

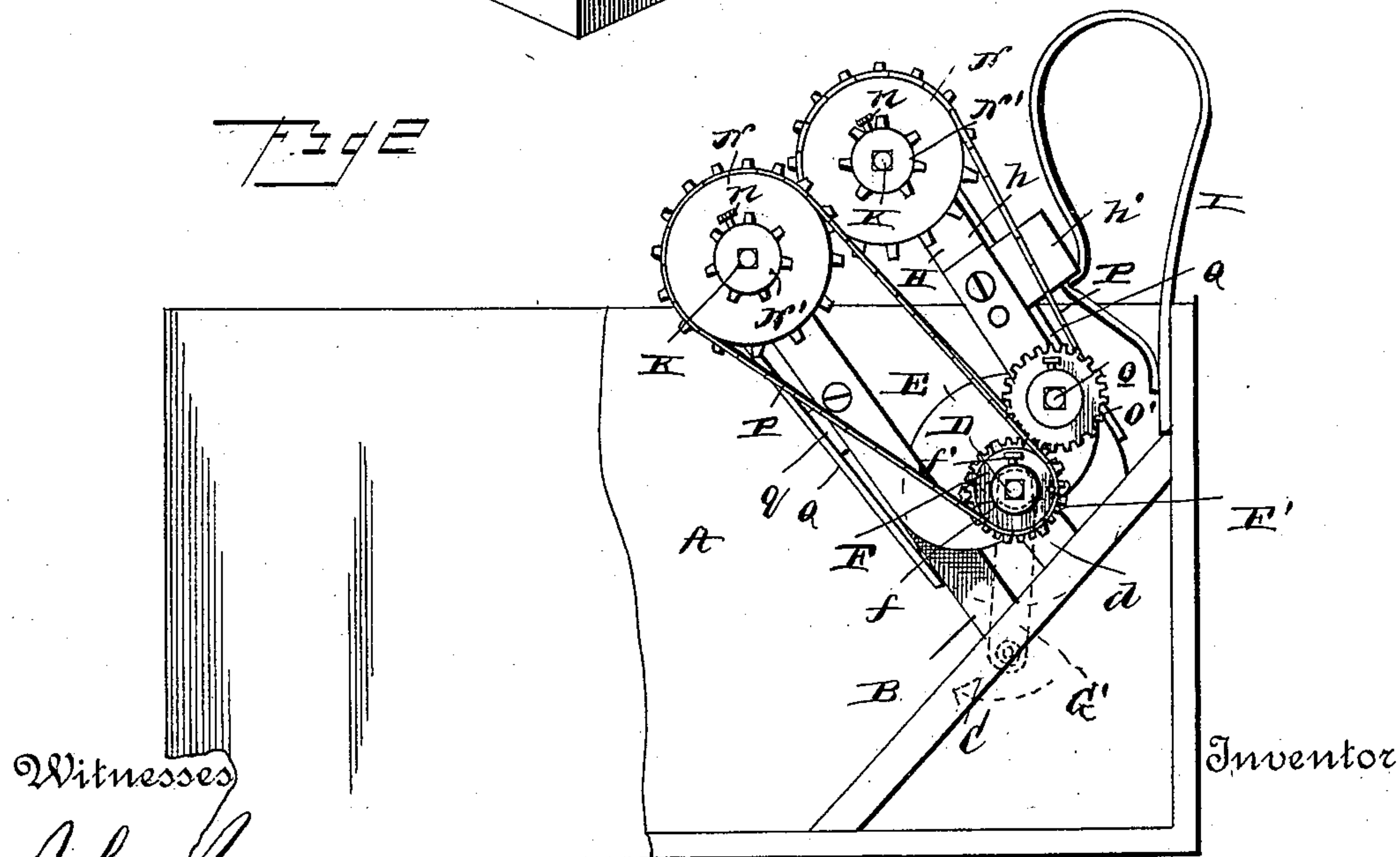
