

(No Model.)

2 Sheets—Sheet 1.

J. M. ENGELHARDT.
WASHING MACHINE.

No. 476,995.

Patented June 14, 1892.

Fig. I

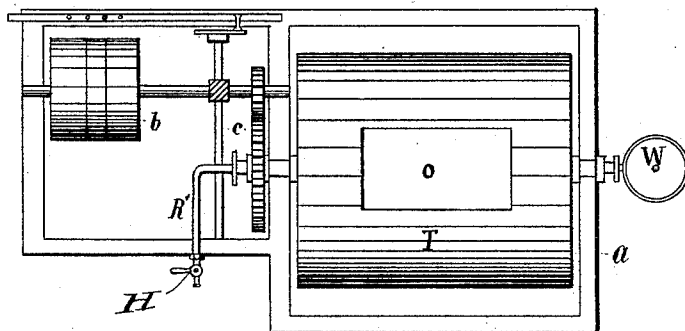
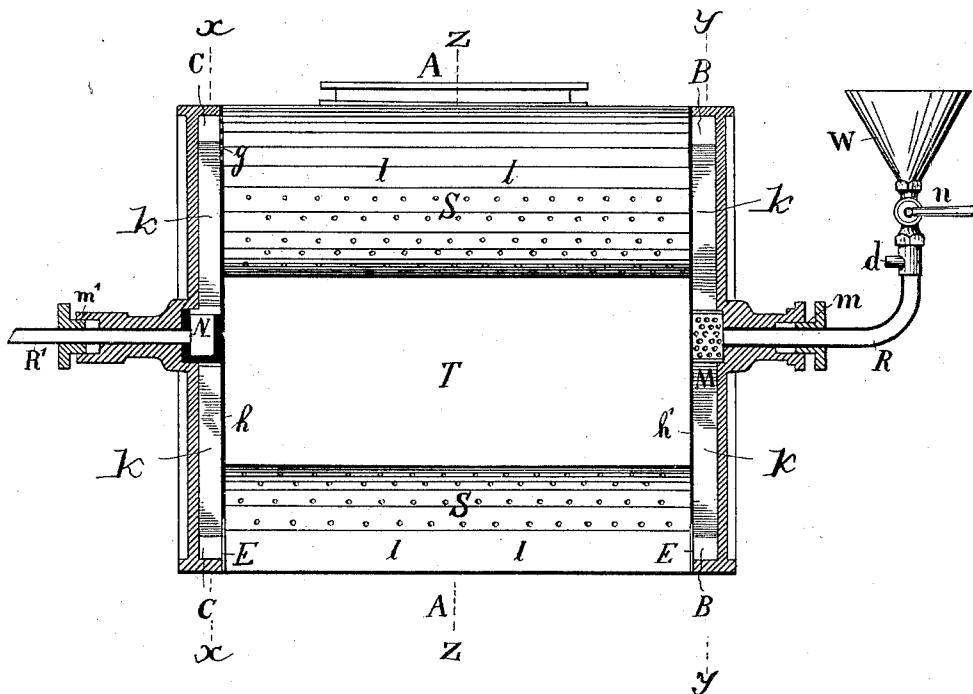


Fig. II



WITNESSES—

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INVENTOR—

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By his Atty.
Whitaker & Preston.

(No Model.)

