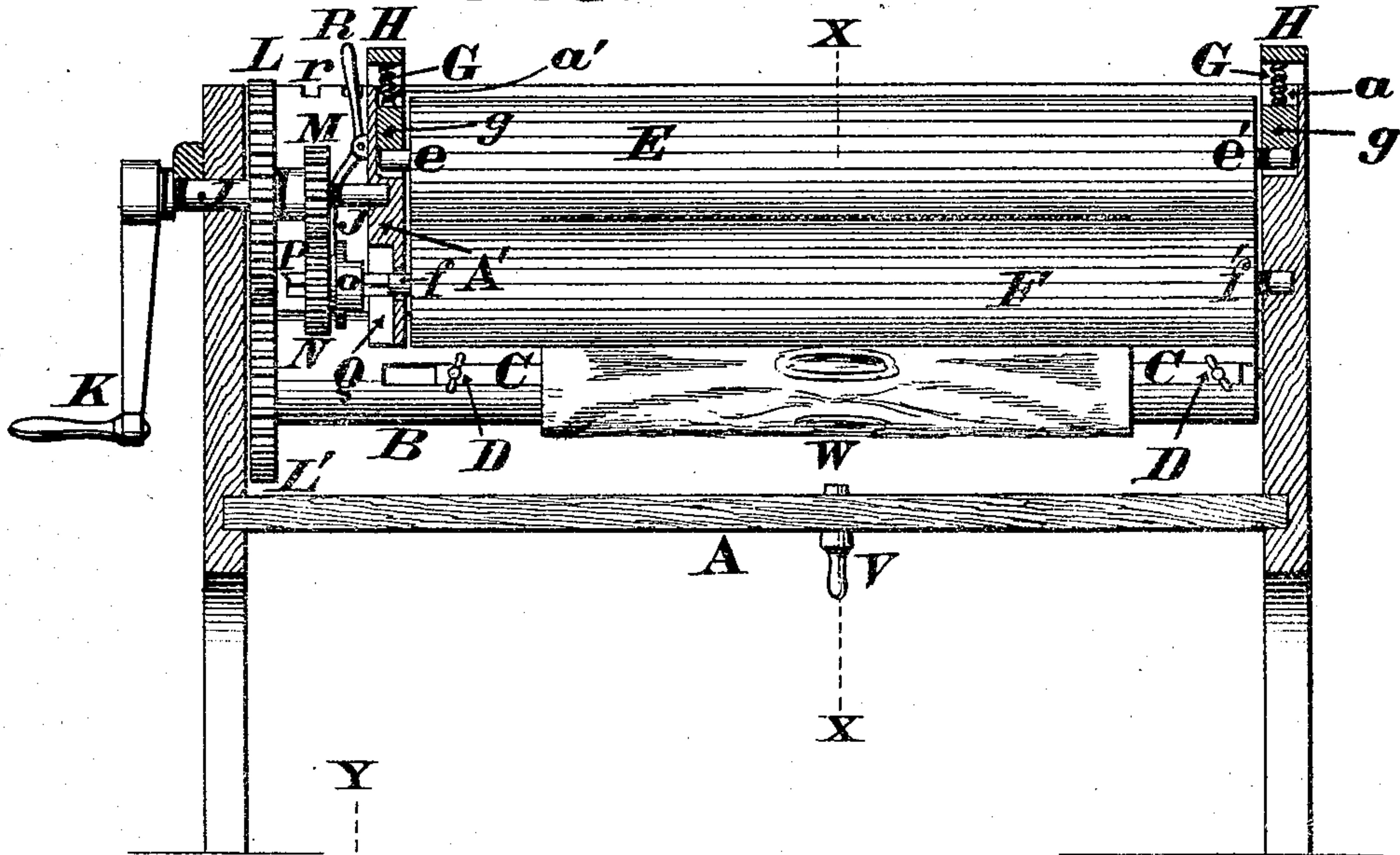


## Washing-Machines.

No. 145,911.

Patented Dec. 23, 1873.

