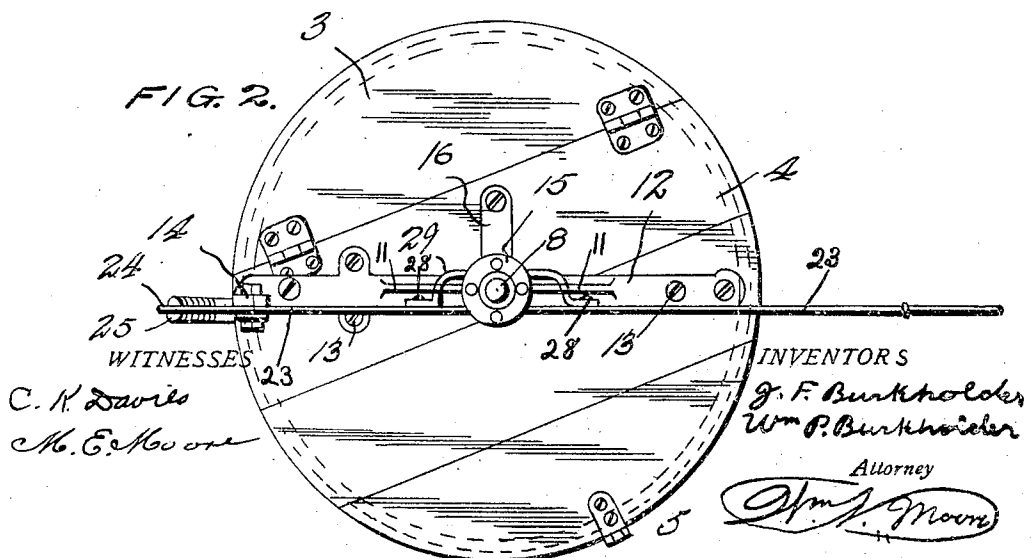
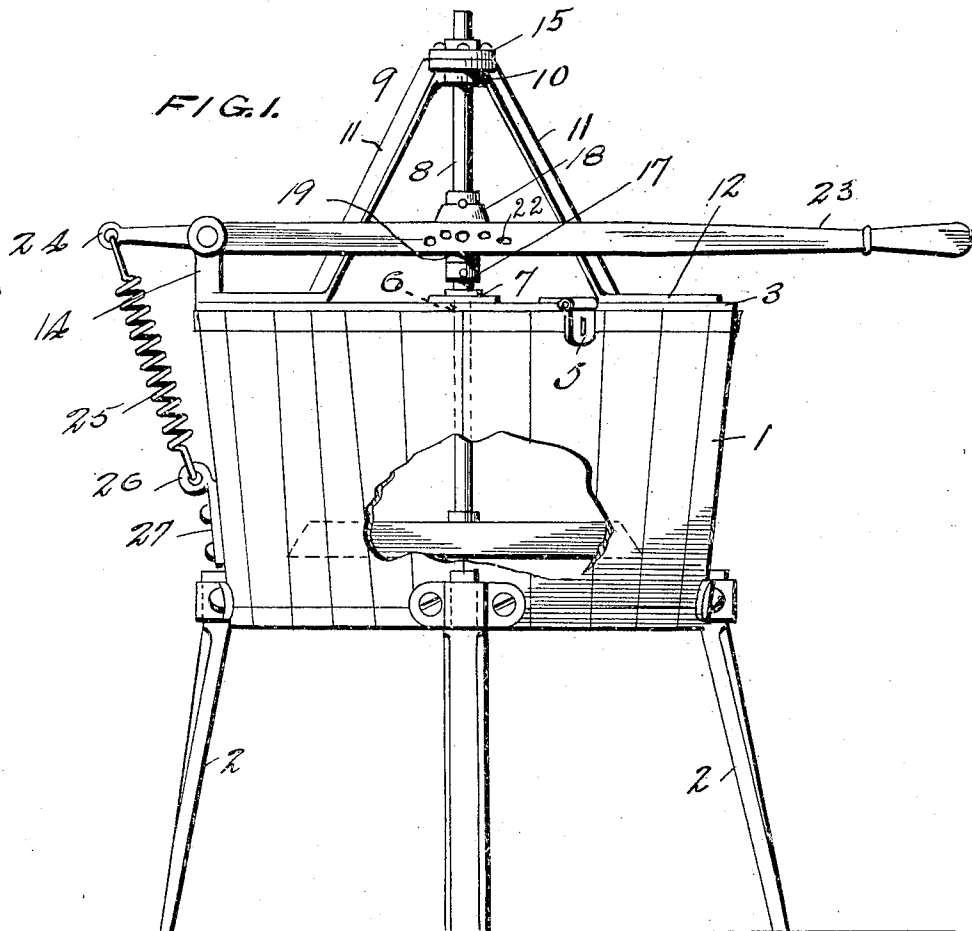


J. F. & W. P. BURKHOLDER.
 WASHING MACHINE.
 APPLICATION FILED JULY 13, 1909.

959,992.