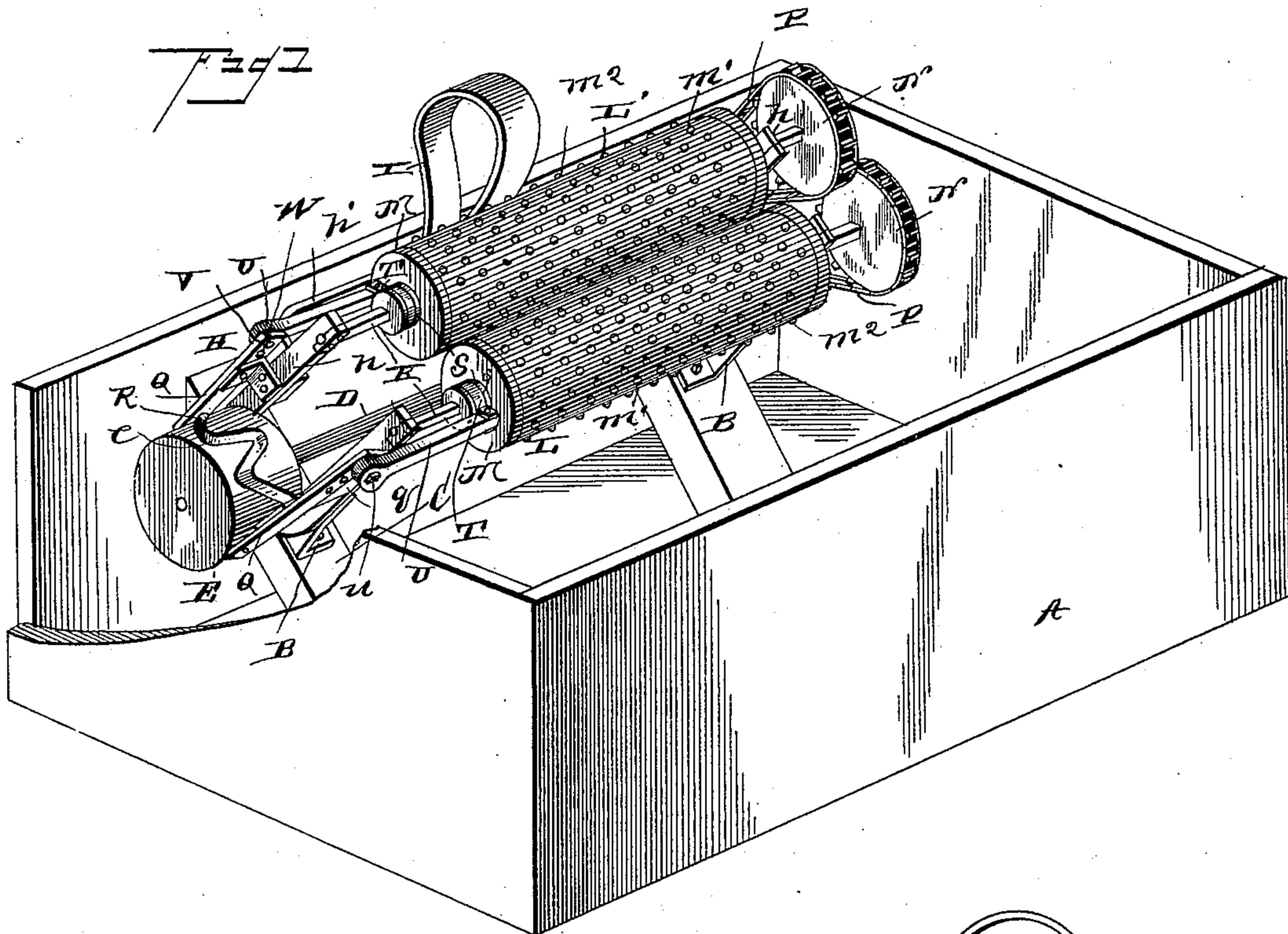
(Model.)

