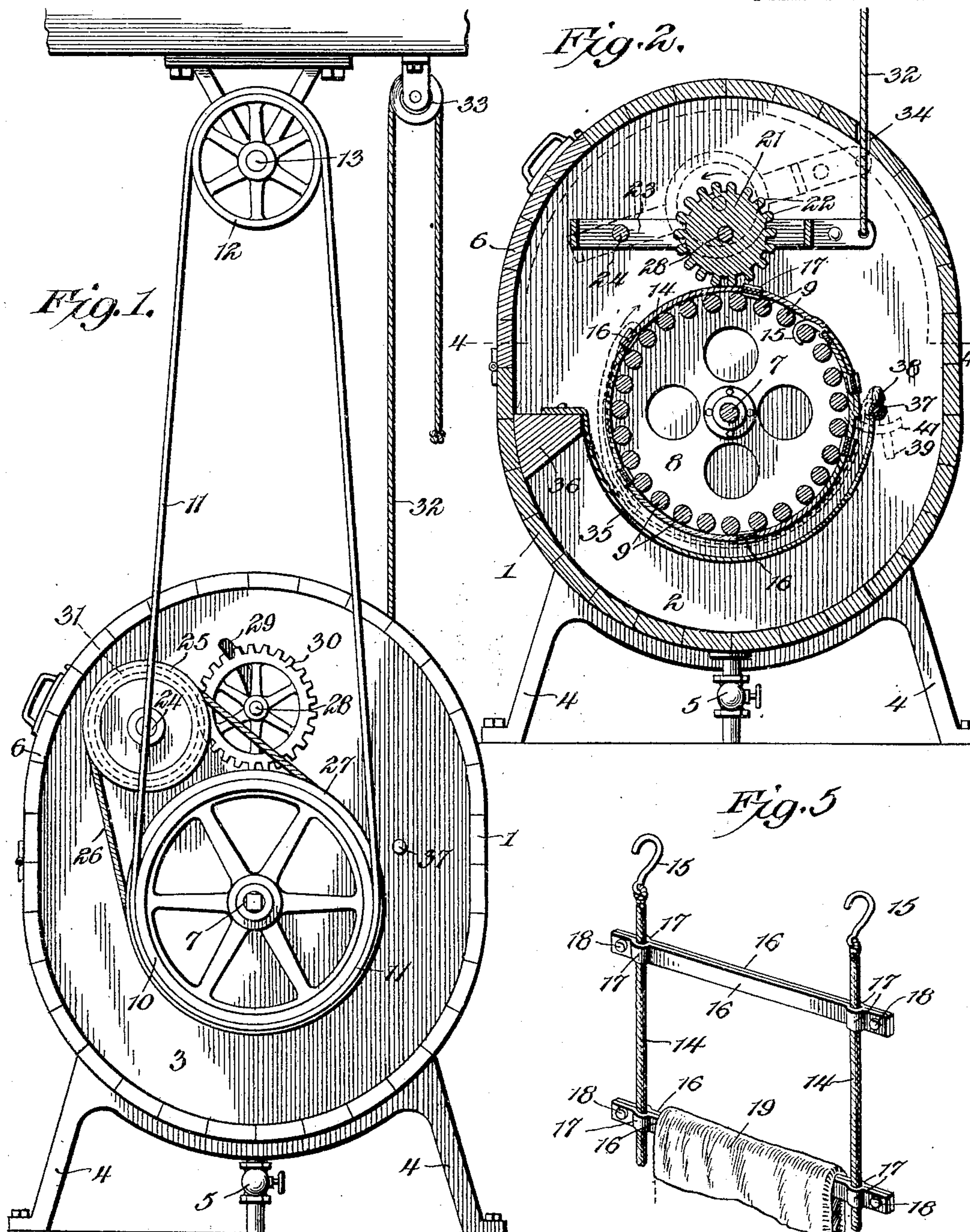


No. 803,894.