2 Sheets—Sheet 2.

J. M. ENGELHARDT.
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Fig. III

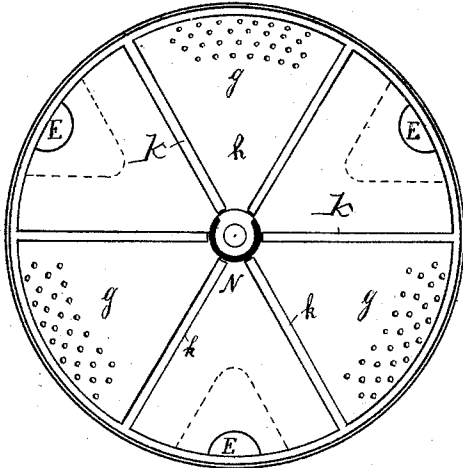


Fig. IV

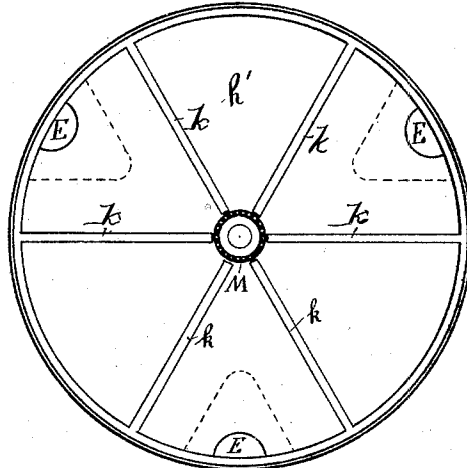
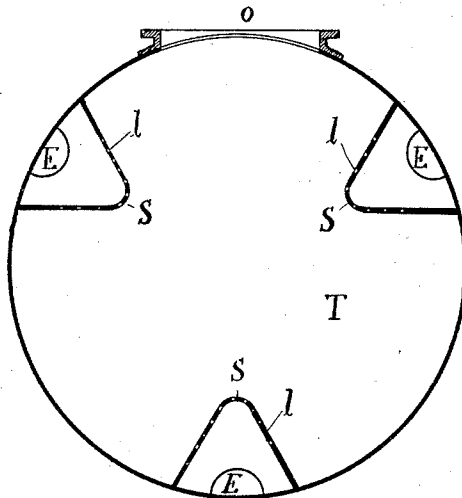


Fig. V



WITNESSES—

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INVENTOR—

Johann M. Engelhardt,
By *W. H. Whitaker*
Whitaker & Prentiss.

UNITED STATES PATENT OFFICE.

JOHANN MICHAEL ENGELHARDT, OF BREMEN, GERMANY.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 476,995, dated June 14, 1892.

Application filed December 15, 1891. Serial No. 415,135. (No model.)

To all whom it may concern:

Be it known that I, JOHANN MICHAEL ENGELHARDT, of Bremen, in the free State of Bremen and German Empire, have invented
5 new and useful Improvements in Steam Washing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of the invention is to increase
10 the efficiency of the steam washing-machines to which it relates. At the same time that the machine does its work more effectively it also performs it with less deterioration to the clothes or fabrics upon which it is employed,
15 as is demonstrated by the fact that no "fly" or textile fibers can be seen by the unaided eye in the waste water or suds from the machine.

I will describe my said invention with reference to the accompanying sheet of drawings, in which—

Figure I is a plan of a machine and its accessories constructed according to these improvements. Fig. II is a longitudinal section
25 of the drum of the machine, and Fig. III is a transverse section of the machine on line *xx* of Fig. II. Fig. IV is a similar section on line *yy* of Fig. II, and Fig. V is a similar section on line *zz* of Fig. II.

30 The drum *T* is mounted in a suitable frame *a* in such a manner that it may be rotated freely. This rotation may be effected by means of the pulley *b* and the pinion and wheel *c* by hand or by other suitable means.
35 The drum is hollow and is provided with hollow chambers *B C* adjacent to its ends, the inner walls of the drum and of the hollow chambers being formed by the disks *h h'*. The outer walls of the drums are provided
40 with the radial arms or partitions *k k*, which are inclosed within the two hollow chambers, respectively. The inside of the drum is fitted with the prismatic wings *SS*, the hollow interiors of which are in communication with the
45 inside of the drum through the perforation *l*, formed in the walls of the prismatic wings. Their interiors are also in communication with the hollow chambers *B C* through the openings *E E*, formed in the walls *h* and *h'*.
50 The spaces in the drum which lie between the hollow wings are in communication with the

hollow chamber *C* through perforations *g g*, formed in the wall *h*.

