J. G. BEARDSLEY.
Washing-Machine.

No. 202,781. Patented April 23, 1878.

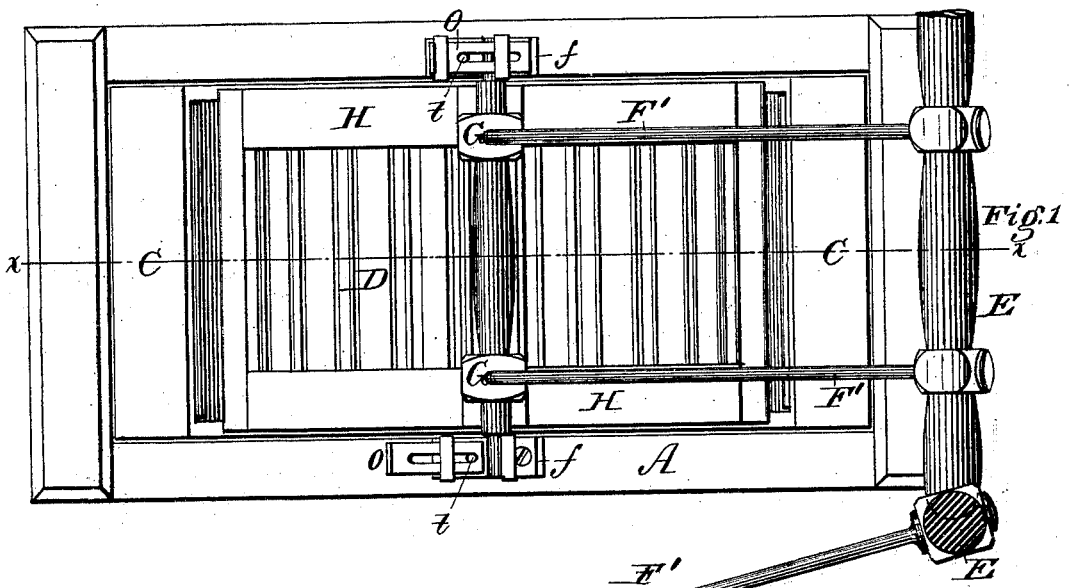
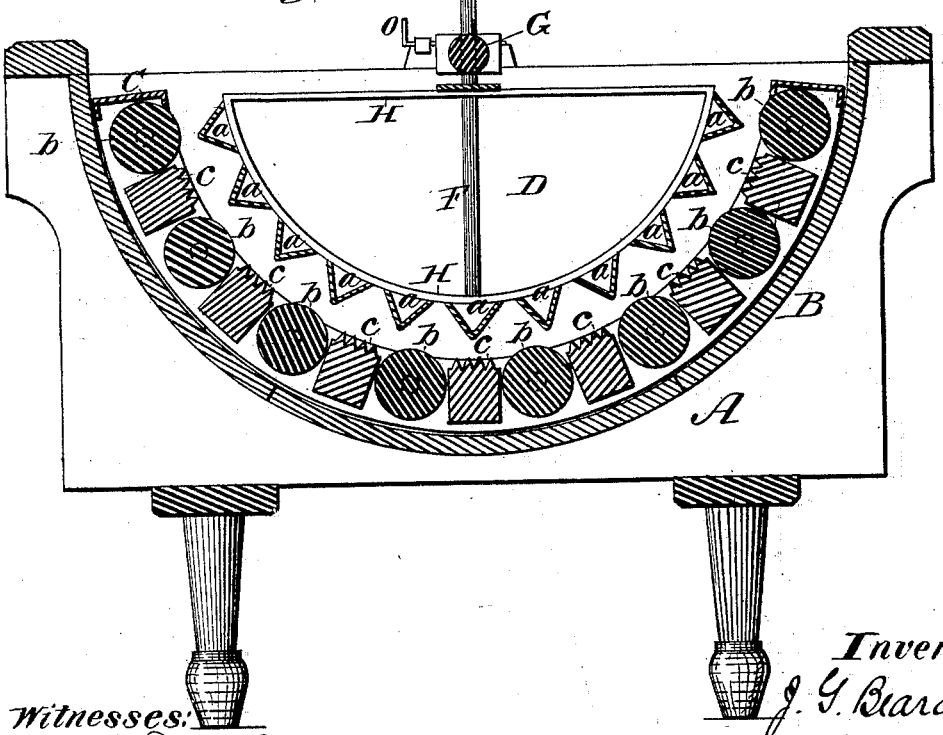


Fig. 1

Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN G. BEARDSLEY, OF WAUPUN, WISCONSIN.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **202,781**, dated April 23, 1878; application filed September 27, 1877.

To all whom it may concern:

Be it known that I, JOHN GROVER BEARDSLEY, of Waupun, in the county of Fond du Lac and State of Wisconsin, have invented certain Improvements in Washing-Machines, of which the following is a specification:

My invention relates to that class of washing-machines which consist, essentially, of a semicircular rubber oscillating within a tub of corresponding form; and the invention consists in certain details of construction, as hereinafter explained, whereby the efficiency of the machine and the facilities for keeping the same clean are materially increased.