Patented May 31, 1910.

2 SHEETS—SHEET 1.

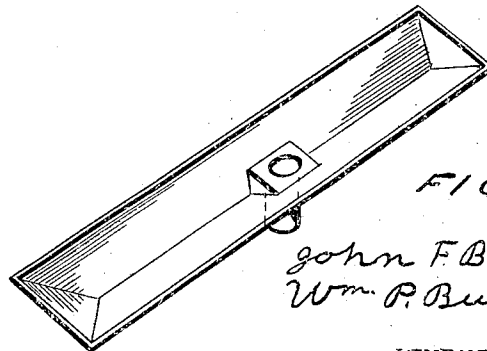
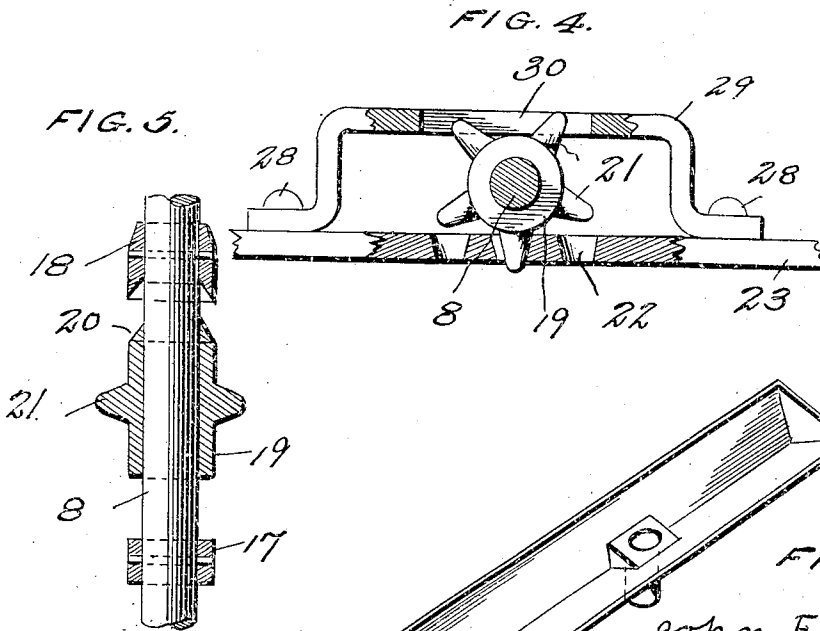
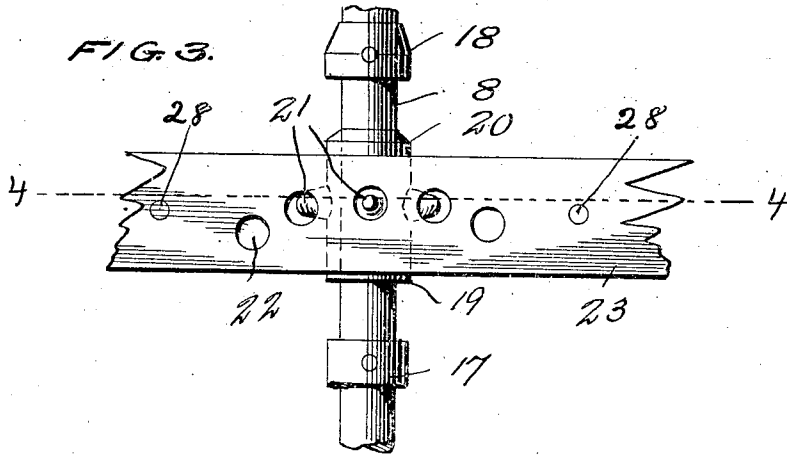


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UNITED STATES PATENT OFFICE.

JOHN F. BURKHOLDER AND WILLIAM P. BURKHOLDER, OF HARRISONBURG, VIRGINIA.

