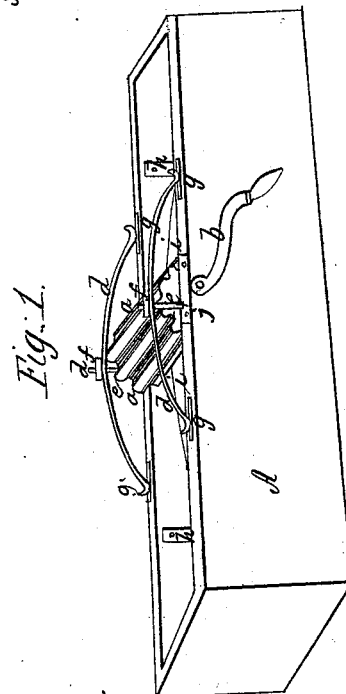
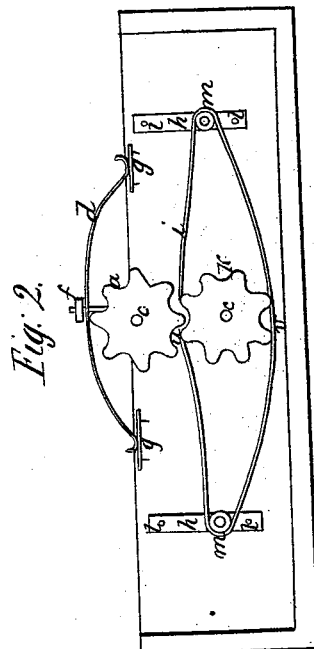
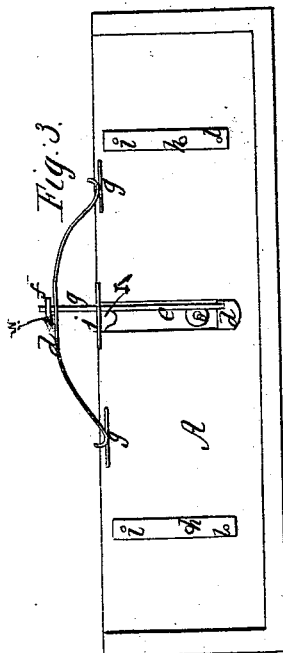
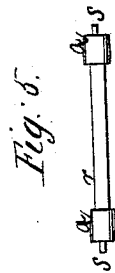
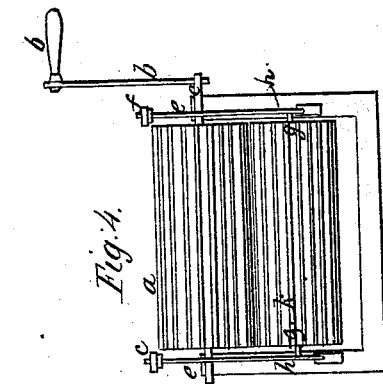


J. Hall,
Washing Machine,
No 5,355, *Patented Nov. 6, 1847.*



UNITED STATES PATENT OFFICE.

JOSEPH HALL, OF OTISFIELD, MAINE.

WASHING-MACHINE.

Specification of Letters Patent No. 5,355, dated November 6, 1847.

To all whom it may concern:

Be it known that I, JOSEPH HALL, of Otisfield, in the county of Cumberland and State of Maine, have invented a new and useful
5 Improvement on Machines for Washing Clothes and Cleansing Cloths and other Fabrics, called the "Concavo-Convex-Cylinder Washing-Machine;" and I do declare that the following is a full, clear, and exact
10 description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view, Fig. 2 a longitudinal section; Fig. 3 a longitudinal view of fastenings; Fig. 4 a transverse section, and Fig. 5 a small roller for band and apron.

