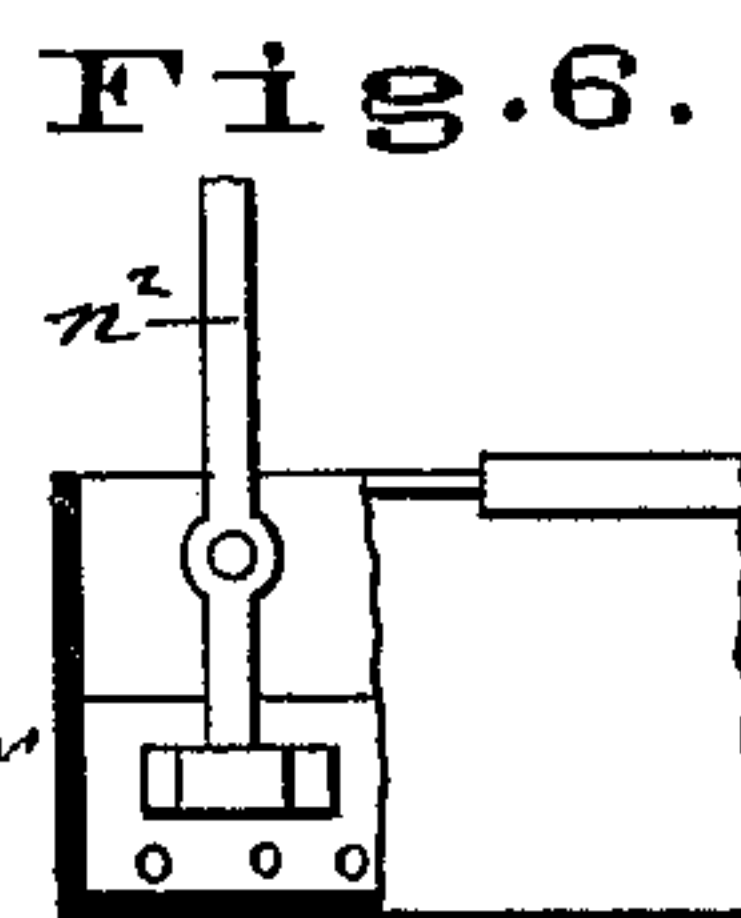
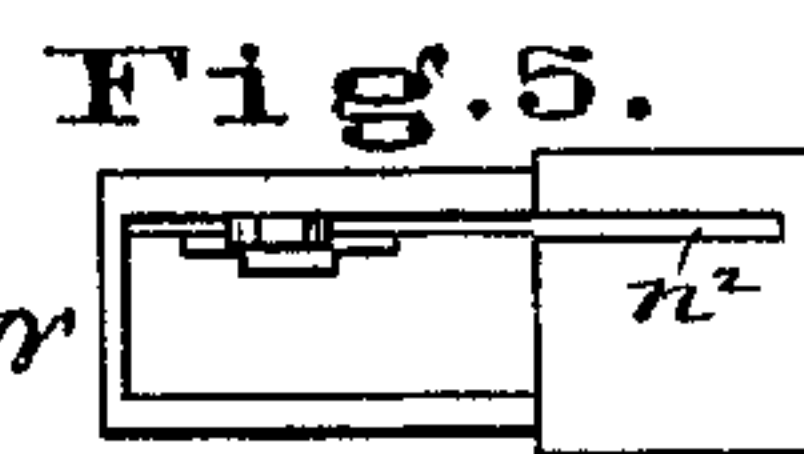