2 Sheets—Sheet 1.

A. F. TEIGEN.  
WASHING MACHINE.

No. 405,282.

Patented June 18, 1889.



Witnesses

John Miller  
W. E. Lloyd

By his Attorneys Austin F. Teigen

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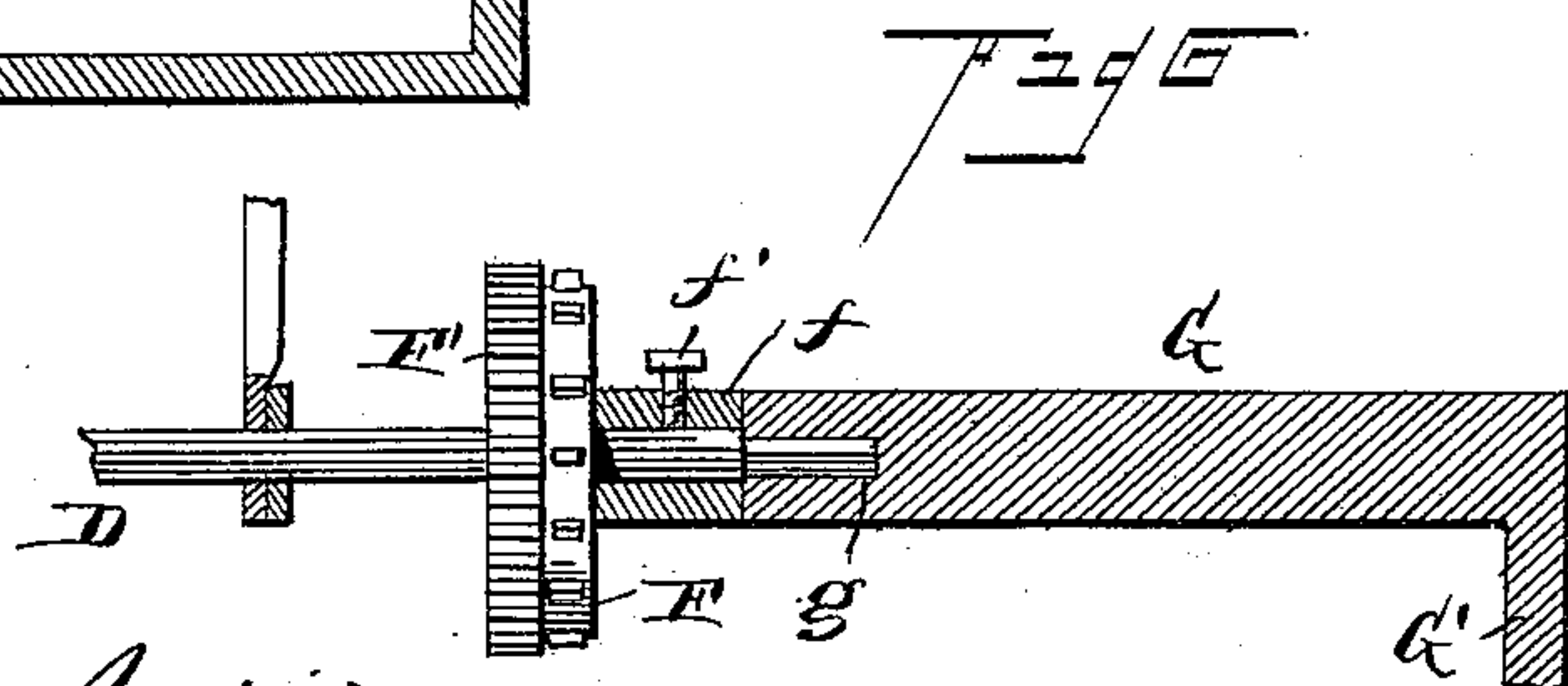
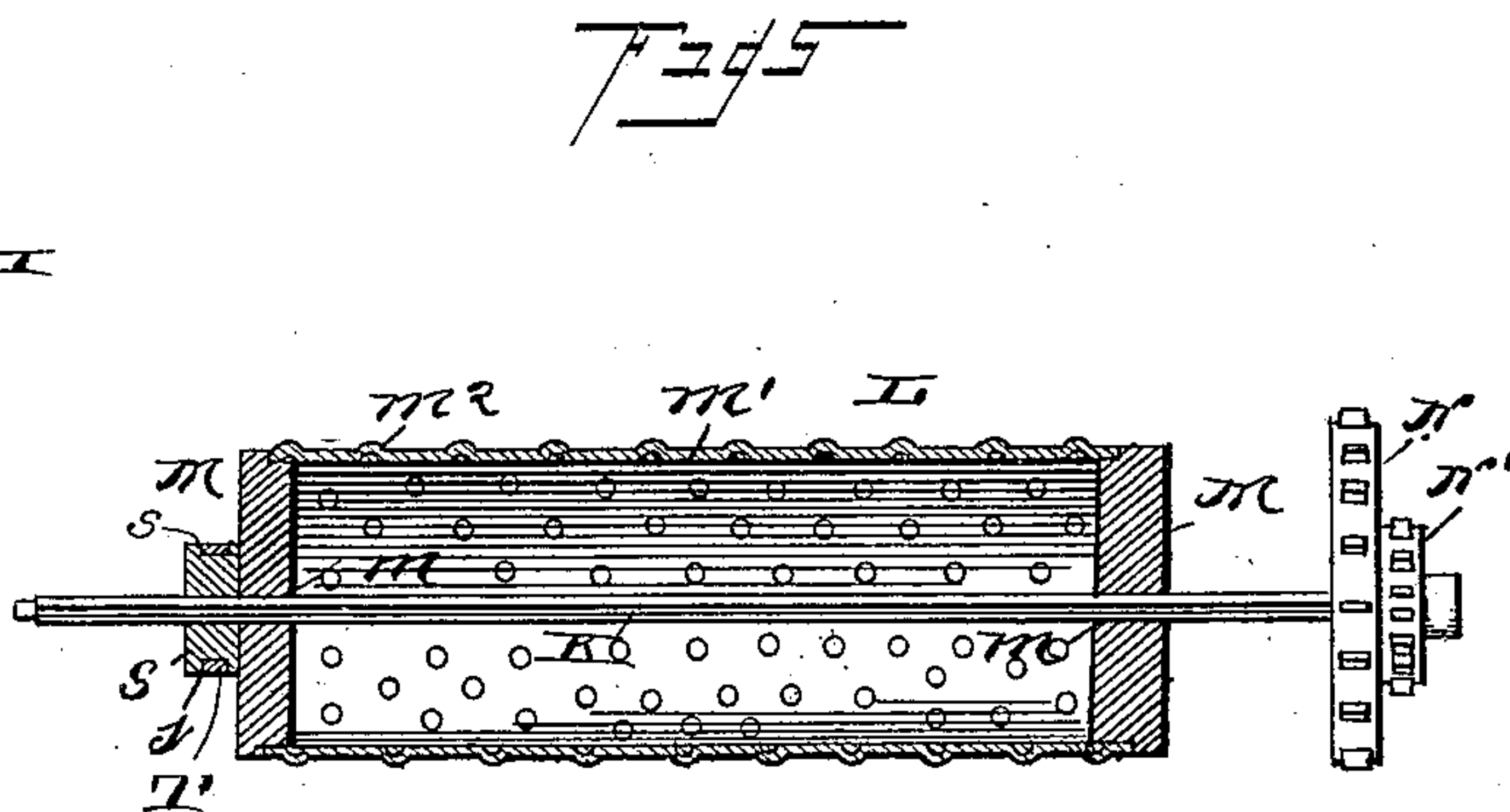
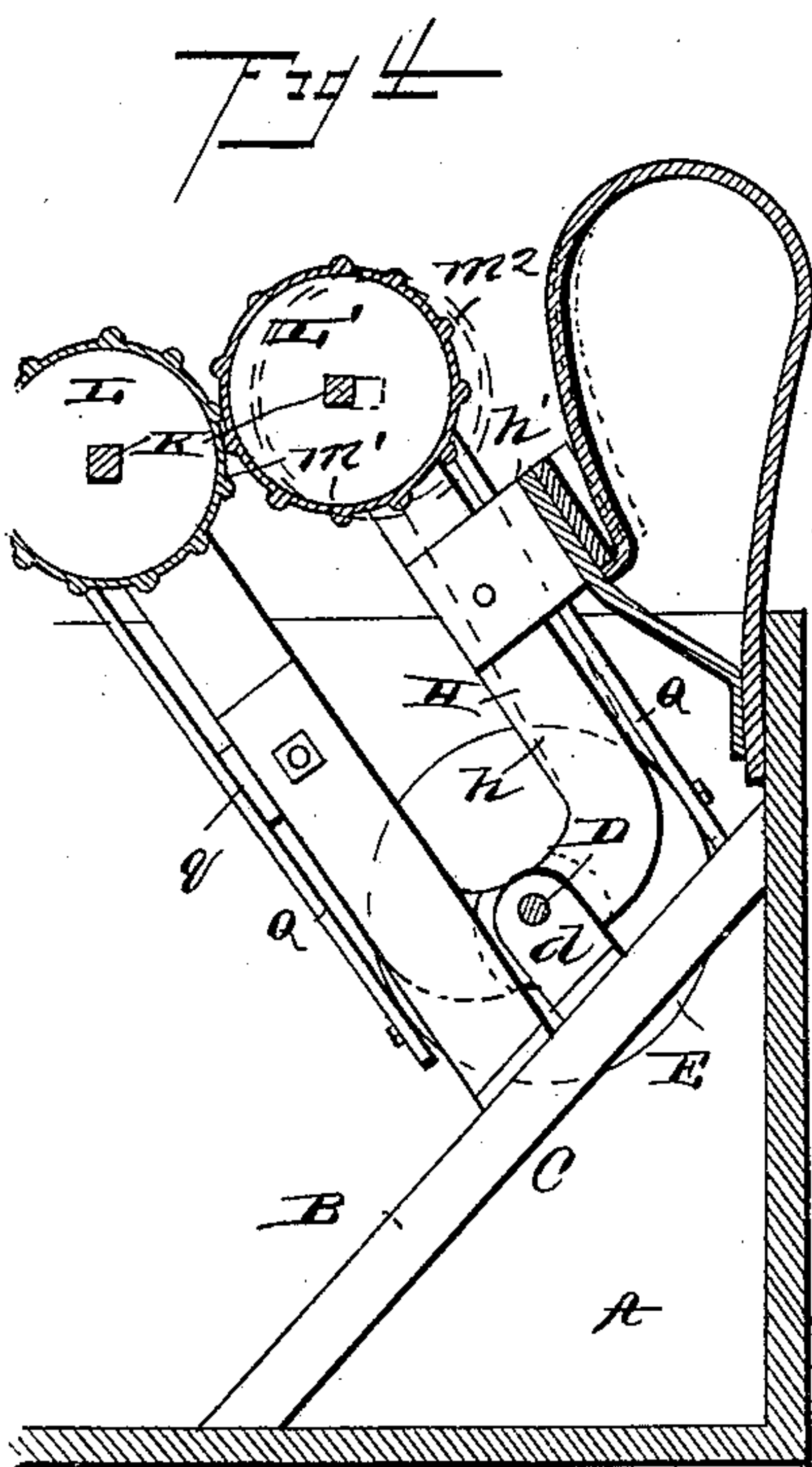
