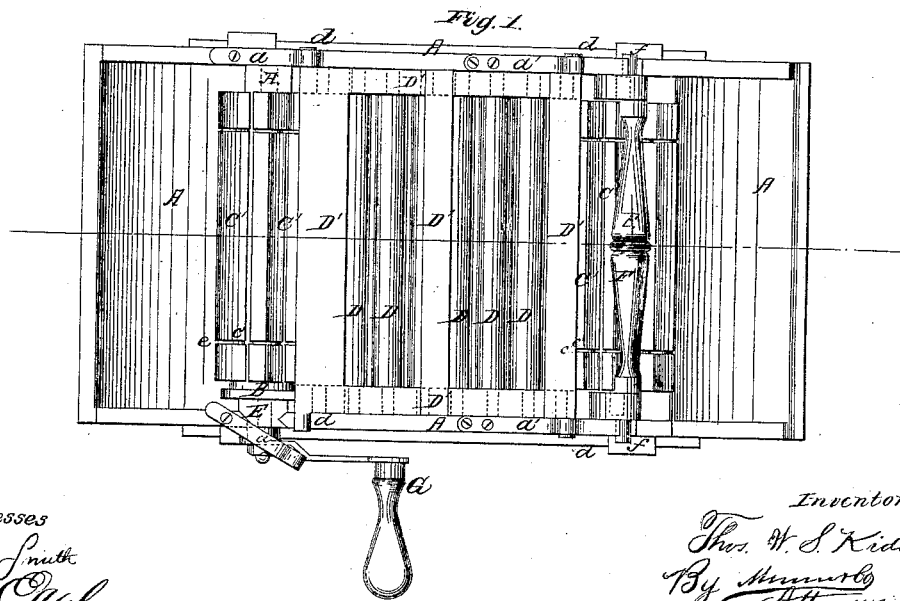
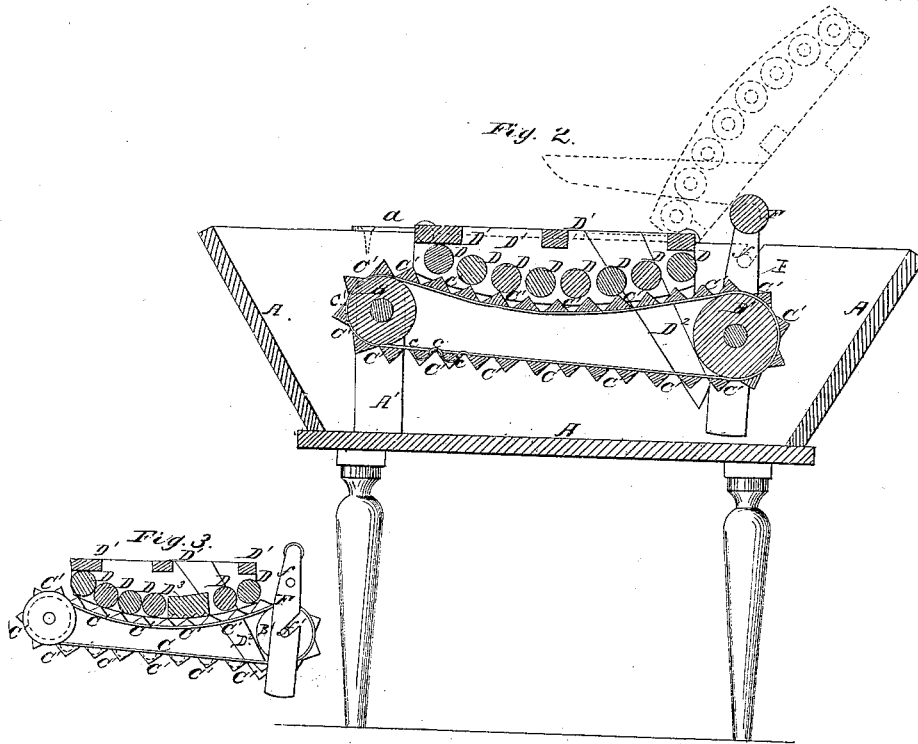


T. W. S. Kidd;

Washing Machine,

No. 45,049,

Patented Nov. 15, 1864.



Witnesses
C. D. Smith
J. H. Cogh

Inventor.
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By *[Signature]*
Attorneys

UNITED STATES PATENT OFFICE.

THOMAS W. S. KIDD, OF SPRINGFIELD, ILLINOIS.

IMPROVED WASHING-MACHINE.

Specification forming part of Letters Patent No. 45,049, dated November 15, 1864.

To all whom it may concern:

Be it known that I, THOMAS W. S. KIDD, of Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Improvement in Washing-Machines; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan or top view of a washing-machine embodying my improvement. Fig. 2 is a vertical longitudinal section of the same, and Fig. 3 is a detached sectional view in which is illustrated a modification of my invention.

Similar letters of reference indicate corresponding parts in the several figures.

The features of my invention may be thus named: First, an apron of improved construction, consisting, essentially, of a rotating web, having angular bars secured to it in such manner that the attaching-cords cannot become impaired by friction or wear; second, novel devices for permitting the apron to be removed for drying or other purposes, and also for adapting the apron to be tightened when placed within the tub; third, a rubber to be employed as a substitute for part of the rollers and act as a frictional medium upon pieces which could not be effectually cleansed by the action of the bars and rollers.