PATENTED NOV. 7, 1905.

J. P. GORDON.
WASHING MACHINE.
APPLICATION FILED DEC. 31, 1901.

2 SHEETS—SHEET 1.



James P. Gordon, Inventor:

By

E. G. Siggers

Attorney

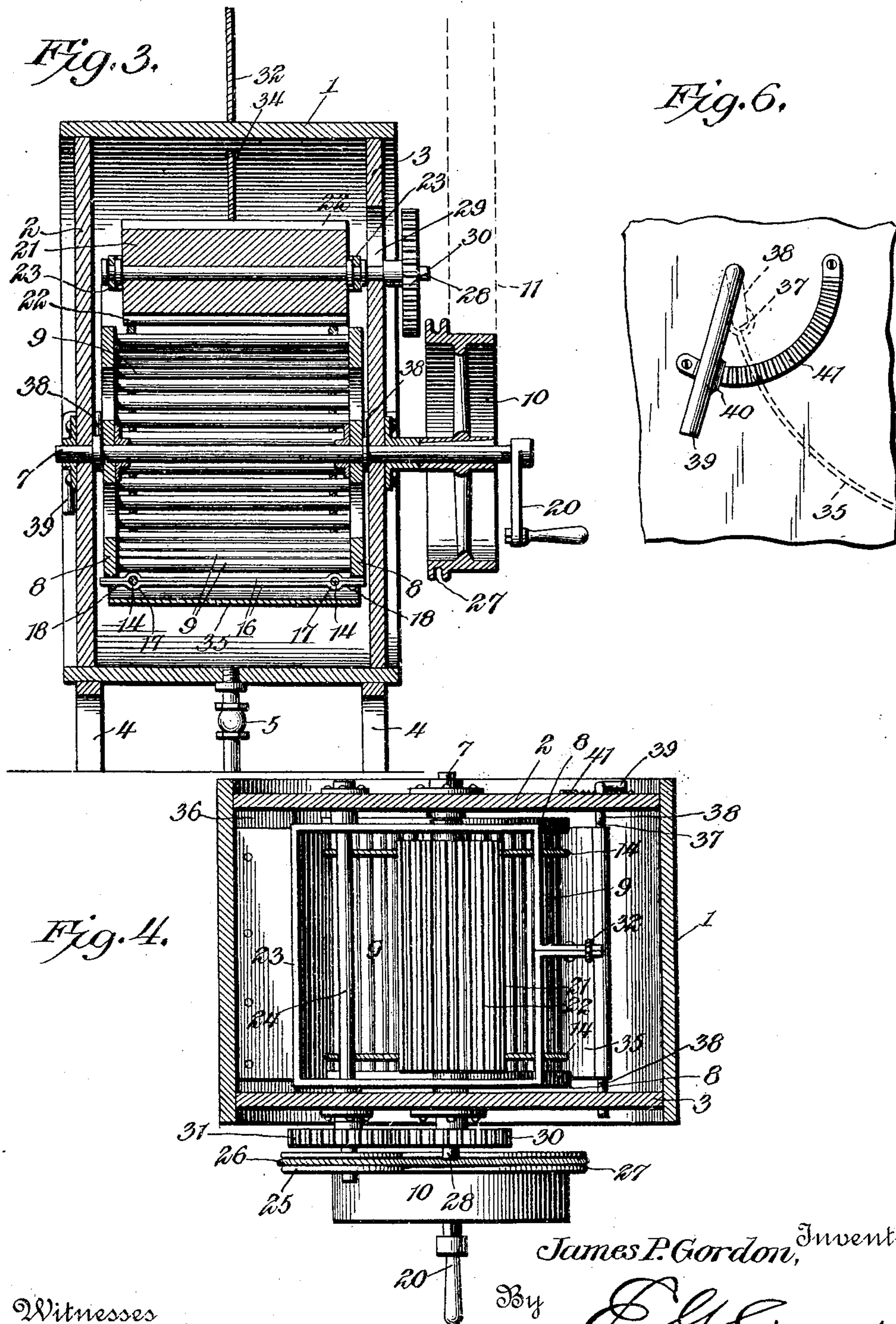
Witnesses
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UNITED STATES PATENT OFFICE.