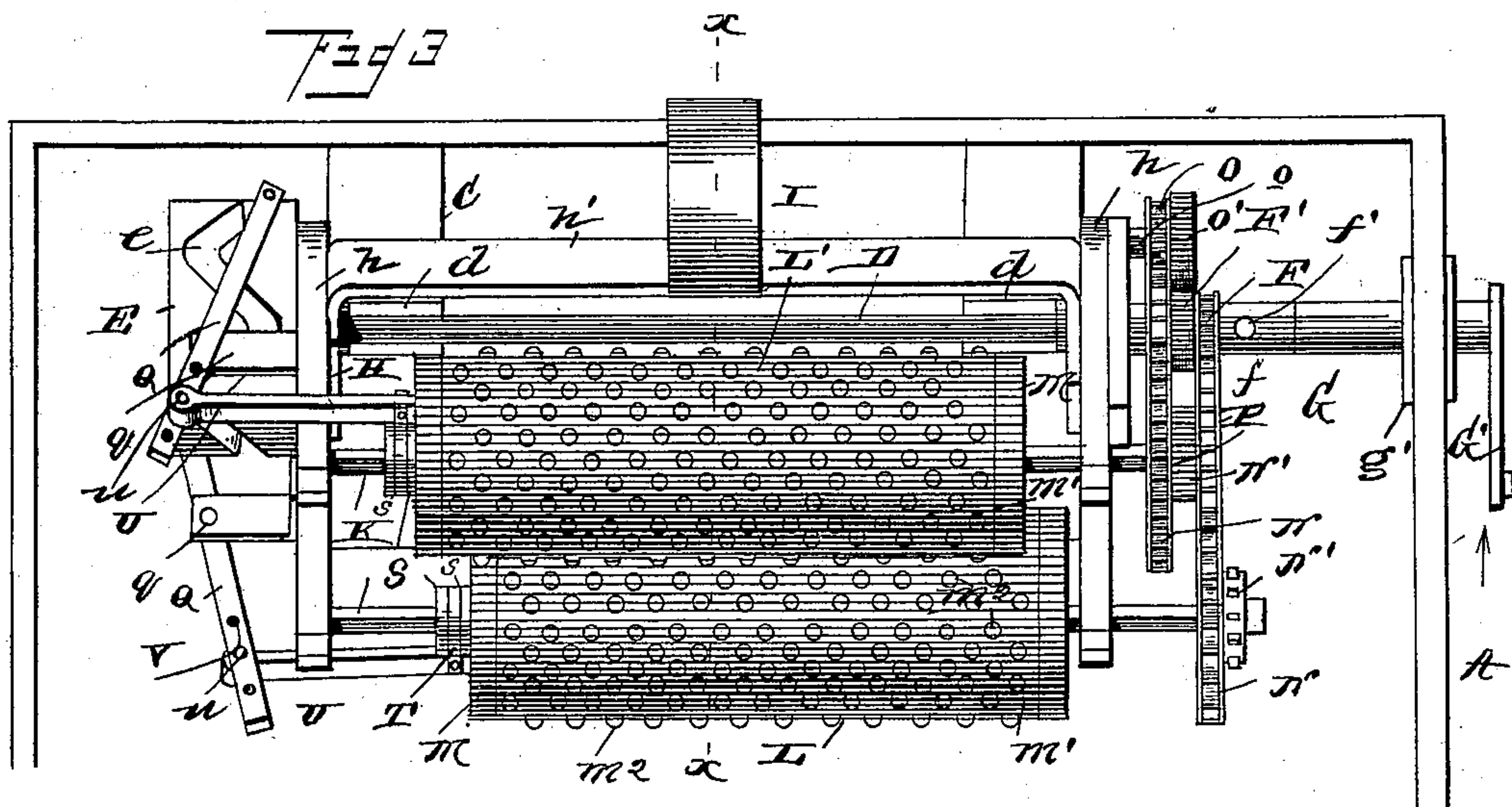
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## Witnesses

