3 Sheets—Sheet 1.

W. MOREHOUSE.
Washing-Machine.

No. 197,158. Patented Nov. 13, 1877.

Fig. 1

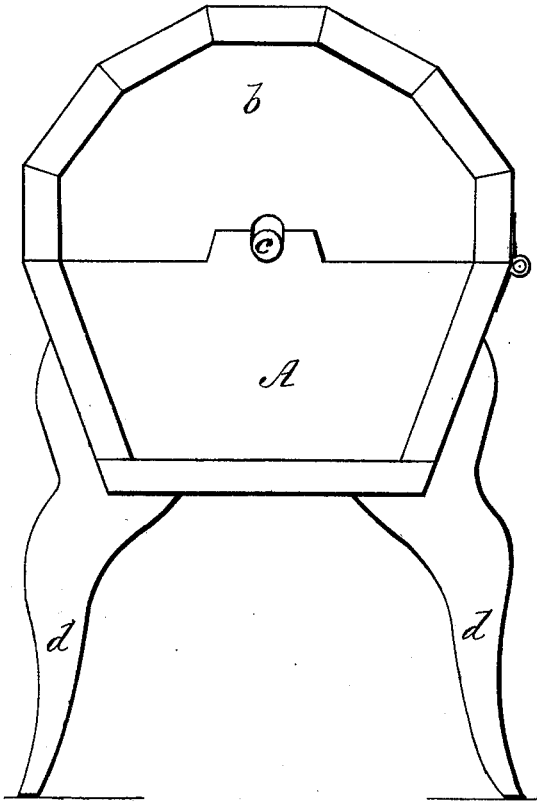

Fig. 2

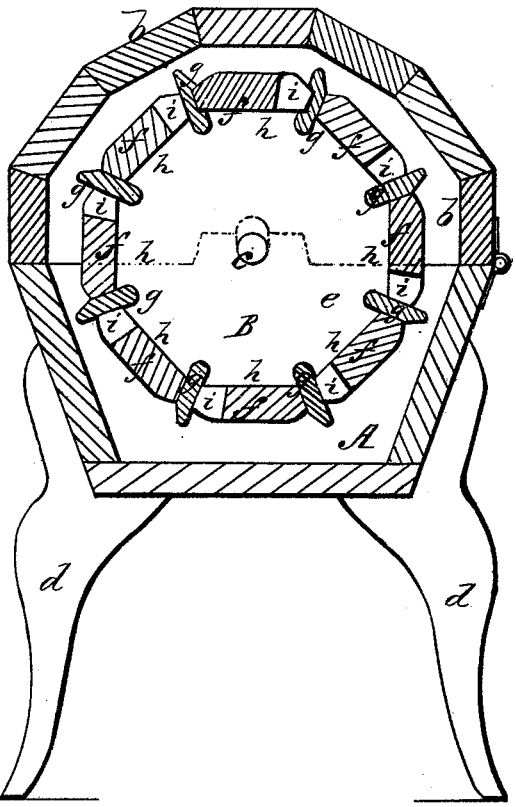

Fig. 5

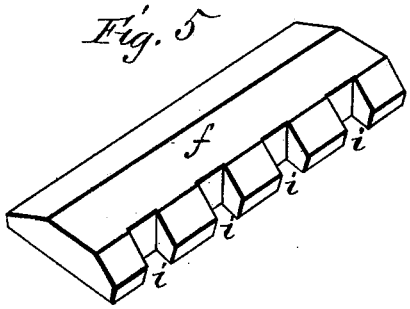

Fig. 6.

