

JOHN R. CAZIER.

Improvement in Washing Machines.

No. 120,939.

Patented Nov. 14, 1871.

Fig. 1.

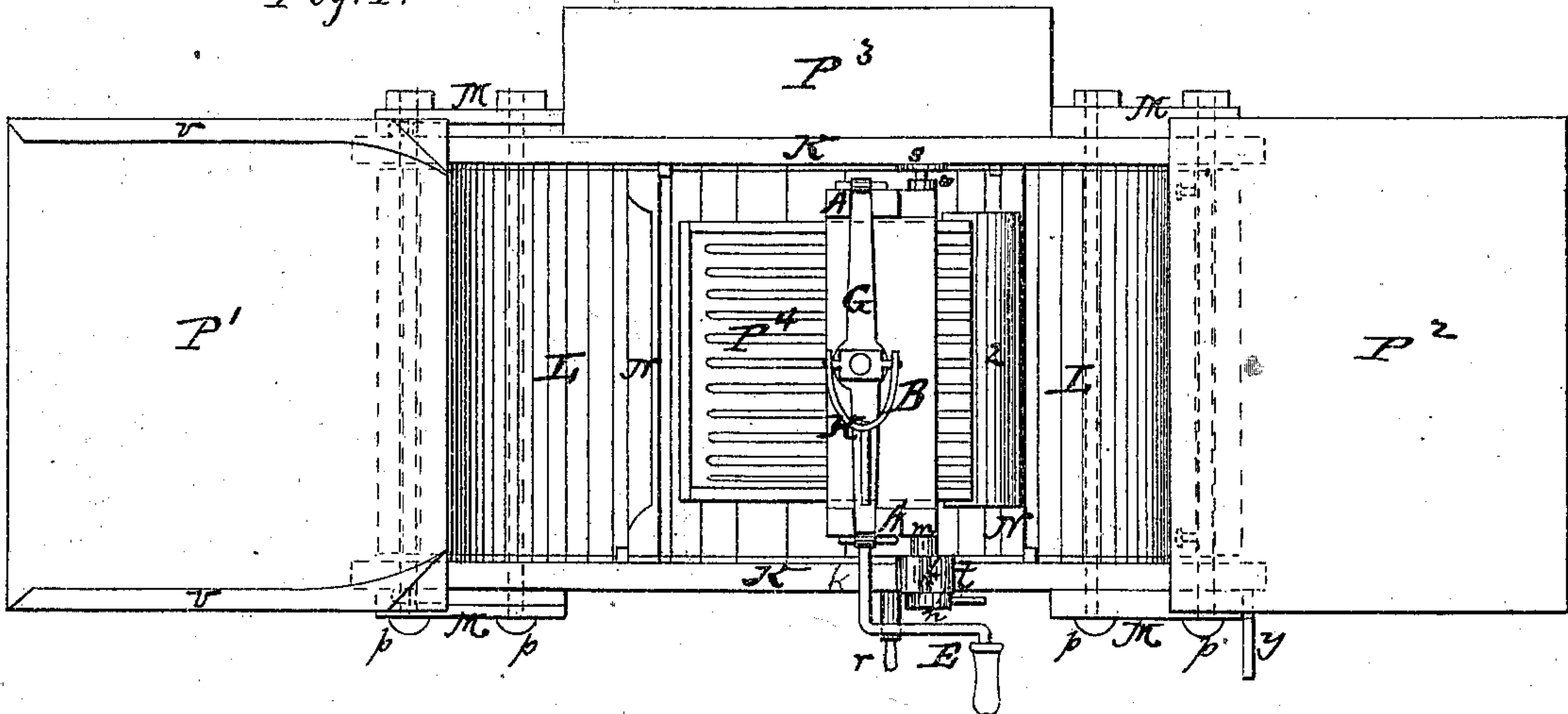
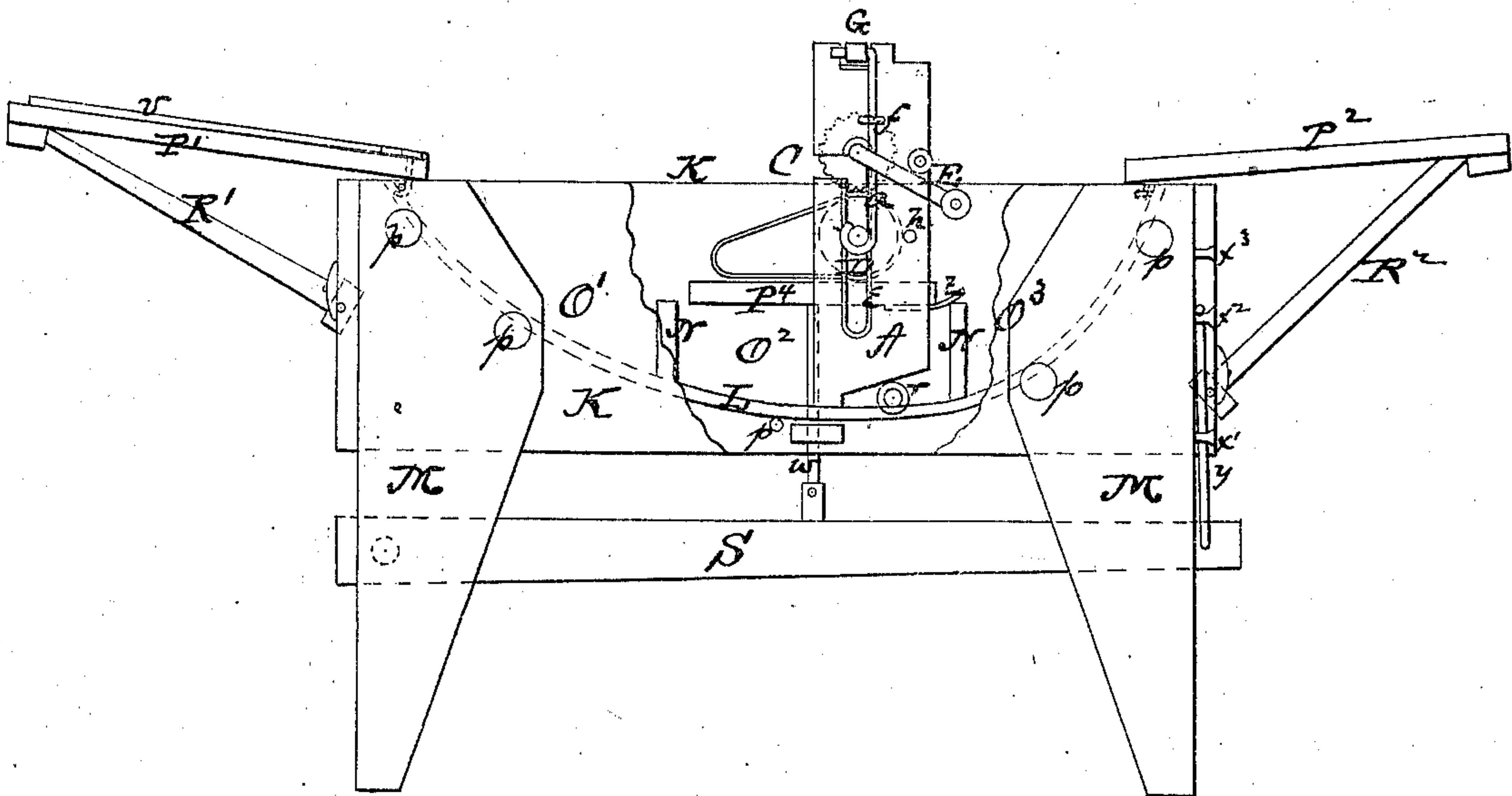


Fig. 2.



