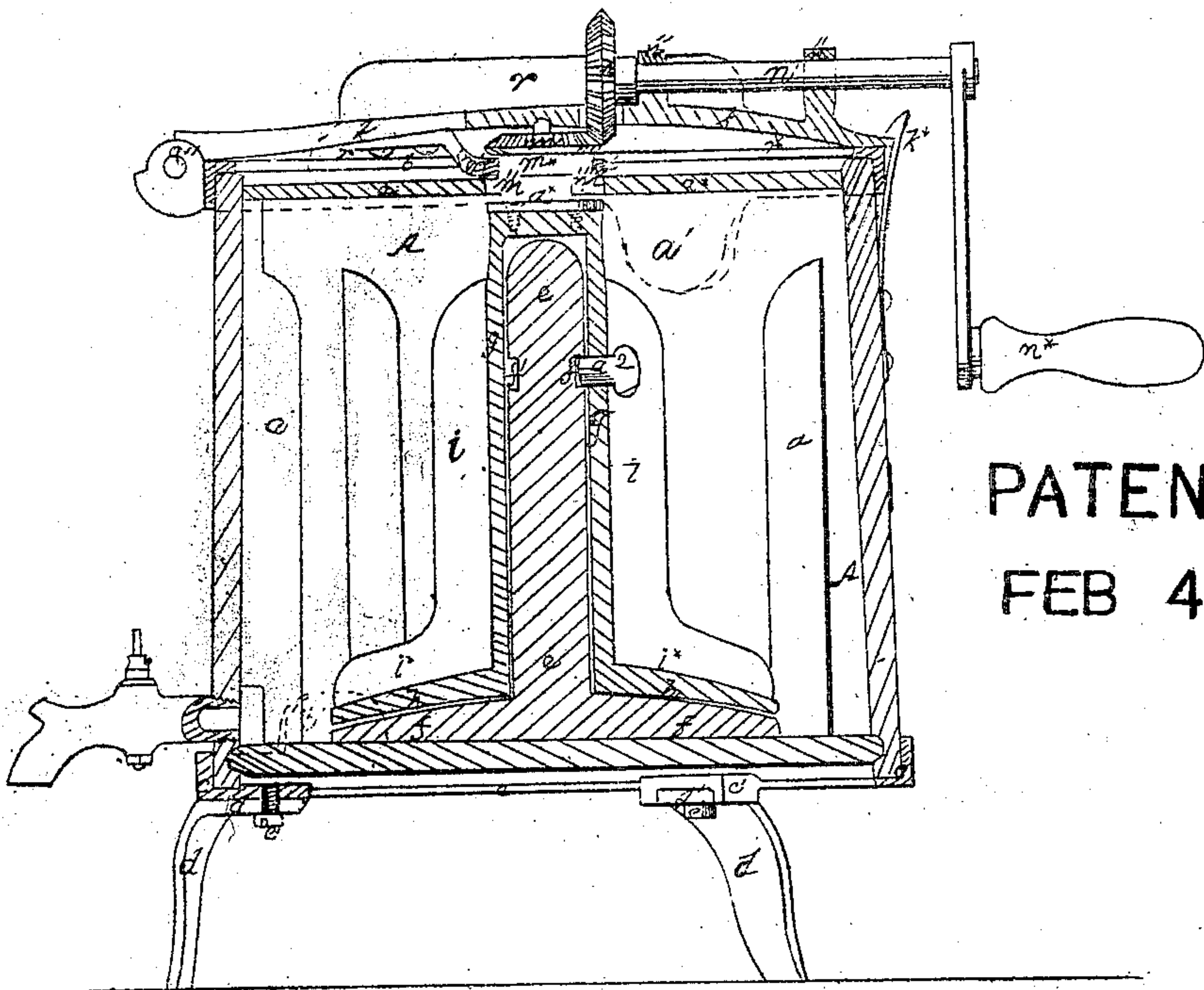


*E. H. Covel's Imp<sup>ts</sup> in Washing Machines.*  
*Assigned to the Home Manufg. Co. of*  
*New York*

