in its open position, as shown in Fig. 4. It also prevents the cylinder-section 5 from being accidentally turned toward the section 4, thereby emptying the contents of the sections or perhaps closing the sections. The section 10 is cut out to escape the bearing for the trunnion when it is necessary to use the support.

The meeting edges of the sections 4 and 5 may be provided with strengthening-bars 11, and these bars and the sides 2 2 may be provided with a suitable packing to make the cylinder substantially water-tight. It will be noticed that the sides 2 and bars 11 form broad bearing-surfaces for the sections 4 5.

The inner surface of the cylinder 1 is roughened—for instance, by a series of spaced slats 12—to provide a rubbing-surface.

Within the cylinder 1 I provide a cylinder of smaller diameter, 13, having its face roughened or corrugated, as at 14. This cylinder is made fast to a shaft 15 and is adapted to turn either in the same direction as the cylinder 1 or in the opposite direction, as will be presently described. To support these cylinders 1 and 13 so that they may be revolved free from contact with the ground, I have provided the supporting-frame 16. This frame consists of the long bars 17, the short cross-bar 18, and the bars 19, connecting the end of bar 18 at a suitable point with the bar 17. Connecting rods or braces 20 may be provided at the free end of bars 17 at the juncture of the bars 19 with the bars 17 and at the junc-

ture of the bars 18 and 19. This frame 16 gives a firm support to the machine when it is used as a stationary washer and also serves as a handle, whereby the cylinder can be propelled when the machine is rolled.

At a suitable point on the bars 17, between the junction of the bars 18 and 19, I provide the bearings 21 21 for the shaft 15. Loosely fitting on said shaft 15, near one end thereof, is a sleeve 22, adapted to turn in its bearing 21, and this sleeve is provided with an end disk or flange 23, having an arm 24, which, with the disk 23, is securely fastened to the section 5, causing this sleeve to have the same movement as the cylinder 1. On the other end of this shaft 15 I provide the handle 24', between which and the bearing 21 is secured a sprocket-wheel 25, rigid with the shaft. Between the bearing 21 and the side 2 of the cylinder 1 I provide a sleeve 27, which is loosely mounted on said shaft and is formed at one end with a spur-gear 28, while rigid with this said sleeve is formed a plate or flange 29, having the arm 30, similar to the arm 24 on the other side 2, said arm 30 and flange 29 being rigidly secured to the section 5 of the cylinder 1. Through this sleeve 27 is provided a screw-threaded aperture to receive a set-screw 31, whereby the sleeve 27 and gear 28 may be made to turn with or independently of the shaft when the screw 31 is tightened or loosened, respectively. A short shaft 33 passes through a second bearing 32, adjacent to bearing 21, on one end of which is secured a sprocket-wheel 26 in alinement with sprocket-wheel 25, while on the other end of this shaft is a gear 34, rigid with the shaft. Between the gear 34 and the bearing 32 is provided a collar 35, also rigid with the shaft, which serves to keep the gear 34 away from the bearing 32 and its teeth in mesh with the teeth of the gear 28. The sprocket-wheels 25 and 26 are adapted to be connected by a sprocket-chain 36.

In operation the cylinder 1 is opened and the suds and clothes are placed therein. If it is desired to use the machine as a stationary one, it is arranged so that its supporting-frame will rest on the floor, thereby elevating the cylinder. The cylinder is then propelled by means of the handle 24; but when it is desired to propel the cylinders by rolling the machine the supporting-frame is inverted, as shown by Fig. 2, the bars 17, with the braces 20, serving as a handle.

To have both cylinders 1 and 13 move in the same direction, the sprocket-chain 36 is removed from the sprocket-wheels 25 26 and the set-screw 31 is turned to bear on the shaft 15, thereby causing the sleeve 27, the gear 28, and plate 29 to move in the same direction as the shaft, and as the sleeve, gear, and plate are rigidly united to the cylinder 1 and the cylinder 13 is rigidly secured to the shaft 15 it will be seen that both cylinders 1 and 13 will revolve in the direction in which the shaft is turned. The gear 34 and sprocket-wheel 26 are idle when the cylinders are arranged to turn in this manner.

In order to have the cylinders 1 and 13 turn in opposite directions, it is necessary to turn the set-screw 31 out of engagement with the shaft 15, permitting said shaft to revolve freely within the sleeve 27. The sprocket-chain 36 is then applied to the wheels 25 26. It will be seen that as the shaft 15 is revolved in one direction by means of the handle 24 the sprocket-wheel 25 and cylinder 13, being secured thereto, will also turn in the same direction. The sprocket-wheel 25, being connected to the wheel 26 by means of the chain 36, turns said wheel 26, shaft 33, and gear 34 in the same direction as the shaft 15, while the gear 34, meshing with gear 28, causes said gear 28, its sleeve 27, plate 29, and arm 30 to turn in the opposite direction, and the arm 30 and plate 29, being rigidly fastened to the cylinder 1, move said cylinder in the direction of the gear 28, thereby causing cylinder 1 to revolve in a direction opposite to the direction in which cylinder 13 is turned.

It will be understood that the corrugations on the inner surface of cylinder 1 and outer face of cylinder 13 when they are moving in opposite directions will serve to thoroughly agitate and scrub the clothes. When, however, it is desired to wash delicate fabrics that should not be subjected to such scrubbing action or for any other reason, the cylinders can be readily and quickly adjusted to revolve together.

It is apparent that the operator may rotate the cylinders by means of the crank or by means of the frame serving as a handle, as shown and described.

I am aware that changes and alterations in the form and proportion of parts and in the details of construction of the devices herein shown and described as the preferred embodiment of my invention may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such modifications as fairly fall within the scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a washing-machine, the supporting-frame, bearings mounted thereon, a shaft mounted in said bearings, sleeves which turn with said shaft, said sleeves having disks and arms formed thereon and adapted to be connected to one section of the outer cylinder, in combination with the inner and outer cylinders, and means for rotating said shaft, substantially as described.

2. In a washing-machine, the combination with a supporting-frame and the inner and outer cylinders, of a shaft having the inner cylinder rigid therewith, said shaft turning in bearings on the frame, sleeves loosely mounted on said shaft, said sleeves having

plates and arms rigidly connected with one section of the outer cylinder, a gear formed on one of said sleeves, a short shaft mounted in a separate bearing parallel with said first-mentioned shaft, sprocket-wheels on the outer ends of said shafts, a chain connecting said wheels and shafts, a gear on the other end of said short shaft meshing with the gear on the sleeve of the long shaft, substantially as described.

3. In a washing-machine, the combination with a supporting-frame, a cylinder which forms a receptacle for the suds and fabrics, a support which is hinged to the side of the upper section of the cylinder, and is adapted to be folded up against the same, when not in use, and to extend beyond the periphery of same and to support said cylinder-section, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER ROBERT GREEN.

Witnesses:
J. B. DAILEY,
C. B. DURST.