Witnesses

Henry A. Miller  
C. L. Ewert.

Inventor

John R. Cazier  
per  
Alexander Mason  
Attorney

JOHN R. CAZIER.

Improvement in Washing Machines.

No. 120,939.

Patented Nov. 14, 1871.

Fig. 3.

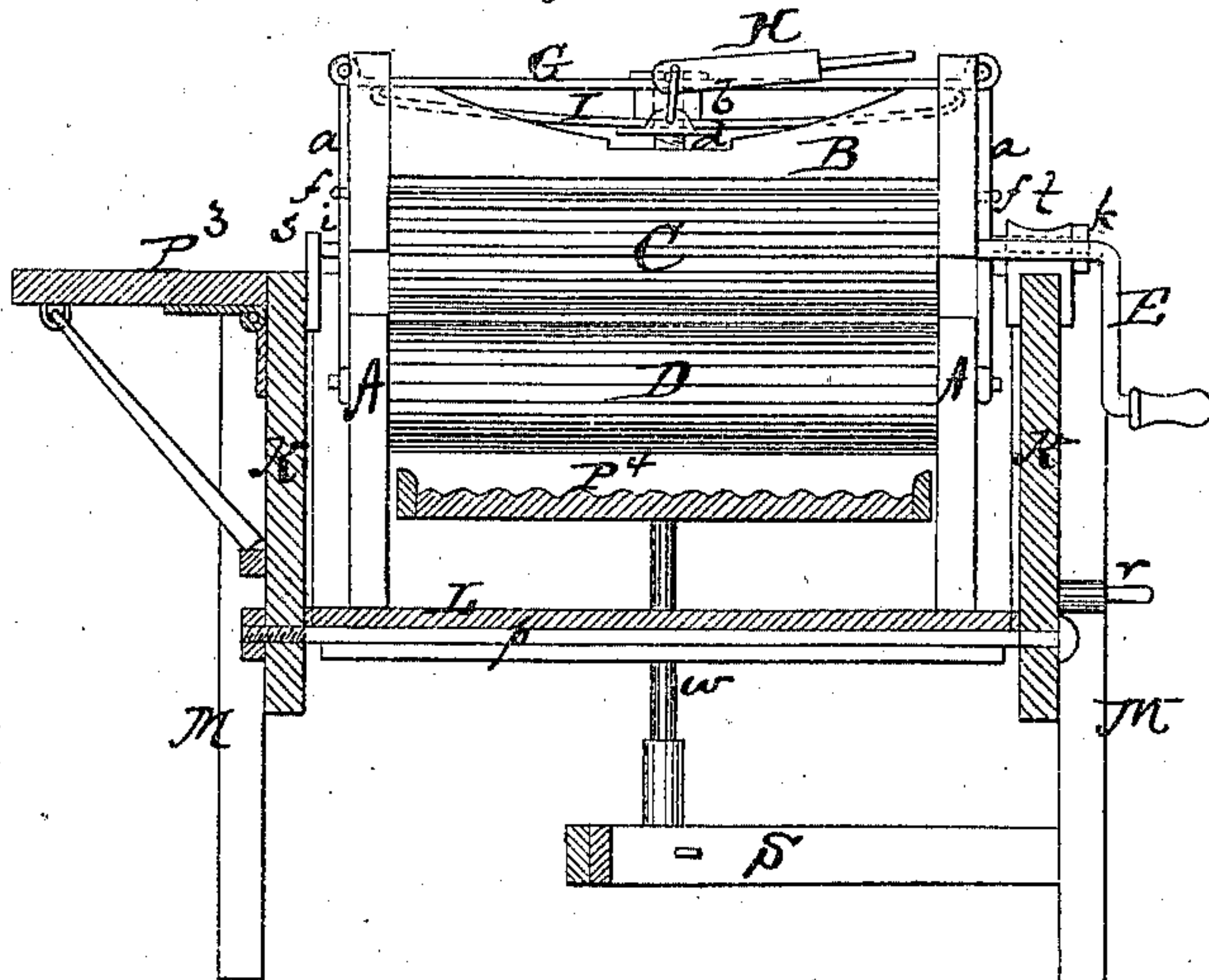


Fig. 4.