JAMES P. GORDON, OF FLORENCE, COLORADO.

WASHING-MACHINE.

No. 803,894.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed December 31, 1901. Serial No. 87,917.

To all whom it may concern:

Be it known that I, JAMES P. GORDON, a citizen of the United States, residing at Florence, in the county of Fremont and State of Colorado, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention relates to washing-machines of that type embodying a rotatable washing-cylinder, and has for its object to provide certain new and useful improvements whereby fabrics to be cleansed may be readily and conveniently applied to and removed from the washing-cylinder without removing the latter from the casing or tub and without removing other portions of the machine.

Another object is to provide for pressing or mashing the fabrics against the clothes-cylinder, so as to force the water through the clothes, and thereby cleanse the same, and also to have the pressing or mashing means adjustable for the purpose of varying the force of action thereof, and still further to move the same out of operative position to facilitate the applying and removal of the fabrics with respect to the clothes-cylinder.

Another object is to provide for the convenient rotation of the clothes-cylinder independently of the general operating means for the machine, so as to facilitate the application and removal of the fabrics.

A further object is to provide for supporting the fabrics out of contact with the bottom of the tub during the rinsing operation in order that the fabrics may not be brought into contact with the dirt and settleings in the bottom of the tub, also to prevent a material increase in speed of the rotary clothes-cylinder when the water has been drawn off from the tub preparatory to the rinsing operation, and thereby to maintain the clothes-cylinder at a uniform rate of speed.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is an end elevation of a washing-machine embodying the several features of the present invention. Fig.

2 is a vertical sectional view thereof. Fig. 3 is a longitudinal sectional view at right angles to Fig. 2. Fig. 4 is a plan section taken on the line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of one end portion of the means for securing the fabrics to be washed to the washing-cylinder. Fig. 6 is a detail view showing the means for adjusting the brake device.

Like characters of reference designate corresponding parts in all the figures of the drawings.

Referring to the accompanying drawings, 1 designates the body or tub of the present device, which is preferably elliptical in vertical cross-section, and is provided with opposite flat heads or ends 2 and 3, the entire body or tub being supported upon suitable leg-standards 4.

A suitable drain device 5 pierces the bottom of the casing or tub, so as to draw off the dirty water after the completion of a washing operation. The upper front portion of the tub or casing is provided with a hinged door 6 to give access to the interior of the casing for applying and removing the fabrics.

Extending longitudinally through the tub or casing and journaled in the opposite heads thereof is a shaft 7, upon which is mounted a clothes-cylinder comprising opposite perforate heads 8, carried by and rotatable with the shaft and connected by a plurality of slats or rungs 9, which are arranged close together, so as to form a strong and durable structure and at the same time to present an open-work cylinder through which water may be passed. One end portion of the shaft is projected externally of the casing for a suitable distance and is provided with a belt wheel or pulley 10, over the outer portion of which travels an endless belt 11, which runs over a pulley 12, carried by a counter-shaft 13, hung from the ceiling or otherwise situated and driven from a suitable source of power. (Not shown.)

For convenience in connecting to the washing-cylinder the fabrics to be washed there is provided a fabric-retaining device, comprising opposite substantially parallel flexible members 14, preferably in the form of ropes or cords, which are provided at corresponding ends with hooks 15 to be engaged with one of the slats or rungs of the washing-cylinder, as best illustrated in Fig. 2 of the drawings. These ropes or flexible members are connected by a plurality of cross-bars, each of which is formed by a pair of substantially

duplicate metallic strips or bars 16, which are located at opposite sides of the ropes and are provided with kinks or semitubular seats 17, which snugly receive the respective cables, and are held in frictional engagement therewith by means of fastenings 18, piercing the end portions of the straps or cross-bars and located at the outer sides of the respective ropes or cords. In applying the fabrics to the washing-cylinder each fabric is folded over one of the cross-bars, as indicated at 19 in Fig. 5 of the drawings, after which the hooks 15 are engaged with one of the rungs of the washing-cylinder and the latter is slowly rotated by means of a removable crank-handle 20, which is applied to the polygonal projected end of the shaft 7, whereby the fabrics and the fabric-fastening device are conveniently wound upon the clothes-cylinder.