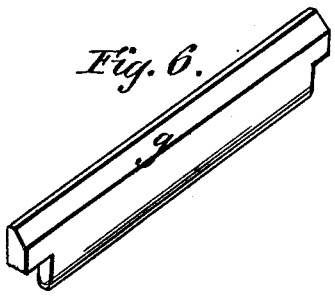

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Fig. 3

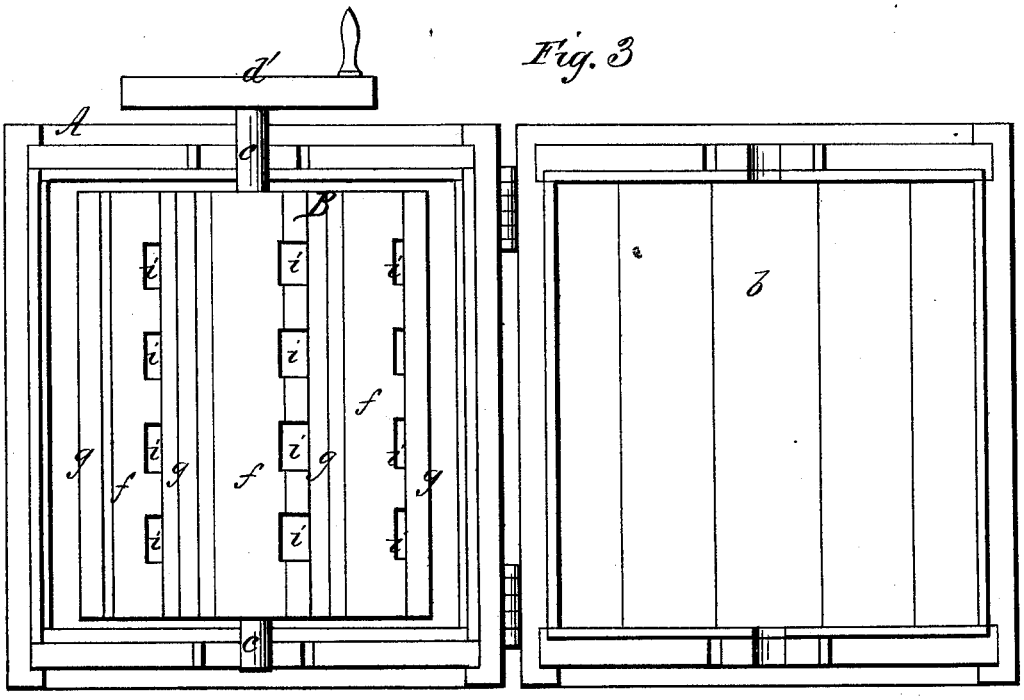

Fig. 4

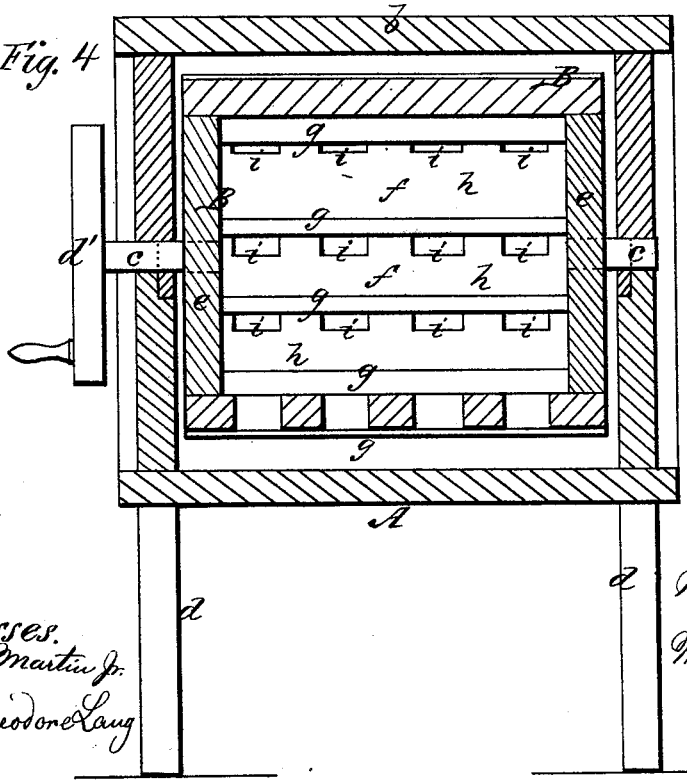

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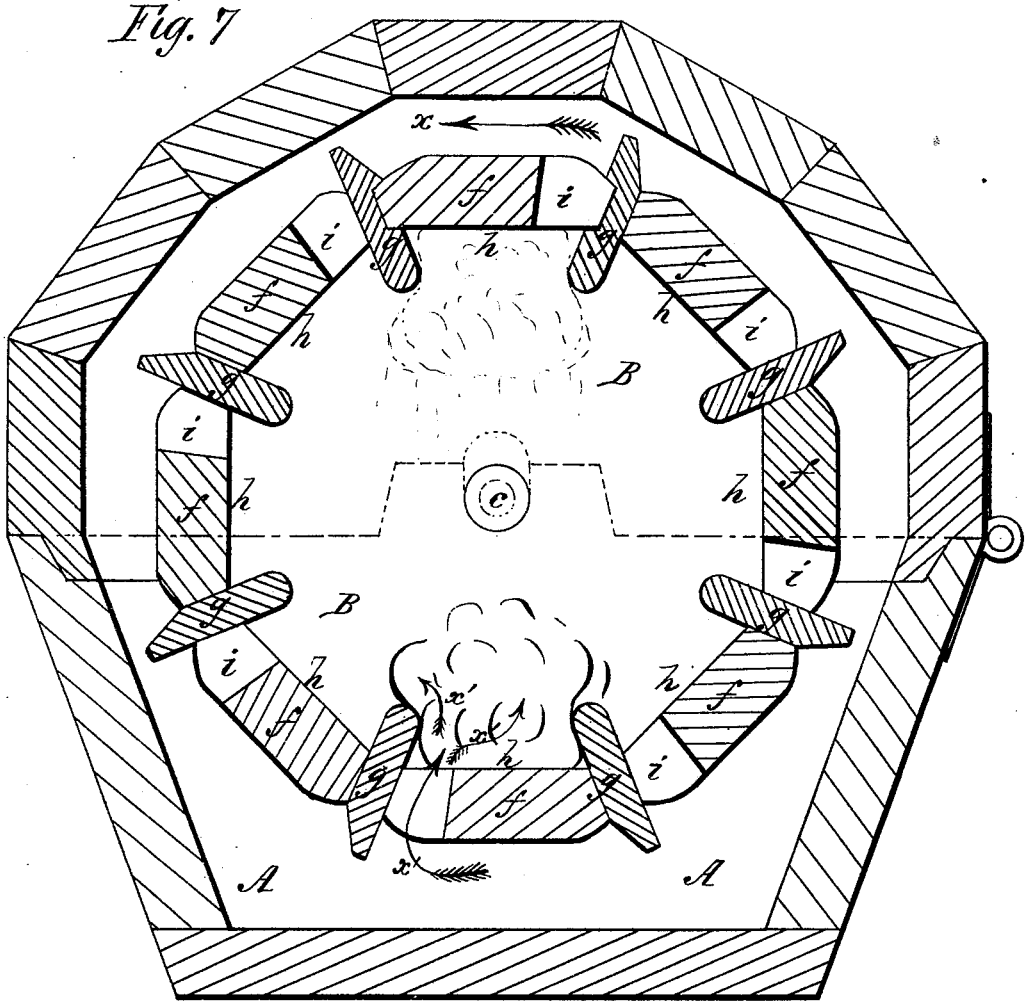
Fig. 7



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UNITED STATES PATENT OFFICE.

WILLIAM MOREHOUSE, OF BUFFALO, NEW YORK.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **197,158**, dated November 13, 1877; application filed July 11, 1877.

To all whom it may concern:

Be it known that I, WILLIAM MOREHOUSE, of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Rotary Washing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an end view of my improved rotary washing-machine. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a top view of the same, with the cover thrown back and the interior parts exposed to view. Fig. 4 is a vertical longitudinal section of the same. Figs. 5 and 6 are perspective views of the plates and rubbing-bars forming the washing-cylinder; and Fig. 7 is an enlarged view, in cross-section, of the washing-cylinder, to more clearly illustrate the principle of operation of the machine, in connection with the description thereof, hereinafter set forth.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts, as hereinafter described and specifically claimed, whereby, in a rotating-cylinder washing-machine, provision is made for holding the clothes at intervals of time in a fixed position within the cylinder against a series of perforations, through which the suds are forced against and through the clothes during the rotation of the cylinder in the act of washing.