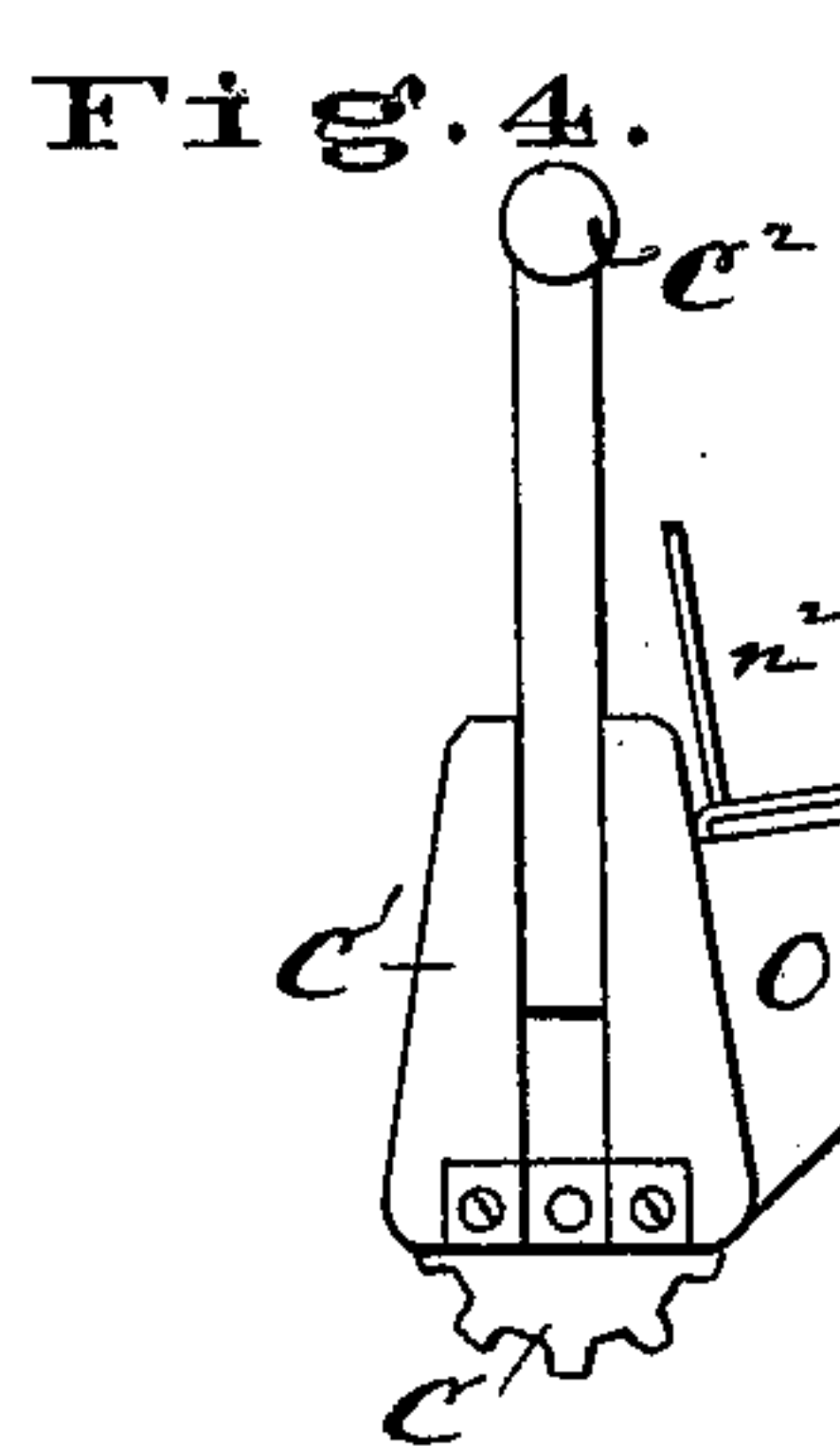