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# UNITED STATES PATENT OFFICE.

AUSTIN F. TEIGEN, OF WATSON, MINNESOTA.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,282, dated June 18, 1889.

Application filed March 14, 1889. Serial No. 303,300. (Model.)

*To all whom it may concern:*

Be it known that I, AUSTIN F. TEIGEN, a citizen of the United States, residing at Watson, in the county of Chippewa and State of Minnesota, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

The invention relates to improvements in washing-machines; and it consists in a certain novel construction and combination of devices fully described hereinafter in connection with the accompanying drawings, and specifically pointed out in the claims.

In the drawings, Figure 1 is a perspective view, partly broken away, of a washing-machine embodying my improvements. Fig. 2 is a side view, partly in section, showing the opposite end. Fig. 3 is a plan view. Fig. 4 is a sectional view on the line  $xx$  of Fig. 3. Fig. 5 is a longitudinal sectional view of one of the cylinders. Fig. 6 is a detail sectional view of a portion of the main driving-shaft.

Referring by letter to the drawings, the suds-box A may be of any desired shape, (the rectangular shape shown in the drawings being preferred,) and inwardly-inclined supporting-arms B B are arranged on an inclined platform C, at one side of the box, and project over the center of the box.

A horizontal driving-shaft D is journaled in bearings  $d d$ , provided near the lower ends of each of the supporting-arms, and on one squared end of the shaft is keyed a cam-roll E, having the zigzag or irregular cam-groove  $e$  formed in its periphery. On the other squared end of the driving-shaft is fitted a small sprocket-wheel F, having a pinion F' secured rigidly to its inner side or formed integral therewith, and the sprocket-wheel is provided on its outer side with a collar  $f$ , which embraces the driving-shaft and carries a set-screw  $f'$ , whereby the sprocket-wheel may be clamped firmly in place on the shaft. The squared end of the shaft projects beyond the end of the collar  $f$  and a tubular crank-shaft G, which is journaled in a bearing in the end of the suds-box and has a square bore  $g$ , which fits on the driving-shaft, thereby enabling the latter to be rotated by turning the crank G'. The crank-shaft preferably extends through a suitable packing-box  $g'$ , to prevent the contents of the suds-box from escaping at that point.

A swinging frame H is arranged adjacent to the supporting-arm B B, and it consists of arms  $h h$ , similar to the arms B, mounted at their lower ends on the driving-shaft, (or otherwise pivoted to the said supporting-arms,) and the cross-bar  $h'$ , which connects the arms  $h h$  at intermediate points. A curved leaf-spring I bears against the center of the cross-bar to press the upper ends of the swinging arms  $h$  toward the supporting-arms.

Square shafts K K are mounted in bearings at the free ends of the supporting and swinging arms, respectively, (the said shafts being rounded where they fit in the bearings to enable them to turn,) and on the shafts are fitted the washing-cylinders L L', which are shorter than the shafts, and are capable of a sliding movement thereon. The washing-cylinders consist of the heads or disks M M, having square central apertures  $m m$  to fit the shafts K K, whereby the cylinders are caused to rotate with the shafts, and the cylindrical jacket or shell  $m'$ , which is roughened or provided with small knobs or projections  $m^2$  to rub the clothes.

Sprocket-wheels N N are fitted on the projecting ends of the shafts K K, which are adjacent to the sprocket-wheel F, and said wheels are provided with set-screws  $n n$  to impinge against the shafts, and small sprocket-pinions N' N' are formed on the outer sides of the said sprocket-wheels, for a purpose to be hereinafter explained.

A sprocket-wheel O, similar to the wheel F, is mounted on a stub-shaft  $o$  at the lower end of one of the swinging arms  $h$ , and it is provided with a pinion O', which meshes with the pinion F', whereby, when the driving-shaft is turned, both sprocket-wheels F and O are rotated.

Sprocket-chains P P connect the sprocket-wheels N N to the sprocket-wheels F and O, respectively, whereby the washing-cylinders are rotated in opposite directions or toward each other when the crank is turned to the right, as shown by the arrows in the drawings, and as the sprocket-wheels N N are larger than the wheels F and O the cylinders will turn slowly.

Operating-levers Q Q are pivoted to brackets  $q q$  on the supporting and swinging arms B  $h$ , adjacent to the cam-roll, and are provided at their lower ends with anti-friction



rollers R R, which travel in the groove of the cam-roll at diametrically-opposite points of the latter, whereby as the driving-shaft is rotated the levers are oscillated in opposite directions, the upper end of one lever swinging toward the washing-cylinders, while the other swings away from the same.

