No. 724,026. PATENTED MAR. 31, 1903.

J. MACKENZIE.

WASHING MACHINE.

APPLICATION FILED DEC. 20, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

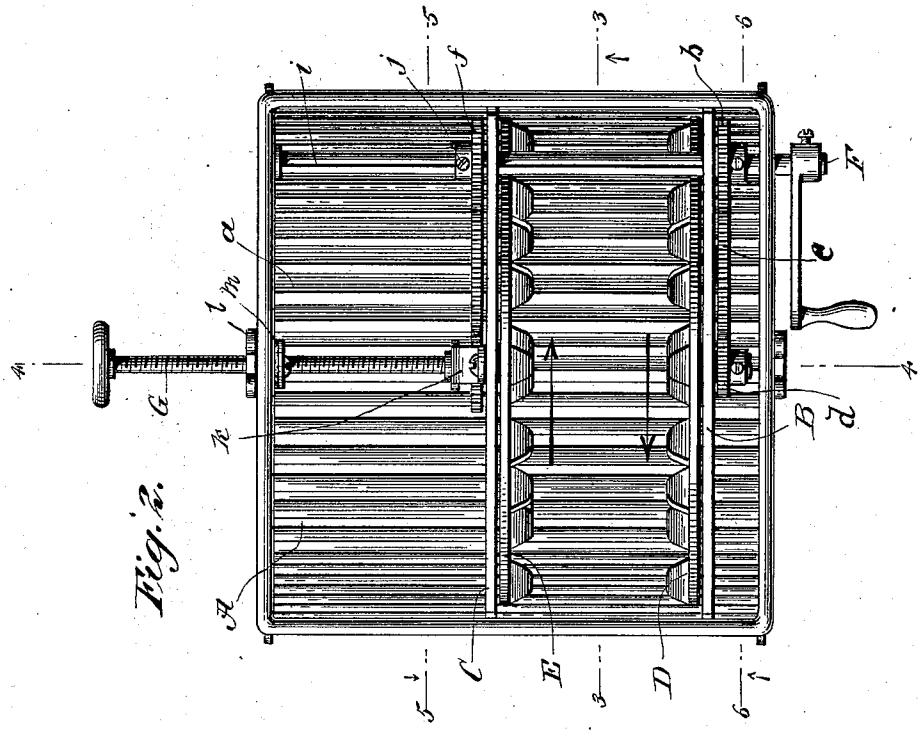


Fig. 2.