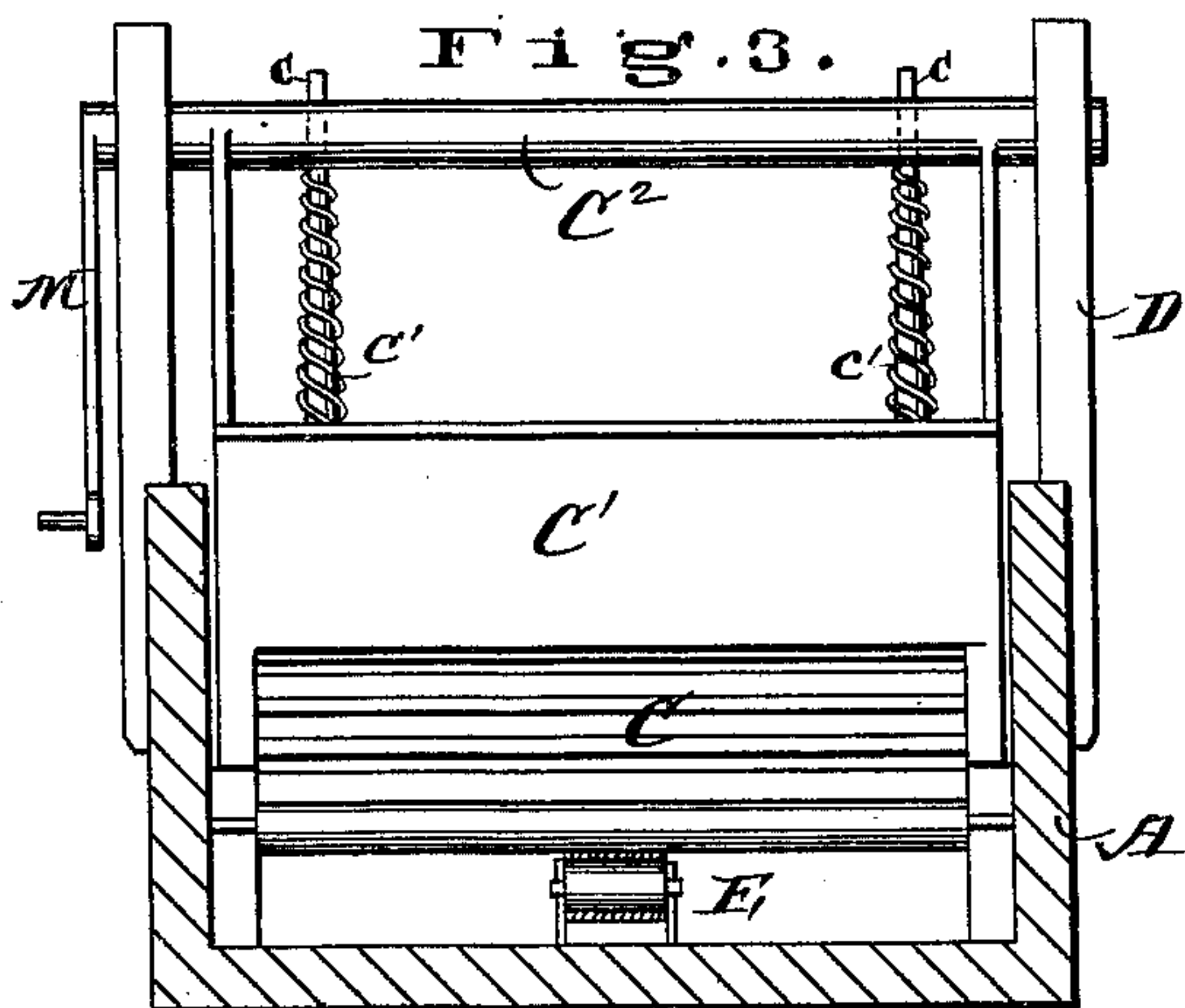
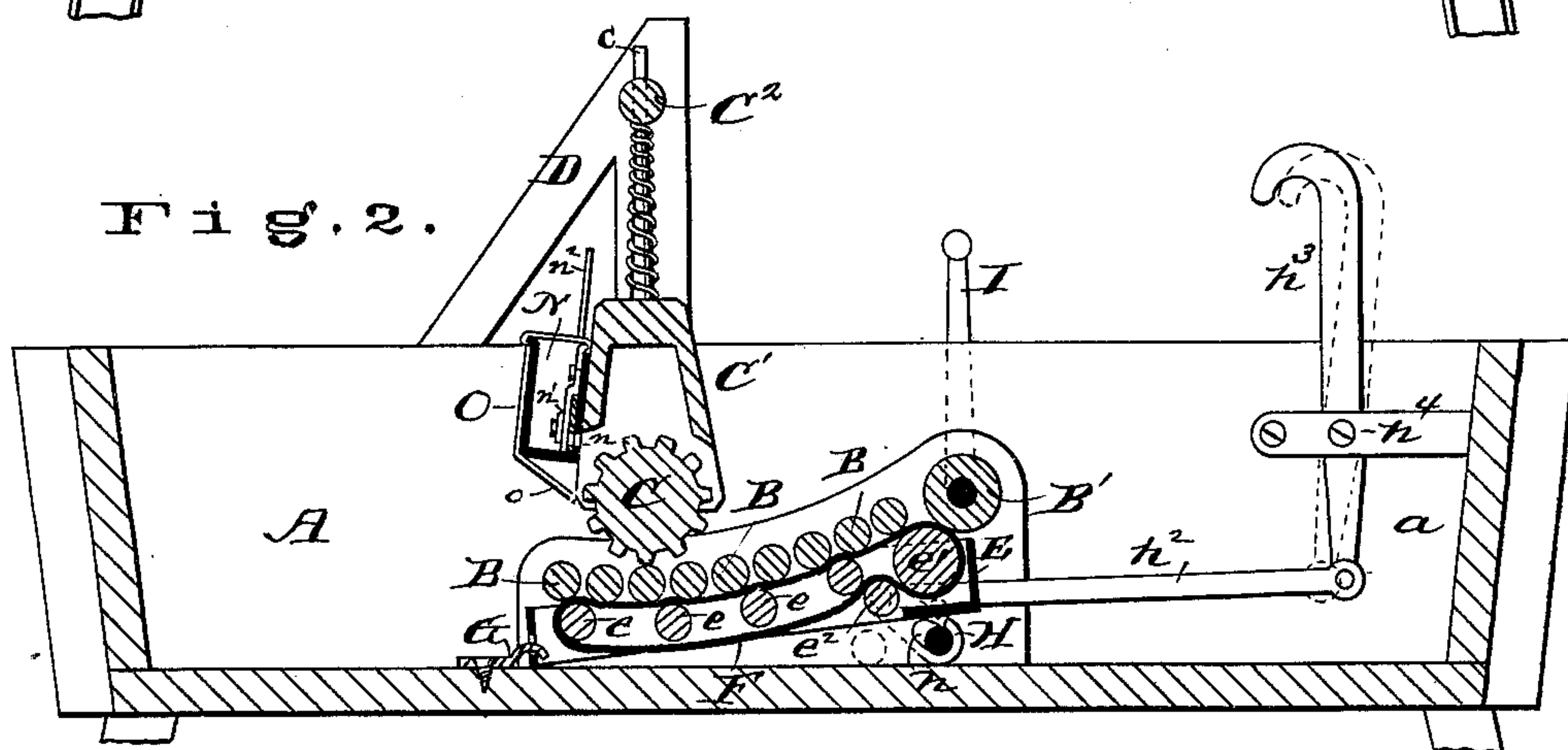