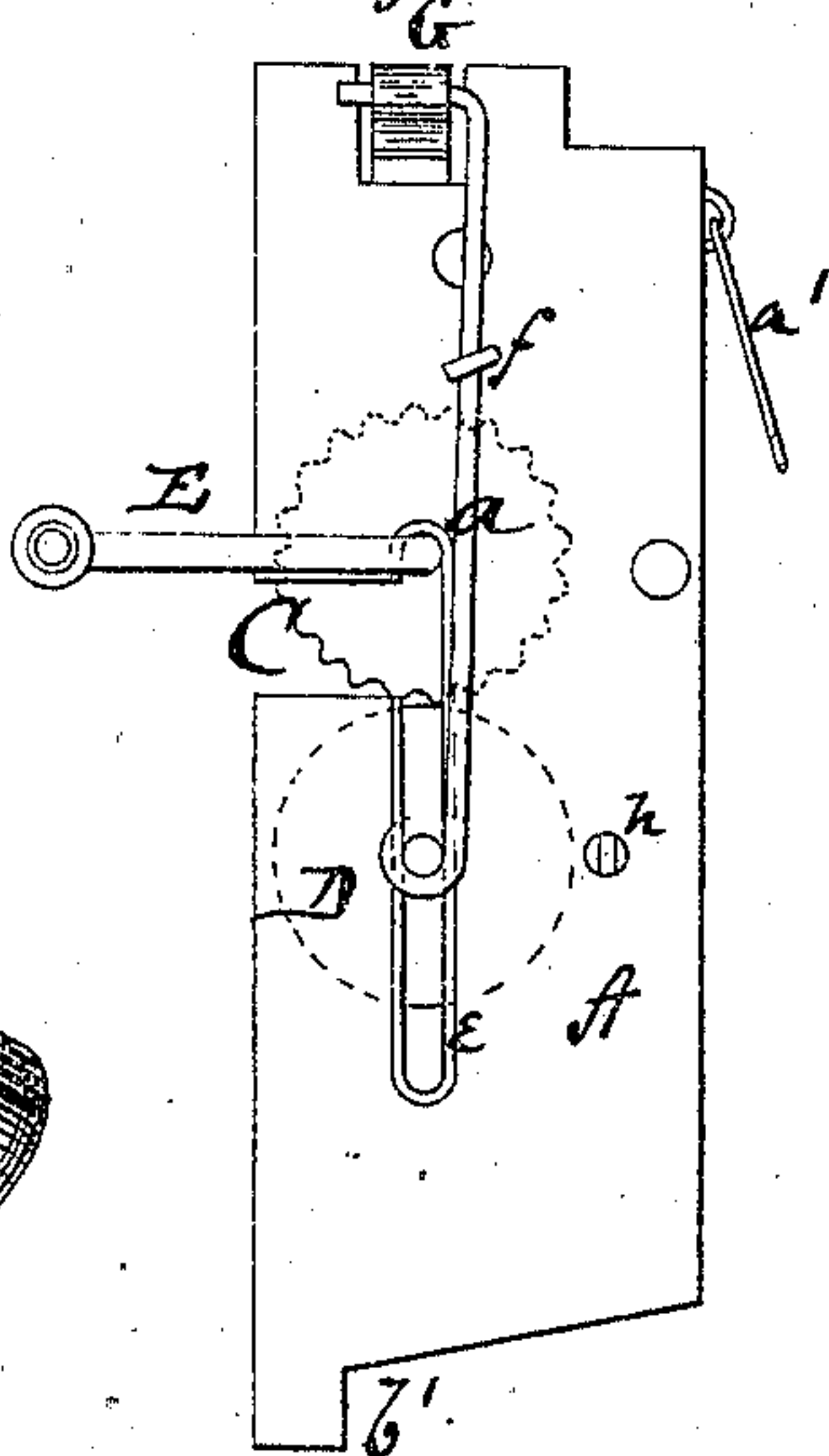