**FIG. 1.**



**FIG. 2.**

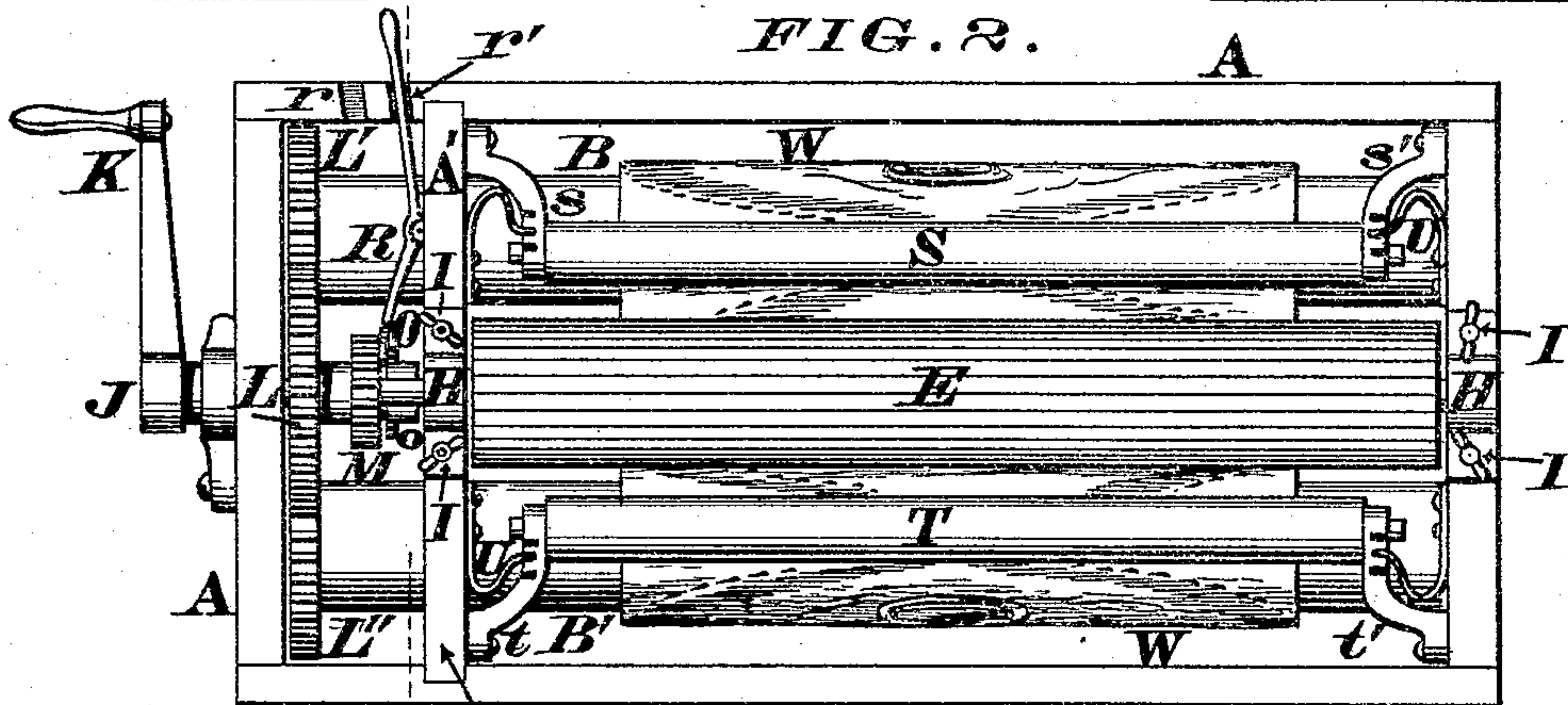