*Fig. 1.*

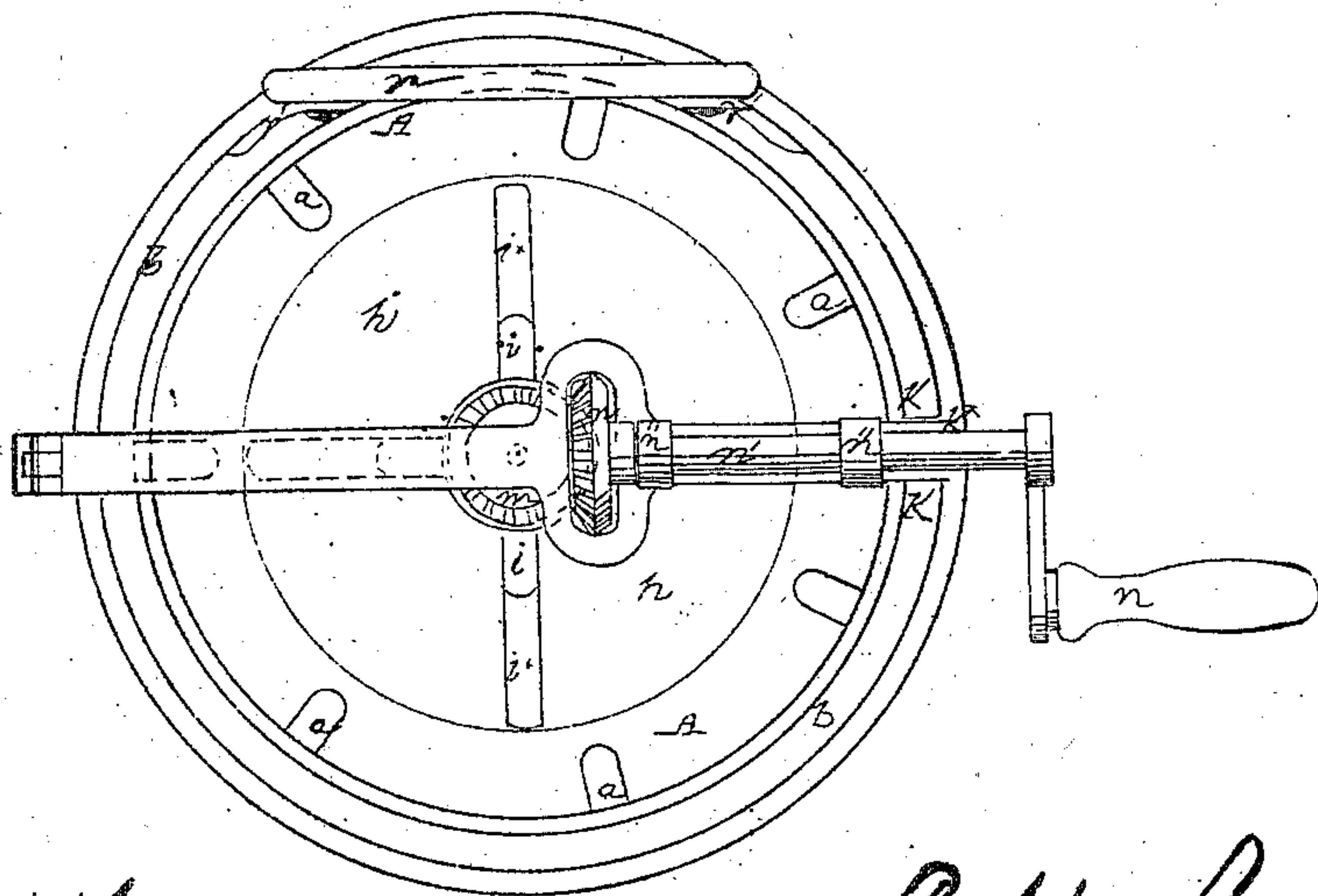
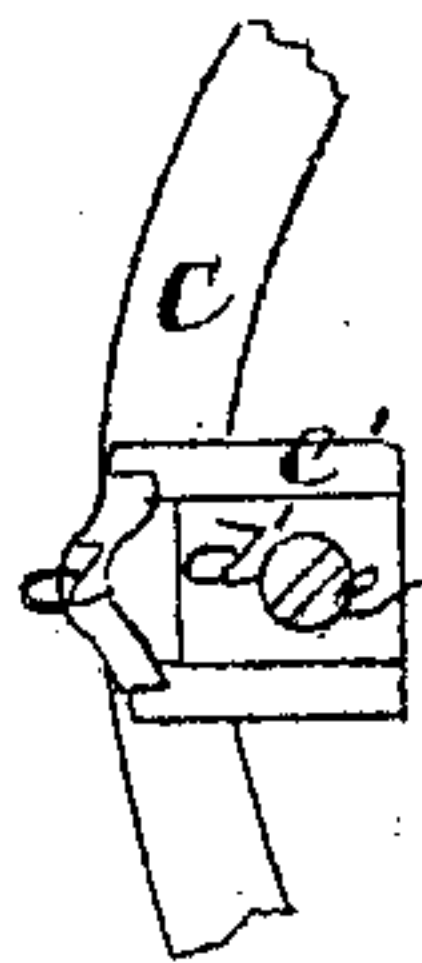
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*Fig. 2*