In the drawings, A indicates the tub of the machine, having a cover, *b*, hinged thereto, as shown in Figs. 1 and 2, and supported upon legs *d*, as indicated in said figures. B represents a rotating cylinder, having its shaft *c* supported upon the tub, as shown, and with a balance-wheel crank, *d'*, to turn the same during the act of washing, as represented in Figs. 3 and 4. The cylinder B is constructed with closed ends, as at *e e*, Fig. 4, to which end pieces *e* the plates *f* and rubbing-bars *g* are secured. These plates and rubbing-bars are alternately applied to the end pieces *e*, and abut against each other, as shown, thus forming a closed cylinder, save that each plate *f* is cut away, as at *i*, thus forming apertures through which the suds may be forced from the tub into the cylinder during the rotation of the latter.

In forming the cylinder of these plates and rubbing-bars the same are secured to end pieces *e*, in such relation to each other that the apertures *i* in each plate shall adjoin the bar *g*, and immediately precede the bar in the line of rotation of the cylinder.

As clearly shown in Fig. 7, each of the bars *g* projects a considerable distance both beyond the inner and outer surfaces of each of the plates *f*, and are rounded on their inner edges in order to present a proper frictional rubbing-surface for the clothes. Outwardly from the cylinder B these rubbing-bars project a sufficient distance to force the suds through the apertures *i* into the cylinder when the latter is rotated in the direction indicated by the arrow *x*, the suds being forced within the cylinder during the act of rotation, as indicated by the arrows *x'*. These bars *g*, as also clearly shown in Fig. 7, are so placed and secured between the plates *f* on the inside of the cylinder as to form intervening spaces *h* in the likeness of the letter **V** when inverted and truncated, so that these spaces *h* thus form wedging receptacles for the clothes in the act of washing, and at times, when the clothes become seated therein, they are, by such wedging form, held temporarily in a fixed position, while at the same time the wash-water or suds is being forced through the clothes during the rotation of the cylinder.

In the operation of the machine, clothes are inserted into the cylinder B by drawing out one of the plates *f*, one of these plates being constructed to admit of such withdrawal for such purpose. The tub having been supplied with suds, the cylinder, by means of the crank *d'*, is then rotated in the direction of the arrow *x*. This act causes the clothing to assume a more or less rotund or cylindric mass, which, in the act of rotation, tumbles against and over the inner projecting edges of the rubbing-bars *g*, until it at length becomes seated or wedged between the bars *g* at the bottom of the cylinder, as indicated in Fig. 7. Thus seated, the continued rotation of the cylinder forces the water through the mass of clothes while thus held in position, until the mass is carried above the water-line of the tub, and has attained the position shown in dotted lines in said figure.

At this point the weight of the clothes and suds contained therein will cause the mass of clothes to become disengaged and fall back to the bottom of the cylinder, and again become wedged between the bars *g g*, to again be subjected to the forcing of the water through the mass.

This tumbling of the clothes against and over the bars *g*, and the forcing of the water through them while wedged in position between the bars, not only effectively cleanses the clothes, but accomplishes this with no damaging friction.

I am aware of the constructions shown in the machines for washing clothes patented by Ashworth and Van Voorhis, June 4, 1872, and George Wright, October 4, 1870; but such constructions I do not claim.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

The washing-machine cylinder herein described, consisting of the combined series of alternating bars *f* and *g*, each bar *f* being provided with a series of openings, *i*, and each bar *g* projecting farther within and without the cylinder than the bars *f*, as and for the purpose specified.

Witness my hand in the matter of my application for a patent for an improved washing-machine.

WILLIAM MOREHOUSE.

Witnesses:

R. H. DANFORTH,

W. R. MCNIVEN.