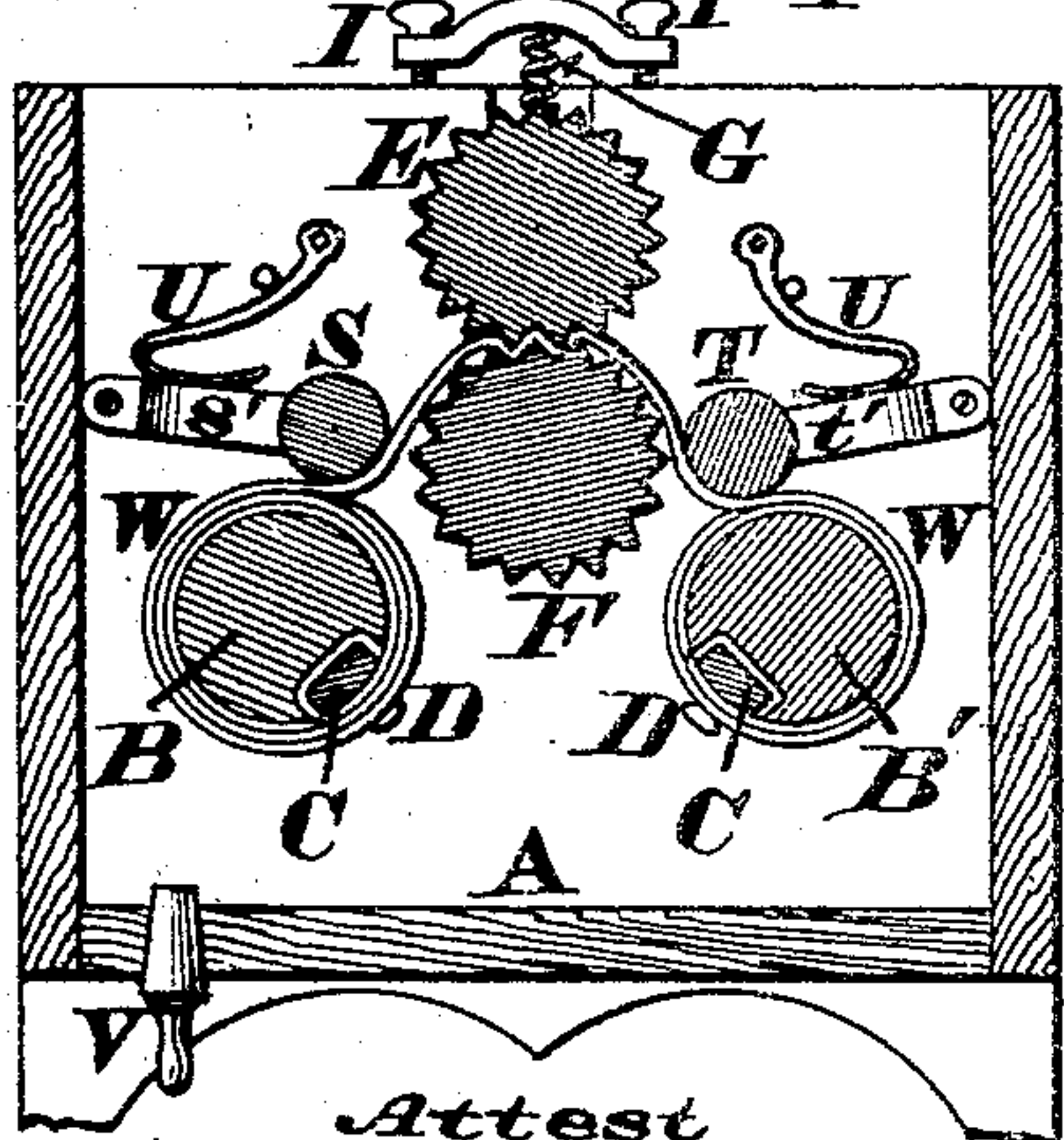