Above the clothes-cylinder and in operative relation to the periphery thereof there is mounted a presser roll or cylinder 21, which is provided with a plurality of longitudinal ribs 22, and this roller is rotatably mounted upon a substantially rectangular frame 23, which is in turn pivotally supported at its forward end upon a transverse shaft 24, journaled in the opposite heads of the machine, whereby the roll or cylinder 21 is adapted to rest upon the clothes-cylinder. That end of the shaft 24 which is adjacent to the drive-wheel 10 is projected externally of the machine and provided with a grooved pulley 25, over which passes an endless belt 26, which also travels over a grooved pulley upon the shaft 7, preferably formed by a grooved portion 27, provided at the inner edge of the drive-wheel 10. The journal 28 of the roll or cylinder 21 is projected outwardly through an arcuate slot 29, formed in the head 3 of the casing and struck from the shaft 24 as a center, and upon this journal is mounted a gear 30, which is in mesh with a gear 31, carried by the shaft 24 and located between the pulley 25 and the adjacent end of the casing. By this means it will be seen that the two cylinders are driven from the same source and rotate in opposite directions, whereby their adjacent faces turn in the same direction, so as to prevent the fabrics from being rucked up or jammed between the cylinders and to insure a smooth and unobstructed operation of the two cylinders.

As illustrated in the drawings, the rubbing-cylinder 21 is made solid, so as to give the desired weight thereto in order that it may exert the proper amount of pressure upon the fabrics.

In order that the pressure of the rubbing-roller may be varied, I have provided for adjustably elevating the same by means of a rope or cable 32, passed over a pulley or guide 33, hung from the ceiling or any suitable support above the machine, one end being free for manipulation and the other end passed

downwardly through an opening 34 in the top of the case and connected to the rear free end of the frame 23, whereby the frame may be raised and lowered at will upon the shaft 24 as a pivotal support.

It will here be noted that when it is desired to apply or remove the fabrics the drive-belt 11 is shifted to the loose pulley, so that the machine may be inactive. The rubbing-roller 21 is elevated out of engagement with the clothes-cylinder, as indicated by dotted lines in Fig. 2, and then the crank 20 is fitted to the shaft 7, so that the clothes-cylinder may be conveniently rotated at a slow rate, so as to wind or unwind the clothes-holding device.

Located beneath the clothes-cylinder is an arcuate sheet-metal apron 35, which embraces substantially the lower half of the cylinder and normally lies below and out of engagement therewith. One end of this apron is fixed to a cleat or cross-bar 36, secured transversely across the inner side of the front of the tub or casing, and the opposite end is connected to a rock-bar 37, provided at opposite ends with the respective crank portions 38, which are journaled in the heads of the casing, one of the crank portions being provided with a handle 39, which lies upon the exterior of the casing, and is provided with a ratchet-tooth 40, which lies in frictional engagement with an arcuate rack 41, carried by the adjacent end of the casing, so that by manipulating the handle 39 the apron 35 may be drawn into and out of engagement with the fabrics upon the clothes-cylinder and is held in its different positions by means of the tooth 40 engaging the rack 41.