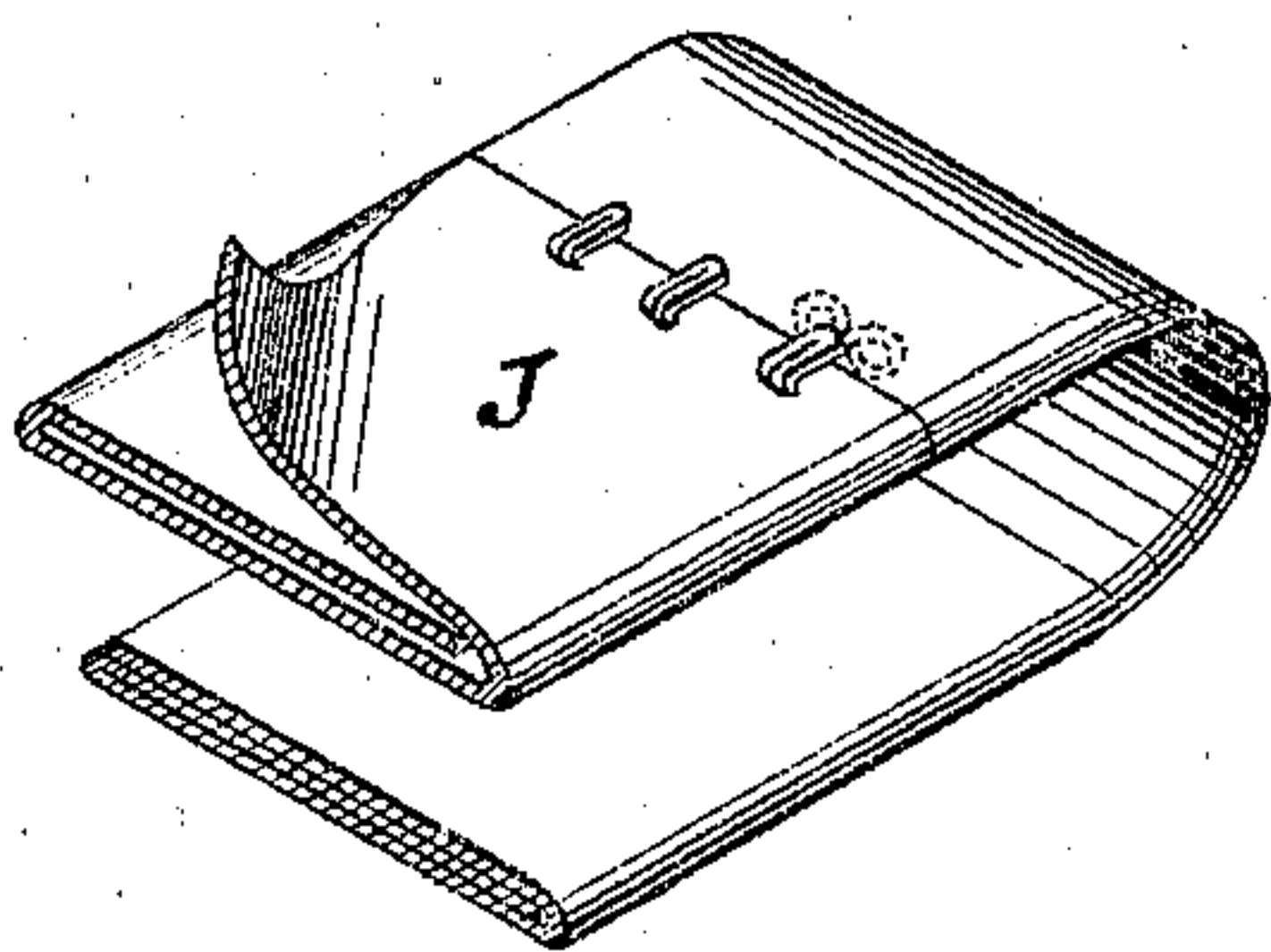