In the center of the hollow chamber *B*, which I term the "distribution-chamber," there is a
55 perforated or sieve cylinder *M*, fixed and arranged in such a manner that it participates in the rotary motion of the drum. The drum is rotated on trunnions, and through the trunnion at that end of the drum the pipe *R* is
60 passed and the joint made good by the stuffing-box *m*. Another pipe *R'* is passed through the opposite trunnion and the joint made good by means of the stuffing-box *m'*. Both
65 of these pipes are stationary—that is to say, they do not rotate with the drum—and the pipe *R'* carries upon its end within the hollow chamber *C* of the drum, which I term the "collecting-chamber," the vessel *N*, which of
70 course is also stationary. The pipe *R* is provided with a funnel *W*, the cock or valve *n*, and a steam-inlet pipe *d*, which leads into the pipe *R* just below the tap *n*. The pipe *R'*
75 may be closed at will by means of the tap cock or valve *H*. The drum is capable of being hermetically closed by the lid or cover *O*,
by the removal of which access to the interior may be obtained for the insertion or removal of the clothes or fabrics.

In operating the apparatus the dirty clothes
80 or fabrics are first inserted through the opening *O* into the drum, which is then closed by a lid and put into motion. The desired fluid, soap solution, suds, or whatever may be
85 required for cleaning the garments is then introduced through the funnel *W* and steam through the pipe *d*. The liquid, mixed with
90 the steam, then passes through the sieve-cylinder, where it is distributed by the radial arms *k k* in the distributing-chamber of the drum, whence it finds its way by the openings
95 *E E* into the prismatic wings and through the perforations therein it falls as a fine rain upon the clothes or garments. The liquid then passes, in consequence of the motion of
100 machine, into the collecting-chamber *C* through the holes and openings *g E* in the cover *h*, and there it is lifted into the vessel *N* by the motion of the radial arms *k k*. From the vessel *N* the liquid can escape through
the pipe *R'* and the cock *H*. The washing
is completed as soon as clear or unsoiled liq-

uid passes off at H. The clothes or fabrics may then be rinsed or finished by running clear or blued water or other desired liquid through the apparatus and be ultimately removed from the drum to be further dealt with.

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

1. In a steam-washer, the combination, with the revolving cylinder having a distributing-chamber at one end provided with radial arms, said cylinder being also provided with hollow wings connecting with said chamber, having their inner walls perforated, of a supply-pipe for said distributing-chamber and a strainer interposed between said water supply and said hollow wings, substantially as described.

2. In a steam-washer, the combination, with the revolving cylinder provided with a distributing-chamber at one end and a collecting-chamber at the other end and with hollow wings intermediate said chambers and communicating therewith, the inner walls of said wings being perforated, of a supply-pipe for said distributing-chamber and an outlet-pipe connected with said collecting-chamber, substantially as described.

3. In a steam-washer, the combination, with the revolving cylinder provided with a collecting-chamber at one end having radial arms or partitions and a series of hollow wings communicating therewith, having their inner walls perforated, of the stationary receiving-vessel connected with an outlet-pipe and adapted to receive the washing fluid from said collecting-chamber, and a supply-pipe for said

cylinder communicating with said wings, substantially as described.

4. In a steam-washer, the combination, with the revolving cylinder provided with a collecting-chamber at one end having radial arms or partitions and a series of hollow wings communicating with said chamber and having their walls perforated, of the stationary receiving-vessel adapted to receive the washing fluid from said arms or partitions, a blind supply-pipe for said cylinder, communicating with said wings, and an outlet-pipe communicating with said receiving-vessel, substantially as described.

5. In a steam-washer, the combination and arrangement, with a hollow drum in which the washing is effected, of hollow perforated prismatic wings, an inclosure at the inlet end of the drum, containing radial arms and communicating with the hollow wings through suitable openings, a similar inclosure at the outlet end of the drum, also containing radial arms, and a vessel into which the liquid is lifted for discharge, said second chamber communicating with the hollow wings and with the drum through suitable openings and perforations, and means for rotating the drum and for the inlet and outlet of the fluids, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHANN MICHAEL ENGELHARDT.

Witnesses:

W. ENGELHARDT,
L. ENGELHARDT.