In using the present form of machine the fabrics are folded over the respective cross-bars 16 of the fabric-holding device and then the latter is introduced through the opening in the upper front portion of the casing and the hooks 15 are engaged with one of the rungs of the clothes-cylinder, after which the latter is slowly rotated by manipulation of the crank-handle 20, so as to wind the fabric-holding device and the fabrics upon the clothes-cylinder. The rubbing-roller is then dropped into frictional engagement with the fabrics and the drive-belt is thrown onto the fast pulley, so as to throw the machine into operation. During the rapid rotation of the clothes-cylinder all of the fabrics are rubbed between the two cylinders and the water taken up from the bottom of the tub or casing is pressed through the fabrics and drops down through the open clothes-cylinder, whereby the dirt particles are effectually loosened from the fabrics and carried off therefrom by the water, which is pressed through the fabrics and drops down to the bottom of the casing.

After the machine has been in operation for a suitable period the drain-cock 5 is opened to draw off the dirty water preparatory to rinsing the fabrics. As the water recedes from

the clothes-cylinder the frictional resistance thereof is removed and there is a tendency toward increased speed, and to overcome this objection the brake device 35 is drawn up
 5 against the cylinder with sufficient force to prevent increased rotation of the same and to maintain the latter at a uniform rate of speed. In addition to serving as a brake the device 35 also holds the fabrics out of contact with
 10 the slime and settlings at the bottom of the tub, so that the fabrics may not be soiled during the rinsing operation. It will be understood that the device 35 is out of contact with the clothes-cylinder during the washing
 15 operation and is in engagement therewith only during the rinsing operation.

What I claim is—

1. In a washing-machine, the combination of a rotatable clothes-cylinder having a drive-
 20 wheel, a swinging frame which is capable of movement toward and away from the clothes-cylinder, a rotatable rubbing-cylinder carried by the frame, means for adjustably swinging the frame upon its pivotal support, a gear
 25 carried by one of the journals of the rubbing-roller, another gear mounted upon the pivotal support of the swinging frame and in mesh with the gear on the rubbing-roller, and an operative connection between the drive-
 30 wheel and the gear on the pivotal support of the swinging frame.

2. In a washing-machine, the combination with a casing, of a rotatable clothes-cylinder mounted within the casing and having one
 35 journal projected exteriorly thereof, a drive-wheel upon said journal, a shaft mounted in the opposite sides of the casing and provided at one end with a gear adjacent to the drive-
 wheel, an operative connection between the
 40 drive-wheel and said gear, a swinging frame pivoted upon the shaft, a rotatable rubbing-roller mounted upon the swinging frame in operative relation to the clothes-cylinder and having one of its journals projected outwardly
 45 through the adjacent side of the casing, said

side of the casing having an arcuate slot struck from the shaft as a center and receiving the projected journal of the rubbing-roller, a gear upon the projected journal of the rubbing-roller and in mesh with the first-mentioned
 50 gear, and means for adjustably swinging the frame upon its pivotal support.

3. In a washing-machine, the combination with an open-work clothes-cylinder, of a clothes-holding device comprising opposite
 55 flexible members provided with terminal cylinder-engaging fastenings adapted to engage the cylinder at any point, and cross-bars connecting the flexible members.

4. In a washing-machine, the combination
 60 with an open-work clothes-cylinder, of a clothes-holding device comprising opposite flexible members, terminal hooks carried thereby at each end thereof for engaging the cylinder at any point, and cross-bars connect-
 65 ing said members.

5. As a new article of manufacture, a clothes-holding device for cylinder washing-machines, comprising opposite flexible members, terminal cylinder-engaging fastenings carried by
 70 said members, and cross-bars connecting the members.

6. As a new article of manufacture, a clothes-holding device for cylinder-machines, comprising opposite flexible ropes or cords, hooks at
 75 each end of the device for engaging a cylinder at any point, and cross-bars connecting the ropes and comprising opposite longitudinal members provided with semicylindrical
 80 seats embracing the ropes, and fastenings piercing the opposite end portions of the members and clamping the latter upon the ropes.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES P. GORDON.

Witnesses:

JOHN LOCKWOOD,
 G. P. NIX.