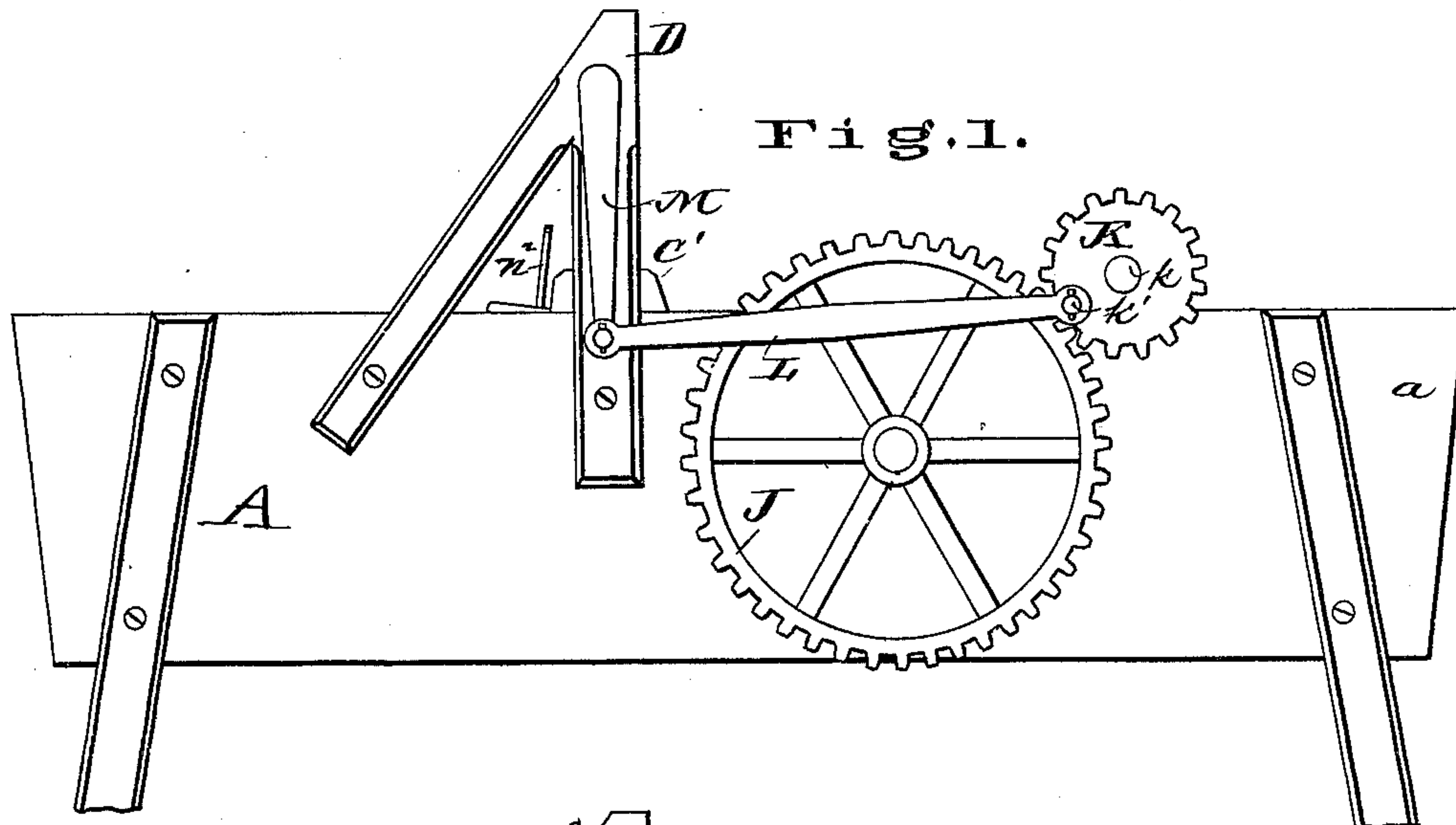