In order that others skilled in the art to which my invention belongs may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, A represents the tub or vessel which contains the water. Within this tub and supported upon cylindrical shafts B B' is an endless rotating apron consisting of a webbing, C, carrying a continuous series of angular ribs, C'. The ribs are attached to the webbing by cords *c*, to provide for the reception and protection of which cords are creases or grooves *c'*, which latter are formed in the ribs C' in the manner shown, and adapt the attaching-cord *c* to be inclosed by and placed out of coincidence with the surface of the ribs, between each two of which the cord is stitched through the webbing, so as to be held within the creases. The cords *c* are thus adapted to constitute an ef-

fectual attaching medium for the ribs while they are not subject to friction or injury by contact with the garments being washed or with the rollers D, which assist in the washing operation. Hence, cords or other attaching devices thus employed will remain in a strong unimpaired condition.

The rollers D, above referred to, are journaled in a frame, D', which has short projections *d*, the latter constituting supports for the frame and also journals therefor. The bearings of these journals *d* are formed partially in the sides of the tub A, the upper part of each bearing being formed by the respective overlapping ends of the retainers *a* *a'*, which are formed of strips of steel or other suitable elastic metal. They are fastened to the tub by screws or otherwise and curved at their ends, so as to fit over the journals *d*. They hold down the frame D' with sufficient force to insure the effectual washing of the clothes, but being elastic they allow the frame to yield as the pieces being washed pass between the rollers D and ribs C', the purpose of this provision being to enable the parts to accommodate themselves to garments or pieces of various sizes, and thus prevent injury to the clothes.

The retaining devices *a* may be turned aside to release the journals which they cover, in order that the frame D' may be turned back to admit of the removal of the cylindrical shaft B, when it is desired to take the apron C C' and its appendages out of the tub for drying.

As additional means for facilitating the removal and insertion of the shaft or roller B, I employ a block, E, which is grooved at each side and occupies a corresponding opening in the side of the tub A. At the lower end of this block is a semicircular groove which fits over one of the short shafts or journals of the roller B, and thus the block E forms the upper part of the journal-box of said short shaft.

The block E is held down upon the journal of the roller B by one of the retainers *a*, the upper end of the block when thus held down being coincident with the top of the tub A. The other journal of the roller B has its bearing on a permanent strip, A', secured to the side of the tub. By withdrawing the block one journal of the roller B is released, so to

speak, and the said roller may then be taken off or out of its bearings with facility.

F is a frame, having projecting pivots *ff*, whereby it is supported upon the sides of the tub. In this frame are slots *f'*, cut obliquely to the transverse center of the side pieces of said frame and employed to receive the journals of the roller B', as illustrated in Fig. 3.

The frame D' carries oblique arms D², which arms, when the frame D' is turned down to its working position, press against the side pieces of the frame F and carry the roller B' to a position away from the roller B, the apron C C' being thereby drawn and held in a taut condition.

In Fig 3, D³ represents a corrugated section—one or more of which may be substituted for a proper number of the rollers when it is designed to wash pieces whose condition might preclude their being effectually cleansed by the action of the rollers D in connection with the ribs C'. The section D³ has at each side two projections, which fit within the bearings of the two rollers for which the section may be substituted.

It will be seen that the section D³ retains a stationary or immovable position during the operation of the machine, and in consequence of its immobility subjects the clothes to friction and to a most rigid cleansing, whereas the rollers rotating upon their axis enable the clothes to pass between them and the ribs without any friction whatever.

The squeezing or compressure which the clothes undergo in being passed between the rolls and ribs without the section D³ is all sufficient to effect the cleansing of pieces of an ordinary character.

The apron C C' is rotated by a crank, G,

mounted upon the end of one of the journals of the roller B.

The operation of the machine will be readily understood from the foregoing.

The apron C C' extends out beyond the ends of the frame D', so that the clothes may be introduced between the ribs and rollers with facility. When it is desired to take the apron out of the tub to dry, the retaining devices *a a'* are turned aside and the frame D' thrown back in the manner indicated by red lines in Fig. 2, the natural tendency of the roller B' then causing it to approach the roller B, whereby the apron is slackened. By then withdrawing the block E the roller B may be taken out of its bearings, as also the roller B'.

Having thus described my invention, the following is what I claim as new therein, and desire to secure by Letters Patent:

1. The apron C C', having its ribs attached or secured by means of fastening cords or devices which are sewed or lashed into recesses *c'* and thus protected from wear, substantially as herein set forth.

2. In combination with the frame F *ff'*, the arms D² on the frame D' for tightening the apron and facilitating its removal, as set forth.

3. The corrugated and removable rubber D³, occupying journal-bearings of removable rollers D⁴ and employed in combination with the rollers D, as and for the purposes herein specified.

The above specification of my improvement in washing-machines signed this 5th day of August, 1865.

THOS. W. S. KIDD.

Witnesses:

OCTAVIUS KNIGHT,
CHARLES D. SMITH.