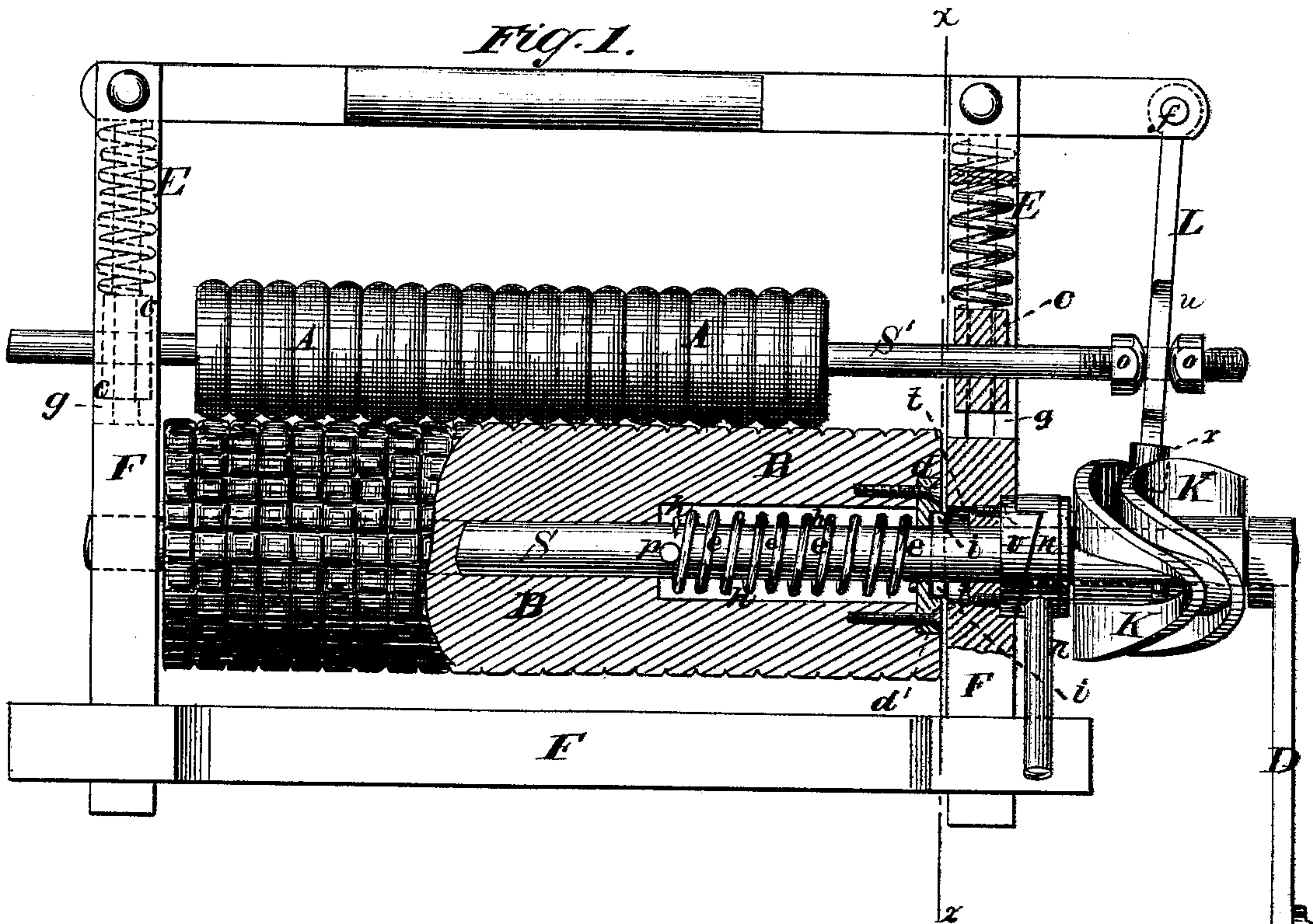


C. A. DANIELS  
 WASHING-MACHINE.

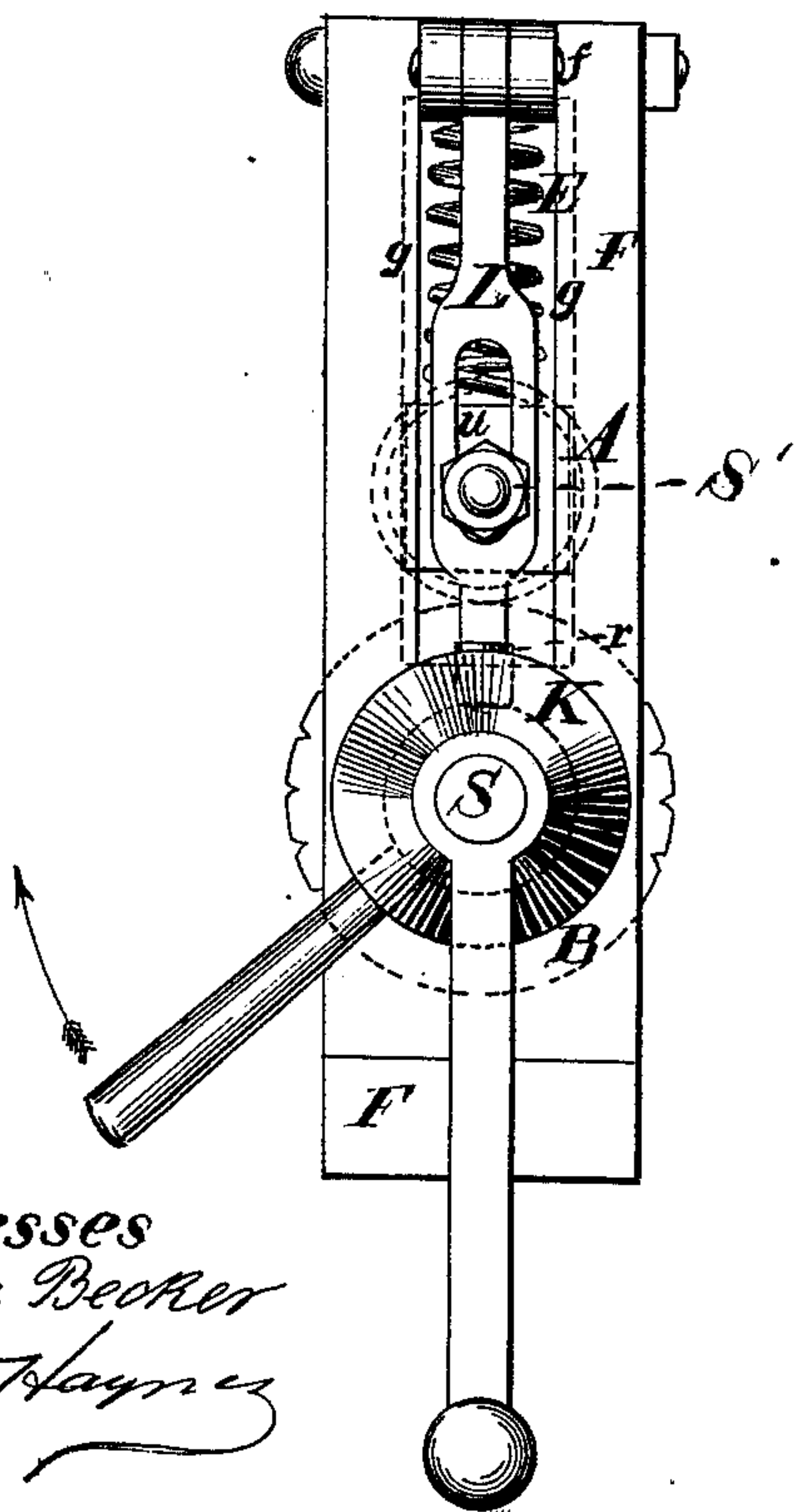
No. 176,602.

Patented April 25, 1876.

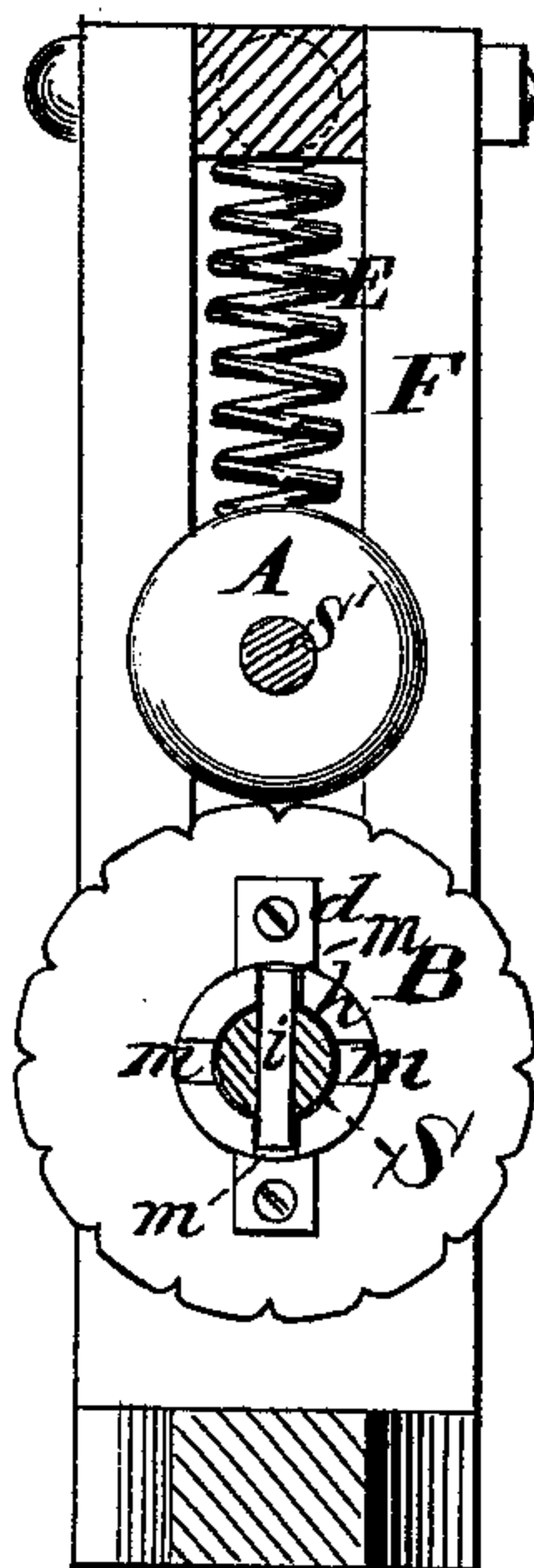
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses  
 John Becker  
 Fred. Wagner

C. A. Daniels  
 by his Attorney  
 Brown & Allen



# UNITED STATES PATENT OFFICE.

CHARLES A. DANIELS, OF WATERVILLE, NEW YORK.

## IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **176,602**, dated April 25, 1876; application filed March 21, 1876.

*To all whom it may concern :*

Be it known that I, CHARLES A. DANIELS, of Waterville, in the county of Oneida and State of New York, have invented an Improvement 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 drawing, which forms part of this specification.

My invention consists in the construction, arrangement, and actuation, by suitable mechanism, of a pair of rubbing and squeezing rollers, in such manner that one of the rollers is simultaneously given a rotary motion, a longitudinal reciprocating motion, and a vertical reciprocating motion, while the other has only a rotary motion; and it also consists in other mechanism whereby facility and convenience in handling clothes while washing them, and in thoroughly cleansing the same, are secured.

Figure 1 in the accompanying drawing is a side view and partially a sectional view of my improved washing-machine. Fig. 2 is an end view of the same. Fig. 3 is a vertical section of the machine on the line *x x*.

A and B are the rollers, which act upon the clothing while washing the same, and which have their shaft-bearings in the frame F, the bearings of the shaft S of the roller B being fixed, and the bearings *c* of the shaft S' of the roller A being movable vertically in guide-ways *g*, formed in the said frame F. The roller A is firmly attached to the shaft S', and the roller B plays loosely on the shaft S, when not connected with said shaft by mechanism hereinafter described. The bearings *c* are forced toward the bearings of the roller-shaft S by springs E. The roller A is ridged circumferentially, and the roller B is ridged both circumferentially and longitudinally to form a nodulous surface thereon. To the shaft S is affixed a cam, K, in which plays the lower end of the lever L, said lever being pivoted at *f* to the upper bar of the frame F, and provided at the lower end with a friction-roller, *r*. Said lever also has a slot, *u*, between the pivot *f* and the friction-roller *r*, in which the end of the shaft S' plays, the said shaft being provided with nuts *o*, pins, or other stops, through which the lever L imparts longitudi-

nal motion to the shaft S' of the roller A, when the machine is operated by the crank D. In the end of the roller B, nearest the crank D, is a cylindrical recess, *h*, in which a spring, *e*, is placed, the inner end of which abuts against a pin, *p*, in the shaft S, and the outer end against a plate, *d*, attached by screws or other means to the end of the roller B. When not counteracted, the spring *e* forces the shaft S in a direction from the plate *d* toward the inner end of the recess *h*. On that side of the plate *d*, nearest the cam K, is fixed in the shaft S another pin, *i*, which, when the shaft S is forced by the spring *e* as far toward the inner end of the recess *h* as the construction will allow, engages with recesses *m*, Fig. 3, in the plate *d*, and thus enables the said shaft S to impart rotary motion to the roller B.

The disengagement of the pin *i* from the recesses *m* is effected by the lever-cam *n*, which plays loosely on the shaft S, between the cam K on said shaft and the cam *v* firmly attached to the frame F. When the lever-cam *n* is turned in the direction indicated by the arrow in Fig. 2 it pushes the cam K away from the frame F, carrying the shaft S along with it, and withdrawing the pin *i* from its engagement with the recesses *m* in the plate *d*, said pin then entering a recess, *t*, formed in the frame F.

The operation of the machine is as follows: The machine is attached to a washing-tub with screws, bolts, pins, keys, or other suitable means, and the clothes to be cleansed are caused to pass between the rollers A and B by turning the crank D, the lever-cam *n* being turned down to permit the connection of the roller B with the shaft S. The springs E press the roller A down upon the roller B, or upon the clothes passing between the said rollers, the friction thus caused communicating rotary motion to the roller A. The action of the cam K and the lever L causes the roller A to reciprocate longitudinally. The clothes are thus subjected to simultaneous rubbing and squeezing.

When it is desired to adjust the clothes between the rollers, the cam-lever *n* is turned upward in the direction shown by the arrow in Fig. 2, which disconnects the roller B from

the shaft S. The clothes may then be withdrawn, the two rollers turning freely on their axes while the longitudinal reciprocation of the roller A, and consequent rubbing of the clothes, is intermitted.

I claim—

1. The combination of the nodulous roller B, the ridged roller A, the shafts S and S', the nuts o, the lever L, and the cam K, substantially as described.

2. The combination of the lever-cam n, the fixed cam v, the pin i, the recessed plate d, attached to the roller B, and the shaft S, substantially as and for the purpose described.

CHAS. A. DANIELS.

Witnesses:

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