G. L. WILLIAMS.
Washing-Machine.

2 Sheets—Sheet 1.

No. 220,457.

Patented Oct. 7, 1879.



Attest.

Merrick Murphy
W. H. Melhouse

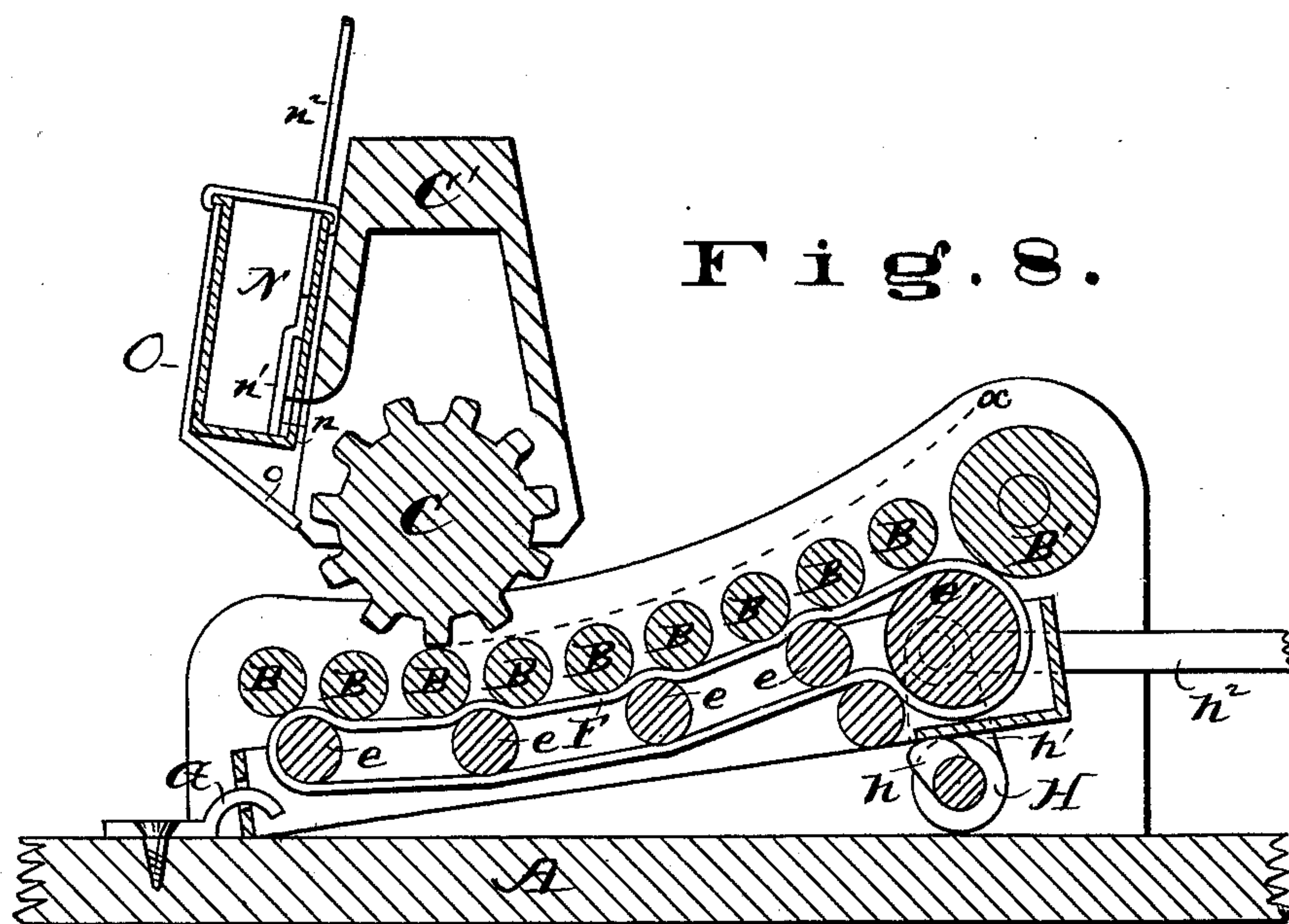
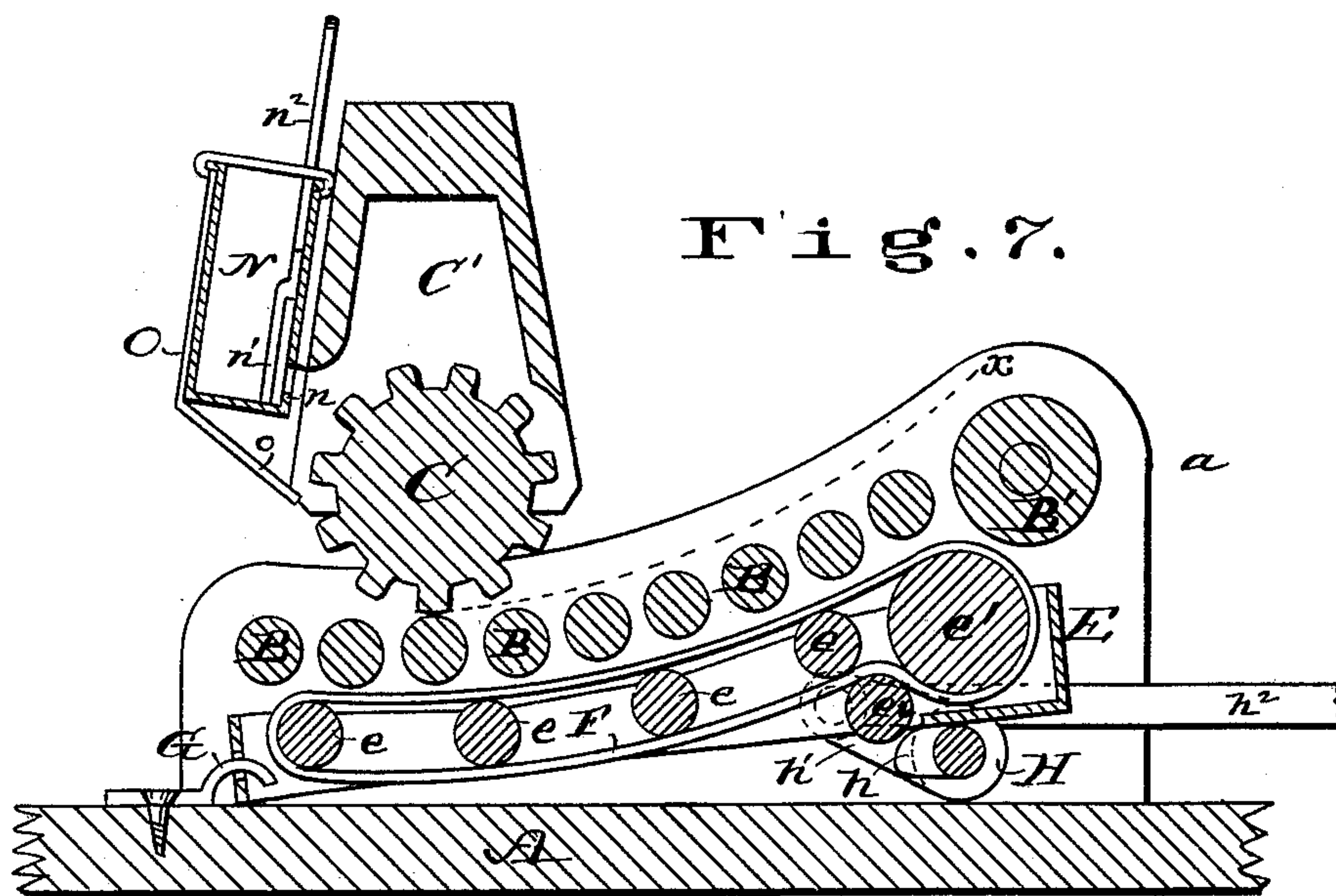
Inventor.