In the accompanying drawings, Figure 1 represents a plan view of my improved machine, and Fig. 2 a longitudinal section of the same on the line *x x* of Fig. 1.

The object of this invention is to produce a machine the action of which shall approximate, as nearly as possible, the manual operation of washing, and which will admit of free access to every part of the machine for the purpose of keeping the same clean.

To this end the invention consists in constructing the machine as represented in the accompanying drawing, in which—

A represents a stout tub, furnished with a semicircular bottom, of wood or metal, and with a semicircular rubber, D, swinging from pivots concentric with the bottom, but free to be raised or lowered therein without altering the position of the pivots or journals, this being accomplished by attaching the rubber to two vertical rods, F, passing upward loosely through a transverse rock-shaft, G, mounted at its ends in bearings *f*, secured upon the upper face of the sides of the tub. The rods extend upward through the rock-shaft G in a vertical direction some distance above the same, and are thence bent outward over the end of the tub, as shown, the extension being marked F′, in order that the handle or cross-bar E, which connects their ends, and by which the rubber is operated, may be at all times within easy reach of the attendant.

The rock-shaft G is held in its bearings by slides O, passing over its journals and under staples or loops, said slides being slotted and working over pins *t*, whereby their movement is limited. By drawing back the slides the rubber D and the rock-shaft G may be readily removed from the tub, the rock-shaft remaining always in place on the rods F. The rubber D consists of two semicircular side frames, H, connected at their upper sides by one or more cross-bars, and on their lower faces furnished with and connected by a series of transverse angular or V-shaped strips, *a*, arranged with a small space between them.

The bottom of the tub is furnished with alternate rollers *b*, and ribbed or corrugated strips *c*, as shown in Fig. 2; and in order that this portion of the machine may be readily removed for cleaning, and to present the bottom of the tub for the same purpose, the rollers and strips are arranged transversely between two side bars or frames, C, of a curvature exactly conforming to that of the bottom of the tub, the ribbed strips *c* being rigidly secured to said side bars, and the rollers *b* journaled and free to turn therein. This forms a removable bottom, which is set in the tub, and may, if desired, be fastened therein by a pin at each end, or other simple device, though in practice this is not found necessary.

The rubber D is preferably made of metal and galvanized, though it is obvious that it may be made of wood or other material. The strips *c* may be made all of wood or all of metal; but in practice I prefer to make them of wood and face them with metal.

Having thus described the construction of the machine, I will now explain its operation. The secondary bottom C being placed in position, the articles to be cleansed and the water are put into the tub and the rubber D placed in above them the rock-shaft G being locked in its bearings, as above described. The rods F, passing freely through the rock-shaft G, allow the rubber D to adjust itself perfectly and readily to the quantity of articles contained in the tub, while the pressure of the same on the articles may be perfectly regulated by the downward pressure on the rods F. When this downward pressure is applied the articles are forced or crowded up into the deep spaces between the ribs or strips *a*, by which means the rubber D is enabled to hold or retain the same, and carry them, as the rubber is oscillated, along with it over the bottom surface, or over the strips *c* and rollers

b. The strips, with their ribbed surface, produce the same effect as the clothes pass over them that is produced in the manual operation of washing in carrying the articles over the surface of the wash-board, the articles being subjected in quick succession to this operation and a squeezing or pressing action between the rubber D and the rollers *b*. During this operation the water passes through the clothes, in between the rollers *b* and strips *c*, and between the ribs or strips *a*, in all directions, thereby perfectly removing all particles of dirt.

It is desirable that the pressure of the rubber on the articles in the tub and the power for operating the same should be increased as the quantity of articles is increased, and this result is attained by the peculiar manner of hanging or mounting the rubber above described.

It will be observed that as the bulk of articles is increased the rubber D will be thrown upward nearer the rock-shaft G, and consequently nearer its pivots or center of motion, thus reducing the leverage to be overcome. At the same time the distance between the center of motion and the operating-handle is increased, giving increased leverage for oscillating the rubber D, and for pressing the same down upon the articles in the tub; but the essential advantage arising from the arrangement of the arms in the rock-shaft is, that the rubber is permitted to press the clothes against the surface of the concave during its entire movement, regardless of the height to which it may be raised by the clothes, which is not the case in machines having their rubbers provided with trunnions bearing in vertical slots.

When the articles are cleansed the rubber D is removed from the tub, and may be conveniently hung on one end of the same, and sustained in this position by the operating levers and handle, extending downward and resting against the end of the tub, free from dirt and out of the way.

By extending the operating-levers outward over the end of the tub, a much easier and more convenient motion is permitted in operating the machine, and the operator is enabled to stand back away from the tub, and avoid being wet by water which may chance to splash from the tub.

The machine thus constructed is found in practice to perform its work in a very efficient manner, and is durable, simple, and cheap in construction.

Having thus described my invention, what I claim is—

In combination with the tub or concave B, the rock-shaft G, mounted in fixed bearings, and the rubber D, having the rigid arms F F′, extended vertically and loosely through the rock-shaft, and thence laterally to the end of the machine, so that the rubber is permitted to rise and fall, while an up-and-down motion of extension F′ causes a rocking motion of the rubber.

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Witnesses:

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