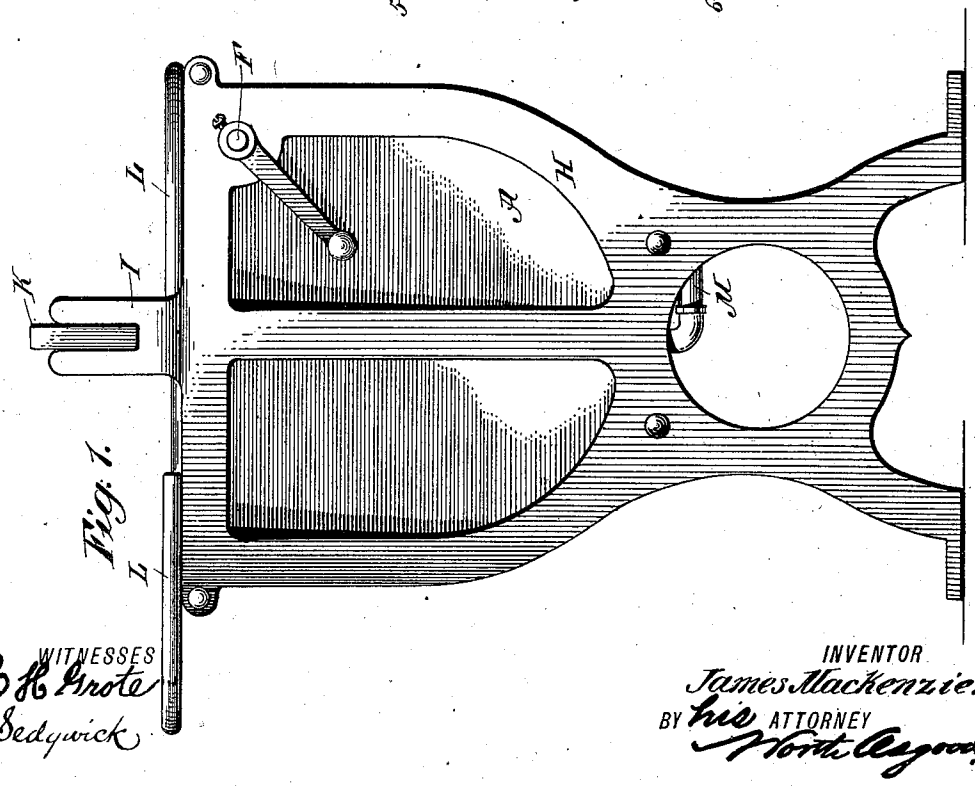


Fig. 1.

WITNESSES

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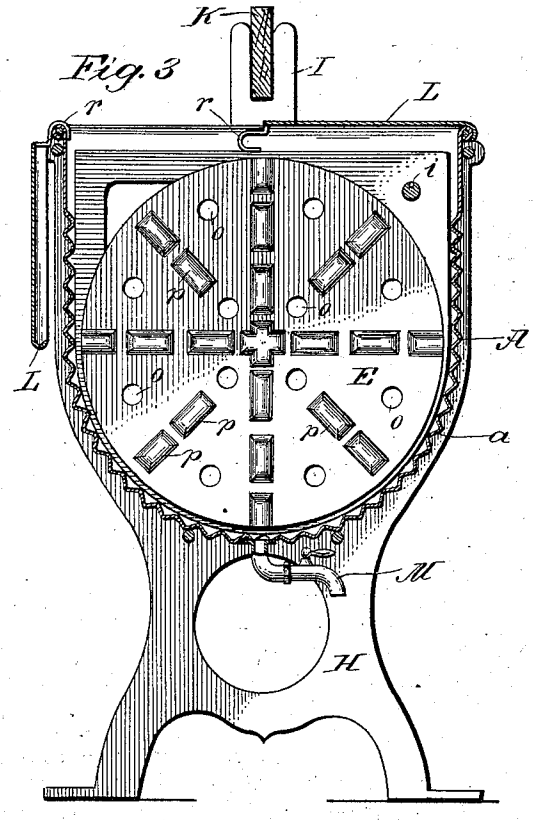
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Fig. 3



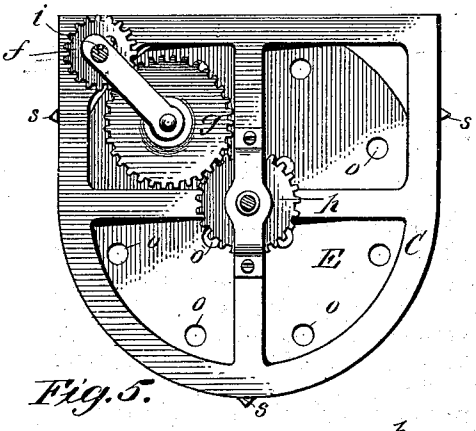


Fig. 5.