George L. Williams.
by Chas. S. Moody.
att'y.

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Inventor.

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by Chas. S. Moody, atty.

UNITED STATES PATENT OFFICE.

GEORGE L. WILLIAMS, OF EDWARDSVILLE, ILLINOIS, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO JULE G. BARNSBACK, OF SAME PLACE.

IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. **220,457**, dated October 7, 1879; application filed April 9, 1879.

To all whom it may concern:

Be it known that I, GEORGE L. WILLIAMS, of Edwardsville, Illinois, have made a new and useful Improvement in Washing-Machines, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation, and Fig. 2 a longitudinal vertical section, of the improved machine; Fig. 3, a transverse vertical section; Fig. 4, a detail, being an end elevation of the frame carrying the upper roller and soap-box; Figs. 5 and 6, details, being, respectively, a top and a side view of an end of the soap-box, the latter view being partly in section; Fig. 7, a vertical section taken through the various rolls by means whereof the washing is immediately effected, the view also showing the mechanism by which the clothes are caused to be fed through the washing-rolls, and the parts being arranged as when the feeding is suspended; and Fig. 8, a view similar to that of Fig. 7, but the parts being as when the feeding mechanism is in operation.

The same letters denote the same parts.

The present invention has relation to the means for feeding the articles being washed between the washing-rolls.

Referring to the drawings, A represents the tub, which is of the usual construction. The washing mechanism proper consists of a series of rolls, B B B, arranged in a circular arc, and constituting the bed upon which the clothes are supported while being rubbed, and an upper roll, C, held in a frame, C', that, by means of arms c c, is attached to a rock-shaft, C², by rotating which in a reciprocating manner the roll C is caused to travel to and fro over the rolls B B B and effect the desired rubbing of the clothes.

Similar rolls have previously been used in washing-machines; but, to enable the operator to adjust the pressure upon the clothes while being rubbed, the roll C, by means of a suitable construction of the parts supporting it, is made, in its movement over the rolls B B B, to traverse an arc (indicated by the broken line x, Figs. 7 and 8) not exactly coinci-

dent with the tops of the rolls B B B, but deviating somewhat therefrom, the greatest deviation being preferably near the ends of the series of rolls B B B. By means of this relative arrangement of the rolls B B B and C, the pressure upon the clothes varies according to their position upon the bed B B B—if toward the end a of the tub the pressure is diminished, and if toward the end where the rolls B B B C come nearest together the pressure is increased.

