

(Model.)

J. W. DUNCKHORST.  
WASHING MACHINE.

No. 368,521.

Patented Aug. 16, 1887.

Fig. 1.

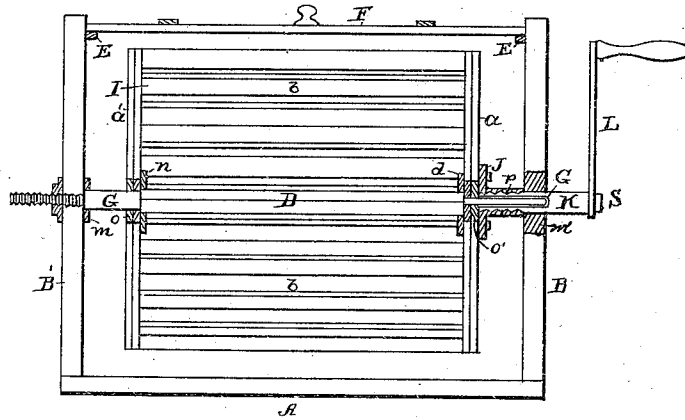


Fig. 2.

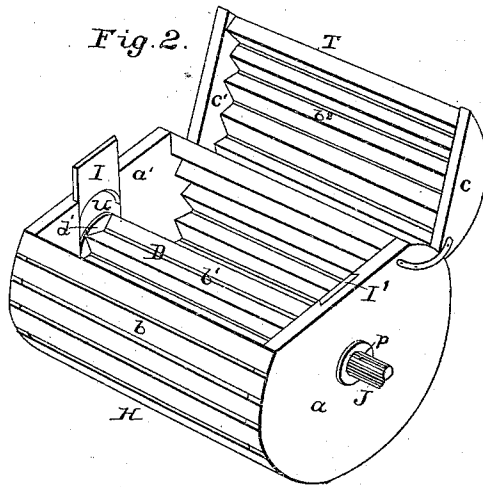


Fig. 3.

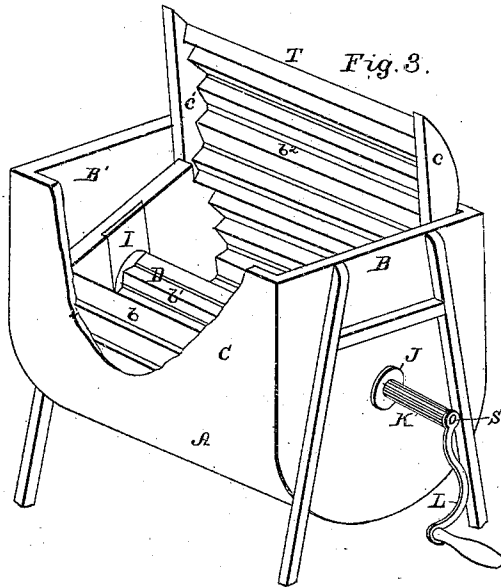


Fig. 5.

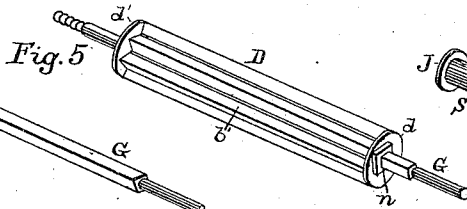


Fig. 6.

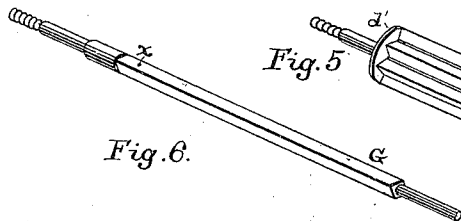
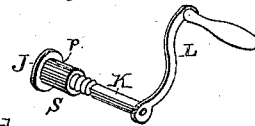


Fig. 4.



Witnesses  
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Inventor  
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# UNITED STATES PATENT OFFICE.

JOHANN WM. DUNCKHORST, OF DAVENPORT, IOWA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 368,521, dated August 16, 1887.

Application filed June 1, 1885. Serial No. 168,436. (Model.)