*Fig. 3*



Witnesses:

*W. Morris Smith*  
*Sydney E. Smith*

*E. H. Covel*



# United States Patent Office.

E. HALL COVEL, OF NEW YORK, N. Y., ASSIGNOR TO HOME MANUFACTURING COMPANY, OF SAME PLACE.

*Letters Patent No. 74,052, dated February 4, 1868.*

## IMPROVED WASHING-MACHINE.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. HALL COVEL, of the city, county, and State of New York, have invented certain new and useful Improvements in 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 a portion of this specification, in which—

Figure 1 is a vertical transverse section of a washing-machine constructed according to my invention.

Figure 2 is a plan view of the same, with the cover removed.

Figure 3 is a detached inverted plan of one portion of the same.

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

The object of this invention is to provide a washing-machine which will be very compact in form and neat in appearance, and, furthermore, be capable of being very easily operated, of having its internal parts reached with great convenience, and of more thoroughly cleansing the fabrics or clothes subjected to its operation than has been practicable with the apparatus of this class hitherto in use.

The invention consists in certain novel combinations and arrangements of parts, whereby the desired object is secured.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A represents the tub or body of the machine, formed of staves, and made nearly cylindrical in shape, such body being furthermore provided with a suitable cover,  $a^{**}$ , and furnished internally with vertical ribs  $a$ .

Around and upon the upper end of the tub is an annular band,  $b$ , angular in its cross-section, as shown in fig. 1, and so fitted to the tub as not only to hold together the upper ends of the staves thereof, but also to cover the greater portion of the top surface of such ends, in order to render the upper edge more neat in appearance, and also to protect the same against accidental injury or abrasion. The band  $b$  is furthermore provided with downwardly-extending ears, shown in dotted outline at  $a'$ , in fig. 1, and through which screws are passed, to firmly secure the band to the tub.

Shown at  $c$  is an annular band, angular in its cross-section like the upper band,  $b$ , and so fitted around and underneath the bottom edge of the tub as not only to bind the same together, but also to afford a bearing or support for the lower ends of the staves to rest upon. The band  $c$  is fixed to the tub by screws passing through upwardly-extending ears formed upon it, and indicated in dotted outline at  $b'$ , in fig. 1, and is furthermore provided with horizontal lugs  $e$ , which extend inward under the bottom of the tub, and are provided with sockets, which receive the shanks,  $d'$ , of the supporting-feet  $d$ , which are held fast in the sockets by vertical set-screws  $e'$ .

Situated centrally within the tub is a vertical cylindrical shaft or standard,  $e$ , having around its base a convex annular disk,  $f$ , and provided, near its upper extremity, with a circumferential groove,  $f'$ , the purpose of which will presently herein appear.

Placed upon the standard  $e$  is a sleeve,  $g$ , to the lower end of which is secured an annular disk,  $h$ . The sleeve  $g$  is furnished with any desired number of radial fins or ribs,  $i$ , the lower parts,  $i^*$ , of which are extended outward upon the disk  $h$ , so that a somewhat ogee-form is given to such fins.