Fig. 5.



Witnesses  
Henry N. Miller  
C. L. Coker

Inventor  
John R. Cazier  
per  
Alexander Murray  
Att'y



# UNITED STATES PATENT OFFICE.

JOHN RANDOLPH CAZIER, OF HEMLOCK, MICHIGAN.

## IMPROVEMENT IN WASHING-MACHINES.

Specification forming part of Letters Patent No. 120,939, dated November 14, 1871.

*To all whom it may concern:*

Be it known that I, JOHN RANDOLPH CAZIER, of Hemlock, in the county of Saginaw and in the State of Michigan, have invented certain new and useful Improvements in Washing-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine to work the cloth to be washed; and also of a tank in which to work said machine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view of my entire machine. Fig. 2 is a side view of the same, partially broken open to show the interior. Fig. 3 is a transverse vertical section of the entire machine, and Fig. 4 is an enlarged side view of the washing-machine proper. Fig. 5 is a view of a folder used in my machine.

The frame of the working machine consists of two pieces, A A, of board, nailed or screwed to the ends of a piece, B, of plank, which is of the same width as the boards attached to it. Beneath this plank and between the boards A A are two rollers, C D, between which the clothes pass in the process of working. The axle of the upper roller C extends into a crank, E, by which it is rotated. The ends of the axle of the lower roller D rest in two hooks which form the lower extremities of two rods, a a. The upper ends of these rods hinge upon the ends of a spring, G, which somewhat resembles one leaf of a common buggy-spring, and is placed in notches in the upper ends of the side-pieces A A. The force of the spring G is regulated by means of the nut b, upon which it rests at its center, said nut being placed upon an upright screw-bolt attached to the plank B. By means of the connecting-rods a a the spring binds the lower roller D firmly against the upper roller C. The spring G may be made with two or more leaves, if so desired, and a secondary spring, H, may be employed and thrown against the main spring to increase its force. This movement of

the secondary spring H may be effected in various ways—for instance, as shown in the drawing, by an eccentric lever, I, connected with a plate, d, under said spring, to raise it up; or it may be done by means of an eccentrically-formed projection on one arm of an elbow, to be turned up under the spring by means of the other arm; or by a wedge, or by a nut. Sufficient spring pressure can thus be made conveniently available to wring the work when washed, thus completing the operation without removing it from the machine. When the clothes to be washed pass between the rollers the spring or springs, yielding, allow the lower roller D to descend, its axle following slots e in the side pieces A. A button or bent wire, f, keeps each connecting-rod a from slipping off the axle. Thus arranged the parts of the working machine can be conveniently separated for repair or other purpose. The upper roller C is fluted to facilitate drawing through the cloth, and I design to cover both rollers with rubber. One or two strips, h, may be attached to the lower roller D, to prevent the cloth from wrapping around it. Attached to one side piece, A, is a gudgeon, i, and opposite to it in the other side piece is a screw, k, having a flange, m, and a nut, n, with a handle; these are for attaching the working machine to the tank. The connecting-rods a a may be made so as to apply to the axle of the upper roller C, forcing the same down instead of pulling the lower roller up. The spring, in this case, is to be turned with the concave side down, and the nut near its center is to be put upon its upper side. The play being thus given to the upper roller more space is required between it and the cross-plank B of the frame, and the lower roller being without vertical play, the clearing strip h may be placed immediately beneath it.

J represents the folder, which consists of a piece of loosely-woven cloth, about a yard and a half long, and provided with hooks, loops, or buttons, by which the ends can be readily connected. The use of this folder will be hereinafter fully described.