The washing-cylinders are provided at the ends which are adjacent to the upper ends of the levers Q Q with collars S S, having peripheral grooves s s, and straps T T are fitted loosely in these grooves and are connected to the free ends of the levers by the links U U. The links are connected to the levers by the pivoted bolts u u, which engage perforations V in the upper ends of the levers, a series of these perforations being provided in each lever to enable the throw of the cylinders to be adjusted at will.

From the above description it will be seen that the adjustable washing-cylinder L' (which is mounted on the swinging frame) may be drawn away from the roller, as shown in dotted lines in Fig. 4, and therefore as the clothes or fabrics to be washed are fed between the cylinders a constant pressure is exerted thereon, but the adjustable cylinder accommodates itself to the thickness of the material.

When the crank is turned, the washing-cylinders are given two movements—a rotary movement which draws the clothes slowly through, so as to expose all parts thereof to the surfaces of the cylinders, and a longitudinal oscillating movement in opposite directions, which rubs and thereby cleanses the clothes.

If it is desired to wring or compress the clothes to expel the water, the cylinders are disconnected from the upper ends of the levers by removing the pins W W, which connect the links to the straps, and the sprocket-chains are engaged with the sprocket-pinions N' N' above referred to. The cylinders then revolve with the same rapidity as the driving-shaft.

I have now described my improvements in washing-machines with the preferred means for carrying my object into effect; but I desire it to be understood that I do not limit myself to the precise details of construction as herein set forth, as various minor changes may be made therein without departing from the spirit and intent of the invention.

Having thus described the invention, I claim—

1. In a washing-machine, the combination of the parallel squared shafts, the washing-cylinders mounted on the shafts and adapted to slide longitudinally thereon and provided with grooved collars S S, the driving-shaft geared to the squared shafts and carrying a cam-roll having an irregular groove, the levers provided at one end with anti-friction rollers traveling in the said groove, and the straps fitting on the grooved collars and con-

nected by links to the free ends of the said levers, substantially as specified.

2. In a washing-machine, the combination of the cylinder L, provided with a shaft which is mounted on stationary supporting-arms, the swinging frame carrying a cylinder L' and actuated by a suitable spring to hold the cylinders in contact, the driving-shaft geared to the said cylinders and carrying a cam-roll, and the levers connected to the cylinders and operated by the cam-roll, substantially as specified.

3. In a washing-machine, the combination of the parallel squared shafts provided with sprocket-wheels N N, the cylinders mounted on the said shafts and capable of a sliding movement thereon, the driving-shaft provided with a sprocket-wheel F, the sprocket-wheel O, geared to the sprocket-wheel F, the sprocket-chains connecting the wheels F O to the wheels N N, and the levers connected to the cylinders and operated by a cam-roll on the driving-shaft, substantially as specified.

4. In a washing-machine, the combination of the parallel revoluble shafts carrying washing-cylinders and provided with sprocket-wheels N N, the squared driving-shaft, the sprocket-wheels F O, connected to the driving-shaft and geared to the sprocket-wheels N N by the sprocket-chains P P, and the crank-shaft provided with a square bore to fit on the driving-shaft, substantially as and for the purpose specified.

5. In a washing-machine, the combination, with the suds-box, of the inclined supporting-arms B B, the shaft mounted in bearings at the outer ends of the supporting-arms and carrying a washing-cylinder L, the driving-shaft mounted in bearings near the lower ends of the supporting-arms and geared to the cylinder L, the swinging frame pivoted on the driving-shaft and carrying a washing-cylinder L', which is geared to the driving-shaft, and the crank-shaft mounted in a bearing in the side of the suds-box, passing through a packing-box therein and provided with a squared bore to fit on the squared end of the driving-shaft, substantially as specified.

6. In a washing-machine, the combination of the parallel squared shafts carrying washing-cylinders and provided with sprocket-wheels N N, having sprocket-pinions N' N', the driving-shaft carrying a cam-roll and provided with sprocket-wheels F O, the sprocket-chains passing around the said sprocket-wheels, and the levers connected to the cylinders and operated by the said cam-roll, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

AUSTIN F. TEIGEN.

Witnesses:

A. I. AMUNDSON,  
LYCURGUS RELBOYER.