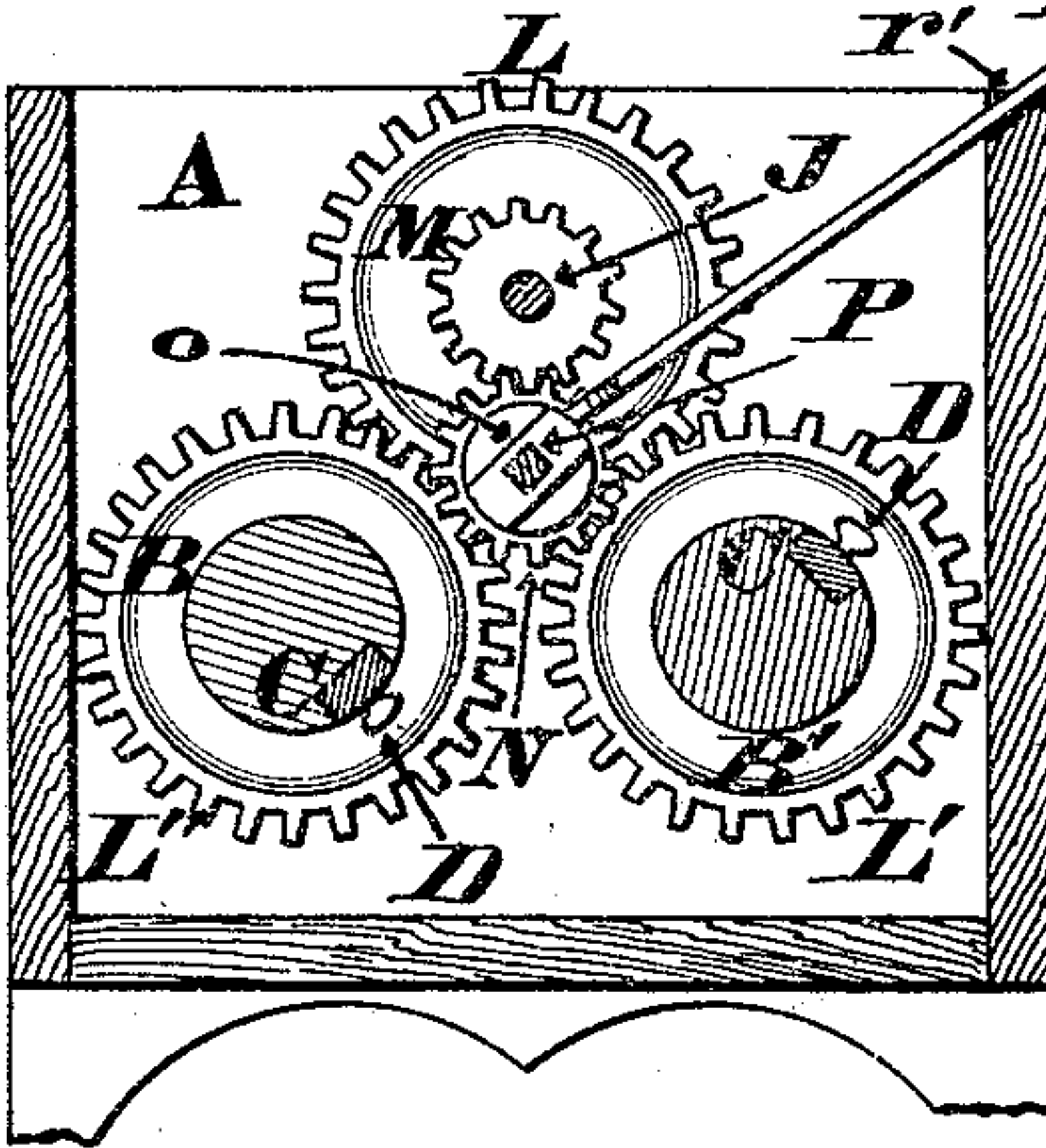