See drawings, annexed, where *a*, Figs. 1, 20 2 and 4 represents the upper concavo-convex washing cylinder, and *k*, represents the lower washing cylinder both lying transversely across the box.

b—Figs. 1, and 4 represent the small iron crank, made fast to the small iron shaft, *c*, Fig. 4, which passes through and is made fast to the upper wash-cylinder.

d, d—Figs. 1, 2, and 3, represent two half elliptic steel springs on the upper edges of
30 the sides of the box with ends resting on small metallic plates at *s* Figs. 1, 2 and 3. These springs are connected with the lower fluted wash-cylinder by means of perpendicular movable slides, *e, e*, Fig. 1. These
35 slides have on the upper end a screw thread and pass through the springs *w*, Fig. 3. On the upper end of each of the slides is a thumb-screw *f, f*, to hold the springs to the slides and by turning to graduate the pressure. The slides have near their lower end
40 at *o*, Fig. 3, socket to receive the gudgeon of the lower wash-cylinders.

h, h—Figs. 1, 2, and 3, represent two wooden cleats; with sockets to receive
45 gudgeons of small rollers.

i—Figs. 1 and 2, represents the apron passing over the small rollers, as at *m, m*, Fig. 2, between the two cylinders *a* and *k*, and underneath the cylinder *k*. This apron
50 is made of cotton drilling or other firm cloth the width of the box on the inside.

m, m, Fig. 2 represent a transverse section of small roller.

q, q, Fig. 5, represent the raised end of the

small rollers to form drum for band edge 55 of apron—see drawing hereunto annexed—*j*, Figs. 1 and 3 metallic plates for slides to pass through.

The construction and operation of this machine consists in having a tight box of 60 proper size, as in Fig. A, say, four feet in length, eighteen inches in width, and twelve inches deep, made of pine boards, tight to hold the water and washing apparatus. Transversely across this box I place two 65 concavo-convex or fluted cylinders, about five inches in diameter from point to point of flutes, one near the top of the box with a small crank attached, as at *b*, Fig. 4, and the other directly underneath and so as to 70 mesh with the upper one. This lower cylinder is connected with two perpendicular slides running in grooves at the inside of the box with screw ends passing through the springs to which each is fastened by a 75 nut as at *f*, Figs. 1, 2, and 3, by which nut the pressure is graduated. Near each end of the box I place a small roller, with raised or drum-ends for the apron to revolve over; and I make an apron of cotton drilling or 80 other firm cloth of the width of the box on its inside, with about four inches of each edge doubled over and stretched down to serve as bands to run on the drum ends of the rollers. This apron is made to pass over 85 the rollers, underneath the lower cylinder and between that and the upper cylinder and is made to revolve by means of the crank attached to the upper cylinder. Upon this apron the clothes and other materials to 90 be washed are laid.

The principle of washing by the machine consists in crimping, rubbing and squeezing the clothes, whereby the cloth has its texture loosened; and is freed of its dirt by the 95 pressure of the flutes into the volutes by which the water is forced out with the dirt. This operation I perform by means of the crank attached to the upper fluted cylinder, which causes the apron, upon which the 100 clothes are laid, to revolve over the small rollers, and to pass between the fluted cylinders, where they receive the crimping, rubbing and squeezing operation; and thence are carried to the opposite end of the box, 105 where they are again saturated with water, and by a reversed motion of the crank are brought back and again made to pass be-

tween the wash-cylinders; and this operation is continued until the washing and cleansing is completed.

This washing apparatus, or machine, may
5 be adopted to the cleansing of cloths, wool, rags, and other similar materials, and can be operated in boxes and vessels of various sizes and forms.

What I claim as my invention and desire
10 to secure by Letters Patent, is—

The combination of the revolving endless

belt and fluted rollers, substantially in the manner described, and I disclaim as my invention the box containing the washing apparatus, and every thing in the construction 15 of this machine except what I have specified in my claim.

JOSEPH HALL.

Signed in presence of—

THEODORE INGALLS,

JOHN C. HALL,

ABBA A. ANDREWS.