Passing inward through one side of the sleeve  $g$  is a detachable-pin or stud,  $a^2$ , the inner end of which is fitted into the circumferential groove  $f'$  in such manner as to prevent the rising or floating of the sleeve  $g$  and its appurtenances upon the water or suds in the tub, without at all interfering with the requisite rotary motion of the same. Secured upon the upper end of the sleeve is the half,  $a^*$ , of a coupling-clutch hereinafter further described.

Pivoted at one end to one side of the upper band,  $b$ , as shown at  $a''$ , is a bar,  $k$ , which, when the machine is in use, extends across the top of the tub, with its outer or swinging end held down by a spring-catch,  $k^*$ , catching over the same, and attached to the side of the tub, as shown more fully in fig. 1, the end, just mentioned, of the bar  $k$  fitting between two spurs,  $k'$ , provided upon the band  $b$ , and which prevent any lateral displacement of the end of the bar.



Provided upon the under side of the bar  $k$  is an arm,  $m'$ , between which and the bar itself is placed a bevel-pinion,  $m$ , the boss,  $m^*$ , of which extends down through a circular hole or bearing in the arm, and has formed upon it the other half,  $m''$ , of the coupling-clutch, hereinbefore mentioned, which, when the bar is in its horizontal position, fits upon the other half or portion,  $a^*$ , upon the sleeve  $g$ . Motion is given to the pinion  $m$  by means of another bevel-pinion,  $n$ , the shaft,  $n'$ , of which works in suitable bearings,  $n''$ , formed upon the bar  $k$ , and is furnished, at its outer end, with a crank,  $n^*$ .

In order to use the machine, the clothes or fabrics to be washed, together with a suitable quantity of water, are placed in the body  $A$ , and the cover  $a^{**}$  having been placed thereon, the bar  $k$ , with the parts attached thereto, is brought down and secured across the top of the tub, whereupon the crank  $n^*$  is turned, and, by means of the bevel-pinions  $n$  and  $m$  and the clutch  $a^* m''$ , rotates the sleeve  $g$ , together with its fins or ribs, which, by their rubbing action upon the clothes, insures the separation of the dirt and impurities therefrom, such separation being furthermore materially hastened and facilitated by the currents of water or suds thrown upward through the clothes by the action of the lower portions,  $i^*$ , of the ogee-shaped fins or ribs just mentioned, during the rotation of the same with the sleeve, the shape of the fins, furthermore, preventing the clothes or fabric from clinging thereto and becoming twined thereon, as would be liable to occur if the peculiar form of the fins was dispensed with.

When the cleansing or washing operation is completed, the bar  $k$  is turned up away from the top of the tub, and the cover is removed, thus enabling the interior of the tub to be readily reached. If desired, the sleeve  $g$ , with its appurtenances, may be wholly removed, by first withdrawing the pin or stud  $a''$  therefrom.

Extending upward, from one side of the upper band  $b$ , are two projections,  $r'$ , to which is bolted a strip,  $r$ , of wood or other suitable material, which, being situated in a vertical or edgewise position, affords a convenient and firm support to a clothes-wringer of any suitable kind, so that, the wringer being thus attached to the tub, the clothes or fabrics may be passed directly from the latter to and through the wringer.

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

1. The annular bands  $b$  and  $c$ , with or without the ears  $a^1$  and  $b'$ , so constructed and arranged as not only to hold together the upper and lower ends of the staves, but also to cover a greater or less portion of the upper and lower surfaces of such ends, substantially as herein set forth.
2. The detachable pin or stud  $a^2$ , in combination with the tubular sleeve  $g$ , carrying the radial fins or ribs, and the circumferential groove  $f''$  of the standard  $c$ , substantially as and for the purpose specified.
3. The ogee-shaped fins  $i$ , on the disk  $h$ , arranged to rotate within the tub  $A$ , substantially as and for the purpose specified.
4. The combination of the spring-catch  $k^*$  and spurs  $k'$ , with the pivoted bar  $k$ , carrying the crank-shaft  $n'$  and bevel-pinions  $m$  and  $n$ , substantially as and for the purpose specified.
5. The clutch  $m'' a^*$ , arranged to connect the sleeve  $g$  with the gearing upon the bar  $k$ , substantially as herein set forth.
6. The washing-machine, constructed and operating substantially as herein shown and described.

E. H. COVEL.

Witnesses:

SYDNEY E. SMITH,  
W. MORRIS SMITH.