FIG. 3.  $H$   $I$   $Y$   $A$

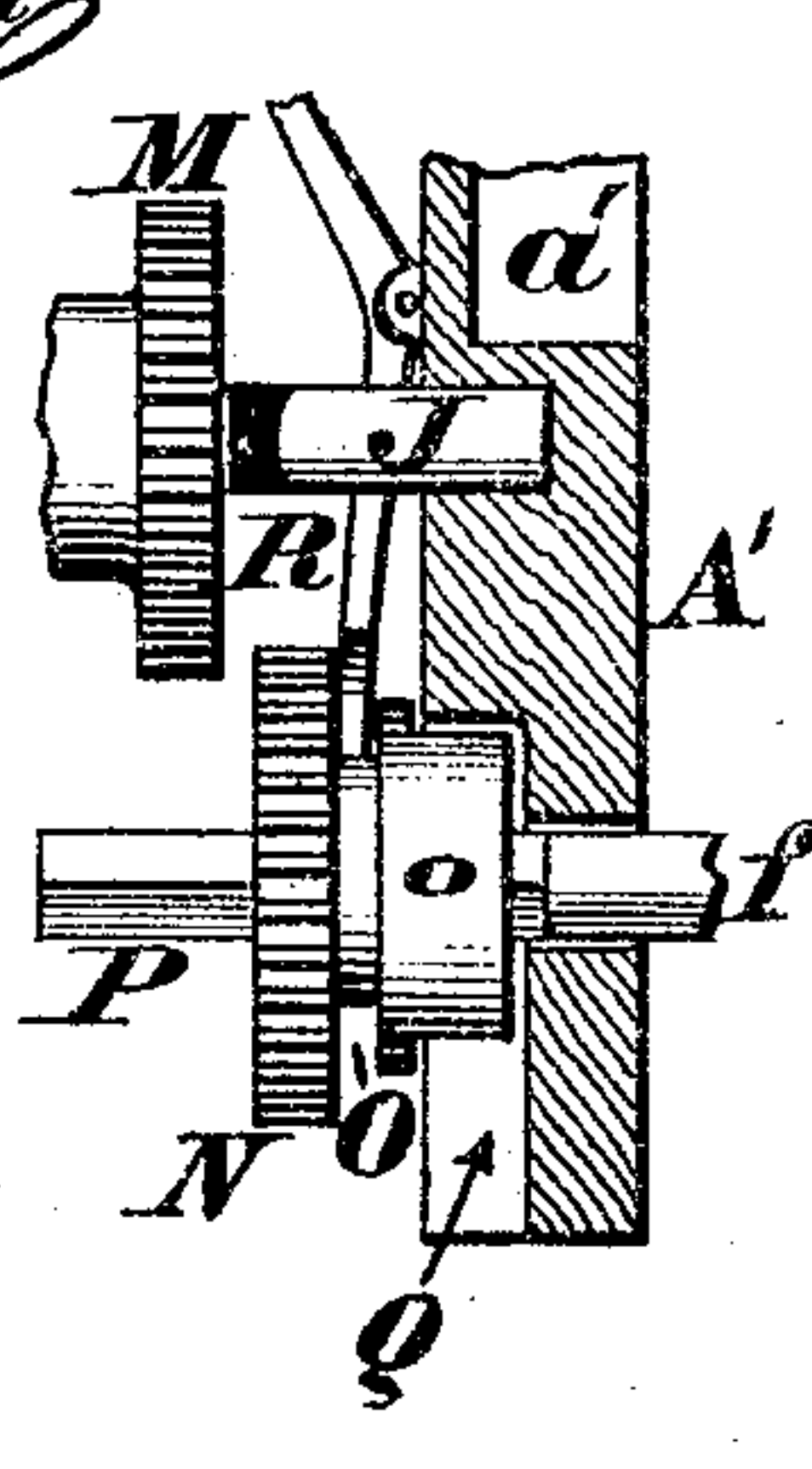


Attest  
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**FIG. 4.**



**FIG. 5.**



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# UNITED STATES PATENT OFFICE.

SEMELE SHORT, OF CINCINNATI, OHIO.

## IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **145,911**, dated December 23, 1873; application filed December 10, 1873.

*To all whom it may concern:*

Be it known that I, SEMELE SHORT, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Washing Apparatus, of which the following is a specification:

The object of my invention is to provide an apparatus adapted for the washing of all descriptions of fabrics, but more especially for the larger sort of articles, such as stair-cloths, table-cloths, blankets, quilts, and the like, a leading object of my improvement being to avoid any fulling or unequal stretching action, such as, by the ordinary process, occurs to the more bulky articles, and by which they are, at every succeeding washing, more and more distorted from their original rectangular shape.

In the accompanying drawings, Figure 1 is a longitudinal section through a washing-machine embodying my improvements, the clutch being set so as to communicate motion from the driving-shaft to the pair of fluted rollers. Fig. 2 is a plan of the machine. Fig. 3 is a transverse section at the line *x x*. Fig. 4 is a similar section at the line *y y*; and Fig. 5 is an enlarged vertical section through a portion of the bulk-head of the machine, showing the clutch ungearred from the driving-shaft.

A is a tub-vessel, preferably of the represented rectangular form, to contain suds. B B' are two reels or cylinders, to whose peripheries the ends of the article to be washed are respectively secured by means of clamps C, which are fastened by means of screws D. The above reels are journaled some distance apart on the same horizontal level in the said vessel. Permanently secured to the tub A, near and parallel to one end thereof, is a bulk-head, A'. Journaled horizontally in this bulk-head, and in the remote end of the tub, so as to occupy a vertical plane midway between the aforesaid tubs, are two fluted rollers, E and F. Of these rollers, the upper one, E, is pressed down upon the lower one by means of spiral springs G, acted upon by caps or followers H, which are secured to the tub by means of screws I. The roller E is provided with two gudgeons, *e e'*, which occupy vertical slots *a a'*, that are formed, respectively, in the end of the machine and in the bulk-head A', blocks *g* being interposed between said gudgeons and the temper-springs G. By this arrangement, the upper