*To all whom it may concern:*

Be it known that I, JOHANN WILLIAM DUNCKHORST, a citizen of the United States, residing at the city of Davenport, in the county of Scott and State of Iowa, have invented certain Improvements in Washing-Machines, of which the following is a specification.

My invention relates to that class of washing-machines in which double cylinders are used, but only one cylinder is made to revolve; and it consists in the details of constructing the axle, shaft, and connections to the two cylinders, and in the construction and combination of the several parts. All will now be explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical central longitudinal section. Fig. 2 is a view of the two cylinders, with a section thrown open to show the interior. Fig. 3 is a perspective view of the whole machine. Fig. 4 is a view of the different parts and the manner of connecting the parts of the shaft with crank or pulley. Fig. 5 shows the manner of connecting the shaft to the inside cylinder; and Fig. 6 is an enlarged view of the axle.

Similar letters refer to similar parts throughout the several views.

The tub A may be of any form suitable to contain the cylinders, with heads B and B'. The heads B and B' have openings at their centers, through which the shaft S and axle G pass to position and support, the axle G being secured to the head B'.

H is the larger or rotary cylinder, with heads *a* and *a'*. In the center of heads *a* and *a'* are cut angular openings in which are placed metal bearing-boxes *o* and *o'*, and to the inside of head B' is secured washer *m*. A metal box, *m'*, is placed within the head B as a bearing for the shaft S. Upon the inside of heads *a* and *a'* are cut slots U, to admit the placing of cylinder D. The slides or bearing-pieces I I', each of which is cut on its under side in the form of a semi-circle, fit, by means of dovetail grooves on the inside of both heads *a a'*, snugly down upon and over heads *d* and *d'* and prevent fabrics from catching and tearing during revolutions of the cylinder H. The shaft S consists of two parts, J and K, and is constructed hollow, for a part

of its length at least, in order to admit the axle G. The part J is secured to head *a* and the part K is secured to part J by thread and screw, with a pin at *p*, or some other suitable connection, to prevent separation of those two parts in the operation of the machine. To the shaft S so connected may be attached a crank at L, or a pulley.

To the heads *d* and *d'* of the smaller cylinder, D, and about openings at their centers, washers *n* and *n'* are secured, fitting tightly upon axle G, to hold the cylinder firmly to axle G and to prevent any rotary motion of cylinder D. The axle G extends from head B to B' and forms the support for both cylinders, the cylinder H revolving upon it, but the cylinder D remaining fixed.

At the points where the washers *n* and *n'* rest upon it axle G is angular in form. At the points where the metal boxes *o* and *o'* bear upon it the said axle is round. At all other points it may be of any form. That part of axle G which extends into and rests within shaft S is preferably of less diameter, and its greatest diameter is at the point where the box *o* bears upon it.

An opening at *x* admits a pin, which prevents any lateral motion of the cylinders D H. The part K of shaft S is passed through the opening in head B and secured to part J after cylinders D and H are in position.

I am aware that rotary washing-machines have heretofore been constructed involving the use of two concentric cylinders, wherein one cylinder has been revolved, while the other was either fixed or free to move, and I therefore do not claim such construction, broadly; but such results have been attained by using two shafts or two axles to hold the inside cylinder rigid or firm while the outer cylinder is revolved by means of cog and gear wheels; but by using a single axle and fixing the inside cylinder to it and revolving the outer cylinder upon that axle, and not using the inside cylinder as an axle, as well as by discarding the cog and gear wheels, I lessen the friction, make the action of the machine noiseless, and reduce the amount of power. Such construction enables the quick and easy reversing of revolutions possible, thereby lessening the lia-

bility to tear the materials, as well as more thoroughly cleaning them.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

The combination of the suds-box, the shaft G, having the square central portion and cylindrical ends rigidly secured in the ends of the suds-box, the inner cylinder, D, mounted on the square portion of the shaft, the outer cylinder, H, mounted upon the cylindrical ends of the shaft and provided with the coup-

ling S, consisting of the internally-threaded part J, attached to one of the heads of the outer cylinder, and the threaded part K, engaging part J, carrying the operating-crank, all substantially as shown and described, whereby the inner cylinder is held stationary and the outer cylinder is free to revolve upon a single shaft, as and for the purpose set forth.

JOHANN WM. DUNCKHORST.

Witnesses:

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