The tank in which the machine is to work consists of two side pieces, K K, and one curved board, L, which latter constitutes the bottom and ends. The ends of this bottom board L are strengthened by cleats attached crosswise, and its edges are provided with rubber packing to make tight joints with the side boards. The sides



and bottom are bound together by screw-bolts  $p p$  passing through from side to side under the bottom board. The two bolts nearest either end pass through the legs  $M M$ , binding them against the sides. Rubber packing is supplied under the nut on each bolt, which makes additional provision for the swelling of the bottom more than is made by the packing on its edges. The bottom  $L$  inclines downward to one end more than to the other, as shown in Fig. 2, the lowest part being supplied with a discharge opening,  $r$ . On one side of the tank is a perforated plate,  $s$ , for the insertion of the gudgeon  $i$ , and on the other side is an ear,  $t$ , to receive the flanged screw  $k$ , which rests in it and tightens against it. In the tank are two partitions,  $N N$ , placed across the tank, thus dividing the same into three compartments,  $O^1$ ,  $O^2$ , and  $O^3$ . These partitions are edged with rubber, and are introduced by placing one end in position and then turning the other end around laterally. The partitions  $N N$  are removable, so that the compartments may be enlarged, or to allow the bottom of the tank to be more easily and effectually cleansed, and to allow the partitions themselves to be easily cleansed. The compartment  $O^1$  is for soaking the unwashed clothes; the middle one  $O^2$  is to receive hot suds for working them in detail; and the third compartment  $O^3$  is to receive the rinsing water. Instead of removing the partition-boards  $N N$  to let the water from the end compartments into the middle, an opening in the bottom of each, with a corresponding plug, may be employed. Each complete machine has four tables, two,  $P^1$  and  $P^2$ , for clothes, one,  $P^2$ , for soap and water, and one,  $P^4$ , to elevate the work above the suds in the tank, for the purpose of rinsing it before it is removed from the working machine. The tables  $P^1 P^2$  are each supplied with hooks or loops near the inner ends on the under side, which catch upon corresponding pins when they are drawn back, while their outer ends are supported by swing-braces  $R^1 R^2$ , respectively, said braces swinging up and catching on their under sides. These tables are inclined toward the tank, so that any water which may drip upon them will flow into it. If necessary to facilitate this object strips  $v v$  may be tacked upon the side edges of each table. If a wringer is to be used the table  $P^2$  must be notched to admit the wringer upon the end of the tank. The third table,  $P^3$ , is hinged to the top of the tank, and supported by a suitable brace. It may be used for any purpose desired, but is especially designed to support a pail of soap or cleansing fluid and a pail of hot water for rinsing. The rinsing-table  $P^4$  is placed in the tank and supported upon a vertical rod,  $w$ , which passes down through a rubber-packed hole in the bottom  $L$  and hinges upon a lever,  $S$ . This lever is placed under the tank from leg to leg diagonally, one end turning upon a stationary pin and the other end receiving a vertical rod,  $y$ , which is bent like a crank at both ends, the lower end passing through the lever and the upper end catching alternately upon pins  $x^1 x^2 x^3$ . This rod  $w$  may have a joint a little above the lever, if so desired. The right-hand end of the rinsing-table

$P^4$  is provided with a strip,  $z$ , of rubber-packing or other suitable material, attached to its under side and turning up against the partition  $N$ . The table in its lowest position rests upon the bottom of the tank, the rod  $y$  catching upon the pin  $x^1$ . The second position is shown in Fig. 2, the rod catching on the pin  $x^2$ . In its highest position the rod catches on the pin  $x^3$ , and the rubber strip  $z$  turns down over the partition  $N$ , thus allowing the rinsing-water, then used by pouring, to flow into the right-hand compartment  $O^3$ . The upper side of the table is fluted or corrugated to facilitate the separation of the water from the cloth. A simpler form of rinsing-table may be used, to be put in and removed by hand for each garment or parcel washed. Such a table may have cleats attached, so that, resting on one or both partitions, it may be inclined in either direction.