WASHING-MACHINE.

959,992.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed July 13, 1909. Serial No. 507,377.

To all whom it may concern:

Be it known that we, JOHN F. BURKHOLDER and WILLIAM P. BURKHOLDER, citizens of the United States, residing at Harrisonburg, in the county of Rockingham and State of Virginia, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

10 Our invention relates to improvements in mechanical movements, and the leading object of our invention is the provision of a mechanical movement particularly adapted for use in operating a washing machine.

15 Another object of the invention is the provision of a mechanical movement for washing machines or like devices which will cause the plunger or dasher of the machine to reach every part of the bottom of the tub and stir up the contents of the machine without injuring the same by rubbing or friction.

20 A further object of our invention is the provision of a mechanical movement for the purpose described which will require but slight exertion or power to operate the same.

25 With these and other hereinafter disclosed objects in view, our invention consists in an apparatus for producing mechanical movements embodying novel features of construction and combination and arrangement of parts substantially as herein described and as illustrated in the accompanying drawings in which are shown one of the 30 embodiments of our apparatus.

35 Figure 1, represents a side elevation of a washing machine equipped with our apparatus, part of the tub being cut away. Fig. 2, represents a top plan view of the same. 40 Fig. 3, represents a detailed view of a part of the apparatus. Fig. 4, represents a cross-sectional view on the line 4-4 of Fig. 3. Fig. 5, represents a fragmentary side elevation of the shaft with the pinion wheel 45 clutch and abutment collar shown in section thereon, and, Fig. 6, represents a basal perspective view of a pounder adapted for use with our apparatus.

50 In the drawings: the numeral 1, designates a washing machine tub having the supporting legs 2, and having secured to its top the section 3 of the cover, while hingedly secured to said section 3 is the main section 4 of the cover, said cover 4 being provided 55 with a suitable latch or lock piece 5 for securing its free side to the tub. Formed in

the center of the cover of the machine is the opening 6, and surrounding said opening and secured to the cover is the plate 7, said plate serving as one of the bearings for the shaft 8. Forming the upper bearing 60 for the shaft is the angle bar 9, said bar consisting of the enlarged portion 10 provided with an opening in which the shaft is slidably mounted, and having the brace or supporting portions 11 making an angle therewith and with the cover of the tub, said portions 11 terminating in the base portions 12 65 having openings in which are engaged the screws 13 which secure the bar to the cover, while formed integral with one of the portions 12 and upstanding therefrom is the arm 14, the bar 9 being so placed upon the cover that the arm 14 lies near the meeting 70 corner of the sections 3 and 4 of the cover, the entire device being secured to section 4, as will be seen by reference to Fig. 2. To further brace the bearing of the upper end of the shaft, we provide a supplemental brace 75 having the enlarged portion 15 riveted to the portion 10 of the bar and forming a part of the bearing of the shaft, said brace terminating in the base portion 16 secured to the cover section 4 by means of the screws 13. It will thus be seen that the upper 80 bearing 10-15 of the shaft is supported by a tripod formed by the brace and the two supporting portions 11 of the bar 9.

Secured upon the shaft intermediate the bearings therefor is the abutment collar 17 90 and the shell cone or collar 18, said cone 18 forming the driven part of the friction cone, while loosely mounted on the shaft between the collar and cone is the cylinder or collar 19 having the tapered upper portion 20 95 adapted to fit in and be frictionally engaged in the shell cone, forming a friction clutch, while formed intermediately on the cylinder are teeth 21, said teeth being engaged in the openings 22 in the operating lever 23. Said 100 lever 23 is pivotally secured to the arm 14 of the bar 9, and has on its outer end the eye 24 in which is engaged one end of the coil spring 25, the other end of said spring being secured to the eye 26 of the plate 27, 105 which plate is secured to the lower portion of the side of the tub. To retain the lever 23 in engagement with the collar 19, we secure by means of the bolts 28 to the back of the lever the bracket 29, said bracket bearing 110 against the cylinder and holding the lever in engagement therewith, the pinion revol-

ing in the slot 30 in the bracket which exerts its pressure on the cylinder both above and below said pinion. As will be seen by reference to the drawings, the openings 22 in the operating lever are arranged in the form of an arc, and the operation of the device is as follows.