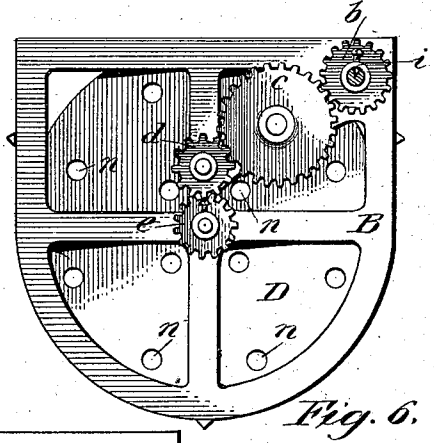
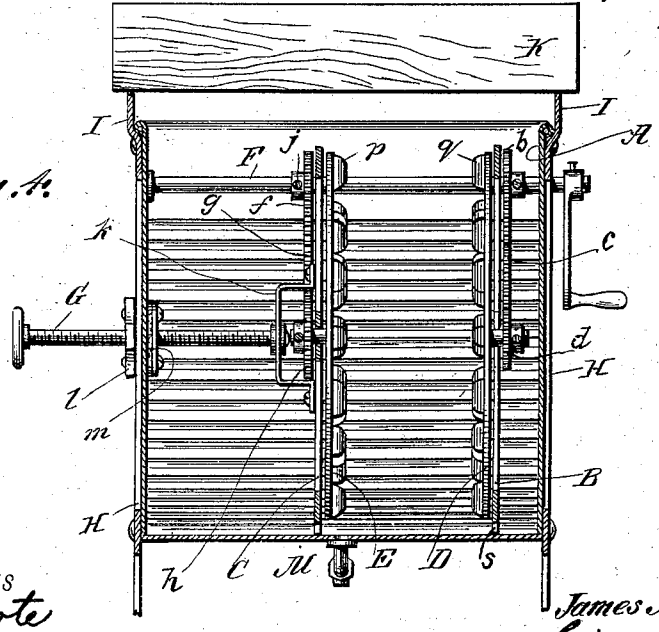


Fig. 6.

Fig. 4.



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JAMES MACKENZIE, OF GLASGOW, SCOTLAND.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 724,026, dated March 31, 1903.

Application filed December 20, 1902. Serial No. 135,972. (No model.)

To all whom it may concern:

Be it known that I, JAMES MACKENZIE, a subject of the King of Great Britain, and a resident of Glasgow, Scotland, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention has relation to that class of machines ordinarily called "washing-machines" and primarily intended for the cleansing of clothes and cloths or fabrics, but which may be employed for treating any other articles or materials as may be required.

The object of my invention is to provide or produce a simple, effective, durable, and reliable machine of the class named wherewith the operations of cleansing or treating may be carried on without damage to the material, with economy of labor or power and time, and without danger of disarranging the working parts of the machine. To accomplish all of this and to secure other and further advantages in the matters of construction, operation, and use, my improvements involve certain new and useful arrangements or combinations of parts and peculiar features of construction, as will be hereinafter first fully described and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is an end elevation, and Fig. 2 a top or plan view, of my improved washing-machine, the covers being omitted from the latter figure. Fig. 3 is a cross-section and elevation on line 3 3 of Fig. 2. Fig. 4 is a vertical longitudinal section and elevation through line 4 4 of Fig. 2. Fig. 5 is a view in elevation of the interior movable or adjustable frame with working parts applied thereon, the view being taken as on a plane through line 5 5 of Fig. 2 and looking in the direction of the arrow. Fig. 6 is a view in elevation of the stationary interior frame with working parts applied thereon, this view being taken as on a plane through line 6 6 of Fig. 2 and looking in the direction of the arrow.

In all the figures like letters of reference wherever they occur indicate corresponding parts.

A is the tank or tub, which is preferably made of sheet metal and which may be of any size or capacity, this being in rectangular form in plan, as shown in Fig. 2, and the lower part being semicylindrical in general form, as shown in Fig. 3. The bottom and side walls are fluted or corrugated, as at *a a*, to better operate upon the clothes or material to be treated.

B and C are two frames of sufficient stability, each carrying a revolving disk, as at D and E, the frame B being solidly anchored within and near one end of the tank or tub and the frame C being movable back and forth therein, with the disk and other appliances mounted on it. Each disk is axled on its corresponding frame and both disks are intended to be simultaneously revolved in opposite directions by power communicated to them in any suitable way or by any appropriate means.