To prepare the machine for use, the end tables  $P^1 P^2$  are drawn back and braced, the side table  $P^3$  is turned up and braced, and the rinsing-table  $P^4$  is depressed to the bottom of the tank. The working machine is then introduced by passing the gudgeon  $i$  into the perforated plate  $s$  and the screw  $k$  into the ear  $t$ . The machine will then admit of a partial revolution, at any part of which it can be secured by the nut  $n$ . Thus arranged, the clothes are put to soak in the compartment  $O^1$ ; when ready for working the hot suds are poured into the middle part  $O^2$ . The article to be washed is run between the rollers  $C D$ , the ends pinned together, and then rotated continuously one way, the lower part dipping the suds to be squeezed out again by the pressure of the rollers; or the rollers may be turned each way alternately, if desired, the ends of the garment in that case not being connected. When the article is worked in the suds sufficiently the rinsing-table is elevated to its second position, carrying the work with it above the suds. The working is then continued with one hand while hot rinsing water is poured upon the work with the other. A little water thus used suffices to take out most of the suds, which will flow into the middle part  $O^2$ . The rinsing-table is then elevated to its highest position and the rinsing continued. The last rinsing-water, which is not much fouled, thus flows into the right-hand compartment  $O^3$ , from which it can be dipped out to be reheated. By discontinuing the water and applying the secondary spring  $I$ , the work will be wrung, and thus finished in the machine. Several articles, as, for example, three sheets, can be conveniently washed in one parcel. Small articles can be best washed in the folder  $J$ . This is spread upon the table  $P^1$ , the articles soaped and spread evenly upon it, the side edges folded over each way, one end passed between the rollers and attached to the other end, when the whole will work like a single piece. Many small articles can be thus washed at once, but it is important that they should be spread evenly upon the folder. In washing very large articles it may sometimes be better to remove both partitions  $N N$  from the tank.

The working-machine without the tank can be conveniently used in a common tub. It may be set into the tub standing on its bottom, but in-



clined to the right side. In this position the swinging hook  $a^1$ , shown in Fig. 4, connects with a staple, inserted near the top of the tub to steady the machine. In this case the flanged screw  $k$  must be removed. Or the machine may be laid upon the top of the tub, the notches  $b'$  in the bottom applying to the top of the tub on the left hand, giving that part of the machine a downward inclination.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the frame A A provided with slot  $e$ , hook  $a$ , notches  $b'$ , rollers C D, springs G and I, regulating-nut  $b$ , and rods  $a$   $a$ , all constructed and operating substantially as set forth.

2. The combination of the frame A A, rubber-covered rollers C D, rods  $a$   $a$ , springs G I, rods  $h$ , gudgeon  $i$ , holder S, and flanged screw  $k$  with thumb-nut  $n$ , all constructed and arranged substantially as and for the purposes herein set forth.

3. The combination of the sides K K, bent wooden bottom L with rubber backing between

it and the sides, and the under connecting screw-bolts  $p$   $p$ , all substantially as set forth.

4. The combination, with a tub-tank K L, of the removable partitions N N, provided with rubber packing  $z$  on their edges, and forming compartments  $O^1$   $O^2$   $O^3$ , all substantially as set forth.

5. The rinsing-table  $P^1$  provided with rubber strip  $z$ , and supported in the middle compartment  $O^2$  of the washing-tank L L by the rod  $w$ , and operated by means of the lever S and rod  $y$ , substantially as and for the purposes herein set forth.

6. In combination with the above-described washing-machine, the tables  $P^1$   $P^2$  and  $P^3$ , made removable, all constructed substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 12th day of September, 1871.

JOHN RANDOLPH CAZIER. [L. S.]

Witnesses:

JAMES HENRY,  
JAMES LUNNEY.

(91)