The tub having been filled with the clothes to be cleaned and the cleansing fluid, the cover is shut down and secured, when by the upward and downward movement of the outer end of the lever 23 the cylinder is raised and lowered and engages the cone and collar on the shaft and imparts a vertical reciprocal movement thereto. As will be seen by reference to Fig. 1, on the lower end of the shaft is secured a suitable pounder, that form of inverted trough with closed ends as shown in Fig. 6 being particularly adapted for use with our apparatus. It will be readily understood that as the shaft by the operation of the lever is moved up and down the pounder will alternately drive and draw the water through the clothes in the customary manner of operation of such devices.

The movement of the lever 23 on its axis in arm 14 will cause the distance between the cylinder and said axis to alternately increase and decrease, and the engagement of the pinion in the openings in the lever will cause the revolution of the cylinder as the lever is thus drawn back and forth thereacross. As the lever is moved upward, the weight of the shaft and pounder draws the cone down upon the cylinder causing the engagement of the two parts of the friction clutch and the motion thus given to the cylinder is in turn imparted to the cone and shaft partially revolving the latter, but as the lever is brought down, the clutch is thrown out of engagement and the lower end of the cylinder is brought to bear against the collar 17, there being insufficient friction therebetween to revolve the shaft in reverse direction until the dasher or pounder strikes the clothes, when the friction therebetween being greater than between the collar and cylinder the shaft is prevented from turning. It will thus be seen that upon every upward stroke of the lever the shaft is partially revolved while it remains stationary during the downward stroke and that in this way the pounder each time is brought against a different portion of the material in the tub and that in this way every part of the material is thoroughly cleaned and gone over without being torn or damaged by rubbing or friction.

It will be understood that if desired the spring may be set to exactly balance the device so that an amount of energy equal to that expended to raise and lower the lever or the spring may be set to normally force the same upward, the only force then to be

expended being to force the device down upon the clothes.

It will be observed that the location of the pivotal point of the lever and of the spring with relation to the hinged connection of the two sections of the cover enables the upward swinging of the section 4 thereof without the necessity of detaching the spring or in any other way disturbing the mechanism.

From the foregoing description taken in connection with the drawings, the operation and advantages of our apparatus will be readily understood and its advantages fully appreciated. It will be seen that we provide a simple inexpensive and practical mechanical movement adapted for use in washing and other machines of like character, and that a machine constructed in accordance with the principles of our invention as disclosed in the specification and drawings while thoroughly cleansing the material in the tub obviates the danger of tearing or injuring the fabric and that our machine can be used for cleansing the most delicate fabric such as lace or for the heaviest washing without the fear in the one case of damaging the clothes or in the other of not thoroughly cleansing the same.

We claim:

1. In mechanical movements, the combination with a shaft, bearings therefor, an abutment collar thereon, a shell cone secured thereon, a cylinder frictionally engaged thereby and means for moving the shaft and rotating the cylinder.
2. In a device of the character described, the combination with the shaft, of an abutment collar thereon, means mounted on the shaft forming a friction clutch, and pivotally secured means intermeshing with a pinion on one of the members of the clutch for operating the device.
3. In a device of the character described, the combination with a vertically slidable shaft, an abutment collar thereon, means mounted on the shaft forming a friction clutch, the loosely mounted member thereof having a pinion formed thereon, a pivoted lever for moving the shaft having means intermeshing with said pinion and causing it, and thus the shaft through the medium of the clutch, to revolve.
4. In combination with a washing machine, a shaft vertically movable therein, a dasher secured on the lower end of the shaft, an abutment collar secured on the shaft, a shell cone secured thereabove, a pinion bearing cylinder loosely mounted therebetween, the upper end of the cylinder and the cone forming a friction clutch, a lever pivoted to the side of the machine and engaging the cylinder, and intermeshing means engaging the pinion carried thereby, said lever serving to vertically move the shaft and to revolve the cylinder.

5. In a device of the character described,
the combination with a vertically movable
shaft, an abutment thereon, a shell cone se-
cured to the shaft above said abutment, rev-
5 oluble means loosely mounted on the shaft
having frictional engagement with the cone,
means for moving the shaft and revolving
said revoluble means, said latter means be-
ing pivotally secured to the device, and
10 means also secured to the device and to the

end of said pivoted means for counterbal-
ancing the weight thereof.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

JOHN F. BURKHOLDER.
WM. P. BURKHOLDER.

Witnesses:

C. H. BRUNK,
J. S. MESSERLEY.