roller is allowed sufficient vertical movement or play, so as to automatically adjust itself to any thickness of fabric that may be run through the machine. As the lower roller, F, need not have any such vertical movement, its gudgeons *f f'* are simply journaled in the bulk-head and the end of the machine, the gudgeon *f* being provided with a non-circular portion, P, for a purpose which will presently appear. J is the driving-shaft, which is journaled in the bulk-head A', and in the end of the tub adjacent thereto; and said shaft is rotated by a winch or crank, K. The shaft J has keyed fast to it a spur-wheel, L, which gears to similar wheels, L' and L'', on the respective reels, so as to compel rotation of said reels whenever the said winch is revolved, and in the opposite direction thereto. The shaft J has now keyed fast to it a pinion, M, which gears with a similar pinion, N, on a shiftable clutch, O, which embraces the square arbor P on the end of the gudgeon *f* of the said lower roller. The clutch O has a non-circular portion, *o*, which, when the clutch is shifted so as to ungear with the pinion M, occupies a corresponding cavity, Q, in the bulk-head. R is the lever for shifting the clutch O so as to engage the pinion N with the one M, or to disengage it therefrom; and, in order that said lever may not be accidentally unshipped, it is sprung into either of the notches *r r'* in the side of the tub. S and T represent two rollers, which are, respectively, journaled in arms *s s'* and *t t'*, the latter being pivoted within the tub, as clearly shown in Figs. 2 and 3. Springs U, bearing upon the aforesaid pivoted arms, serve to hold the rollers S and T against the fabric that is being washed with sufficient pressure to take out all the slack that may be occasioned by winding the goods from one reel, B, upon the other one, B', or vice versa. V is a plug, the removal of which allows the contents of the tub to escape.

The operation is as follows: The goods are applied to my machine and the act of washing them accomplished in the following manner: The carpet or other bulky fabric, W, has one of its ends secured beneath the clamp C, and it is then wound upon the cylinder B, a sufficient portion of said fabric being left unwound, so as to allow its other end to be passed



through between the fluted rollers E F, and then secured under clamp C of reel B'. The attendant then proceeds to rotate the winch K in such a direction as to wind the carpet on the drum B', and, consequently, to uncoil it from the other reel, B. As the gear-wheels L' L'' are of equal diameters, and as they both engage with the driving-wheel L, but not with one another, it will be readily understood that the reels B B' rotate in the same direction and at uniform speeds, which act, owing to the changing diameters incident to the accumulation and diminution of goods on the respective cylinders, would cause considerable slackness in the fabric unless the pressure-rollers S and T were employed. As the fabric is thus transferred from one reel to the other, it is operated upon by the fluted rollers E and F, whose action is such as to force out between the interstices of the cloth dirt or other sediment that may have been deposited therein. After the fabric has been thus coiled upon one reel, the crank is then rotated in an opposite direction, so as to wind the article upon the other reel. This alternate winding of the fabric from one reel to another is repeated until the goods have been thoroughly cleansed.

For a very dirty article, requiring severe rubbing, the following changes are made in the machine: The free end of lever R is shifted away from the bulk-head A', which act causes the clutch O to slide upon the square arbor P,

thereby forcing the non-circular portion o of said clutch into the recess Q, as seen in Fig. 5. This act un gears the pinion N from the wheel M, and, the clutch O being engaged with the recess Q, the reel F is effectually locked, and its rotation effectually prevented.

As the upper roller is rotated by its flutes engaging with the lower one, it will be readily understood that as soon as the latter is locked in position there can be no rotation of the former. In this locked or inoperative condition of the fluted rollers, the lever R is sprung into the notch r.

Both of the pressure-rollers may be employed at the same time; or either one of them may be rendered inoperative by simply shifting the springs aside and then turning the pivoted arms so as to elevate the roller.

I claim as my invention—

1. The combination of the rolls B B', having clamps C, and the presser-rolls S T, substantially as and for the purposes set forth.

2. The combination of the reeling devices B B' C and fluted rolls E F, as and for the purposes described.

In testimony of which invention I hereunto set my hand.

SEMELE SHORT.

Attest:

S. B. SPEAR,  
GEO. H. KNIGHT.