F is a driving-shaft, which may be turned by any mechanical power or by hand, and in the particular means shown for transmitting power or motion from this shaft to the disks D and E the gears *b*, *c*, *d*, and *e* serve to connect the axle of the disk D with the driving-shaft and to turn this disk in one direction, while the gears *f*, *g*, and *h* serve to connect the disk E with the driving-shaft and to turn this disk in a direction opposite that of disk D. The gear *f*, or a corresponding appliance which may be put in the place of it, is so mounted on the driving-shaft that it is compelled to turn therewith in either direction, but will be free to move back and forth thereon when the frame C and the disk are moved within the tank. A simple means of providing for this connection and adjustment is to groove the shaft F, as at *i*, and to supply the hub of the gear *f* with a pin, as *j*; but other suitable mechanical arrangements for this purpose may be adopted.

G is a screw-rod connected with a suitable yoke on the frame C to move that frame back and forth and to hold it firmly at the point to which it is adjusted, so that it cannot be moved back by any pressure brought to bear on it while the machine is in operation. The yoke is represented at *k*, and the stationary nut through which the screw-rod G passes is represented at *l*. The screw-rod should be packed in such manner as to prevent leakage of water around it, and for this purpose I pre-

fer to employ a simple gasket of leather or rubber, as indicated at *m*.

Both the revolving disks D and E are perforated, as at *n n* and *o o*, and both are provided on their interior faces with smooth radially-arranged projections, as *p p* and *q q*, the purpose of the perforations being to permit the water to pass back and forth through the disks and of the projections to compel the requisite movement of the clothes or material being operated on and to produce the required rubbing thereof to secure the necessary thorough cleansing or other treatment.

The tank is sustained at the desired height by outside end frames, as H H, and these end frames are provided with upwardly-projecting pieces, as I I, which form supports for the cross-strip K, which latter is supplied for the application of a clothes-wringer.

L L are two sliding covers, which when in place on the top of the tank afford a flat top to receive any articles desired. These covers slide easily on the edges of the top and are each supplied with any convenient form of hook, as at *r*, which will engage with the sides of the tank and permit the sections of the top or cover to hang down close beside the machine or admit of easy removal of the cover when desired.

M represents the draw-off through which the liquid contents of the machine may be discharged at any time.

In order that the frame C may move easily back and forth as the screw G is turned, this frame is provided with projections, as at *s s*, movable in the corrugations in the tank. These projections operate as guides and keep the frame in proper position within the tank, as will be readily understood.

The two disks D and E are to be separated from each other according to the quantity of material to operated upon. The material being in place with the water or cleansing or other agent and the driving-shaft being turned in either direction, the disks turn and rub the material and crowd and carry it as it is being turned against the corrugated surface of the tank in a manner to thoroughly and effectually perform the required scrubbing or rubbing operation.

The improved machine being constructed and arranged substantially in accordance with the foregoing explanations will be found to admirably answer all the purposes or objects of the invention hereinbefore alluded to.

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

1. In a washing-machine, the combination with the corrugated tank and the revoluble disks, of the movable frame mounted in the tank and bearing one of the revoluble disks and means for turning said disk, said frame being provided with projections arranged to move in the corrugations of the tank to maintain the frame in proper position, substantially as and for the purposes set forth.

2. In a washing-machine of the character herein set forth, the combination with the corrugated tank, of the two frames mounted and arranged therein, one of the frames being movable, the two revoluble disks journaled on the frames, each of said disks being perforated and provided with projections on their working faces, a screw-rod for adjusting and holding the movable frame and the disk journaled thereon, and means for turning the two disks, substantially as and for the purposes set forth.

3. In a washing-machine of the character herein set forth, the combination with the corrugated tank and the revoluble disks, of the movable frame carrying one of the revoluble disks, and the screw-rod connected with said frame and projecting through the vertical wall of the tank and provided with a packing on the interior of the tank, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES MACKENZIE.

Witnesses:
C. SEDGWICK,
WORTH OSGOOD.