The shaft C² is held in suitable standards D D. The roll C is preferably fluted, and it is pressed downward by means of the springs c' c', as in the usual manner.

The feeding device, by which the clothes are suitably passed through the machine, is shown more distinctly in Figs. 7 and 8. E represents a frame arranged beneath the rolls B B B. A series of rolls, e e e e', are journaled in this frame and parallel with the rolls B B B. An endless belt, F, passes around the rolls e e e'. The frame E is connected with the machine, and arranged so that it can be raised and the belt F be brought in contact with the rolls B B B, as indicated in Fig. 8, and so that it can be lowered and the belt F be withdrawn from the rolls B B B, as shown in Fig. 7.

If motion be imparted to the belt, and the parts be as in Fig. 8, the motion is communicated to the rolls B B B, and thereby the clothes are caused to move along over the bed B B B. To suspend the feeding, and to enable the operator to keep any part of the clothes longer under the action of the roll C, it is only necessary to lower the frame E, as in Fig. 7. To accomplish these results the frame at one end is hinged to the bed of the tub, preferably by means of the hook G. The other end of the frame is made to be lifted and lowered by means of a shaft, H, that is provided with a tappet, h, that comes beneath the frame. By turning the tappet upward the frame turns upon the hinge G, and the belt is pressed against the rolls B B B. To more effectually bring the belt in contact with the rolls B B B, the rolls e e are arranged to come, when raised, between the rolls B B B, as shown in Fig. 8.

A tightening-roll, e², is preferably employed

to take up any slack in the belt. The end roll, e^1 , is preferably larger than the other rolls, $e e$.

The shaft H is provided with an arm, h^1 , to which is pivoted a rod, h^2 , that, in turn, is connected with a lever, h^3 . The latter is pivoted to the tub at h^4 , and by moving it, as indicated by the dotted lines in Fig. 2, the frame E is moved accordingly. In this the feeding of the clothes through the rolls is effected by mechanism that does not in any way interfere with the working of the latter.

Motion is communicated to the washing mechanism as follows: The journal of the roll B' projects through the side of the machine, and is provided with a crank, I. The journal on the opposite side of the tub is provided with a gear-wheel, J. The latter is in gear with a gear-wheel, K, journaled at k . The wheel K has a wrist-pin, k' , to which is connected a rod, L, that at its other end is connected with an arm, M, with which the rock-shaft C² is furnished. By turning the crank I the frame C¹ is caused to oscillate, and the roll C to move over the rolls B B B', as described. This relative arrangement of the gear-wheels J K and crank I enables the operator to work the machine without coming in the way of the gear-wheels, and the clothes can be handled without being liable to be caught and torn.

N represents the soap-box. It is arranged upon the side of the frame C¹. There are perforations $n n$ in it near its bottom, through which the soap passes to the roll C, the soap dropping from the box down onto a chute, o , that forms the bottom of a case or frame, O,

for holding the soap-box, and that is inclined, as shown, and extending down nearly to the bottom of the roll C. By reason of this relative arrangement of the soap-box and roll, and the position of the chute o , the soap is prevented from splashing over the machine as the roll C is rotated.

The box N is provided with a perforated slide, n^1 , operated by a lever, n^2 , for opening or closing the perforations $n n$, as required.

The box N is for soft soap. When hard soap is used the box N is taken out of the casing O, and the soap is put into the casing and allowed to come in contact with the roll C. The soap-box may be upon either side of the roll C.

The present machine is well adapted to washing fleeces as well as clothes.

I claim—

1. The combination of the frame E, having the rolls $e e^1$ and belt F, and the rolls B B B B', together with means, substantially as described, for raising and lowering said frame E to bring the belt F in contact with or to withdraw it from the rolls B B B B'.

2. The combination of the frame E, rolls $e e^1$, belt F, hinge G, shaft H, tappet h , and rolls B B B B', substantially as described.

3. The combination of the frame E, hinge G, shaft H, tappet h , arm h^1 , rod h^2 , lever h^3 , and tub A, substantially as described.

GEO. L. WILLIAMS.

Witnesses:

CHAS. D. MOODY,
WM. WELLHOUSE.