

(No Model.)

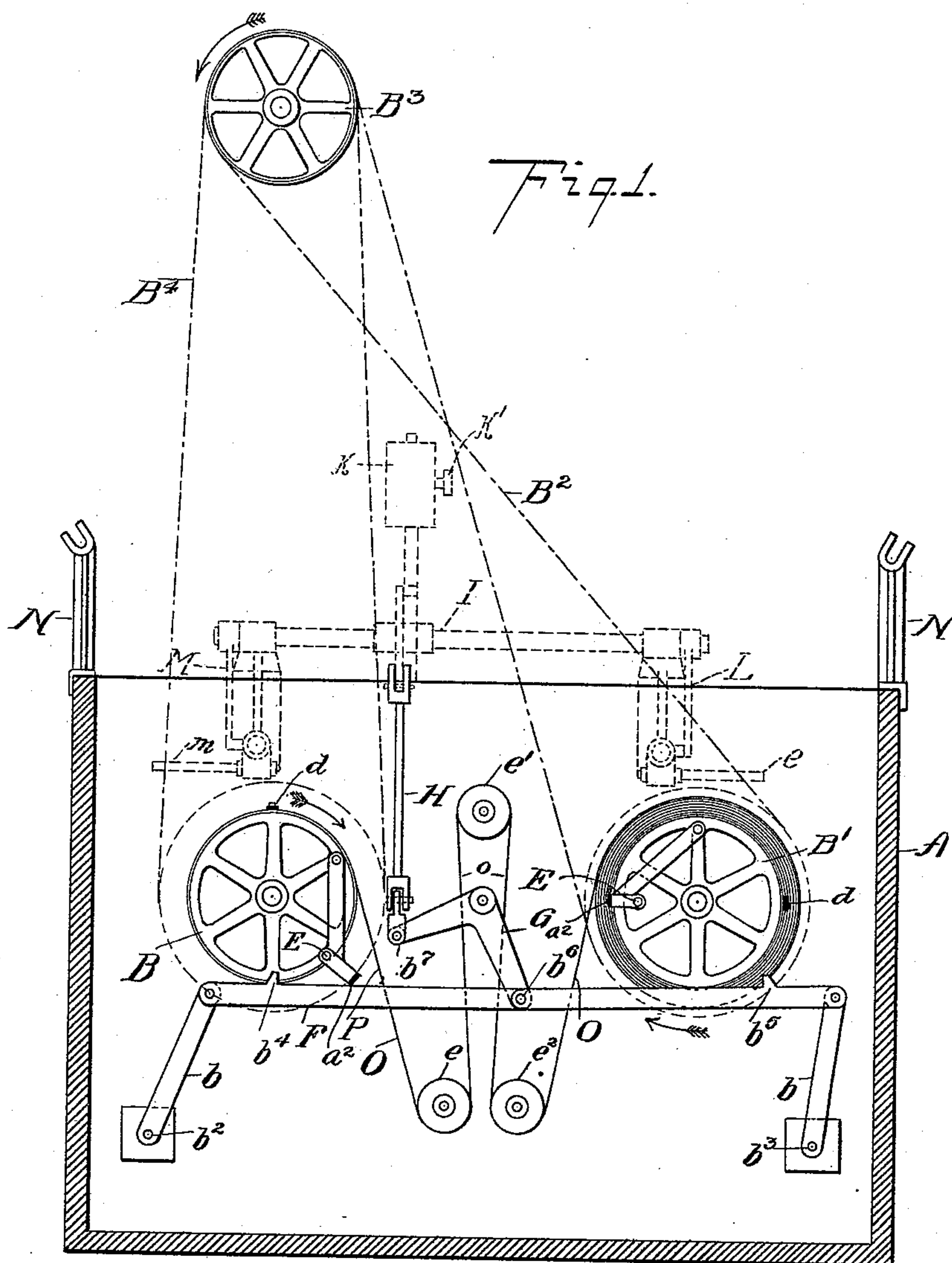
3 Sheets—Sheet 1.

A. HINZE.

APPARATUS FOR WASHING PIECE GOODS.

No. 536,724.

Patented Apr. 2, 1895.



WITNESSES:

Edmund A. House.
 Geo. C. Morse.

INVENTOR

Adolph Hinz,
BY *Briesen & Maundy*
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(No Model.)

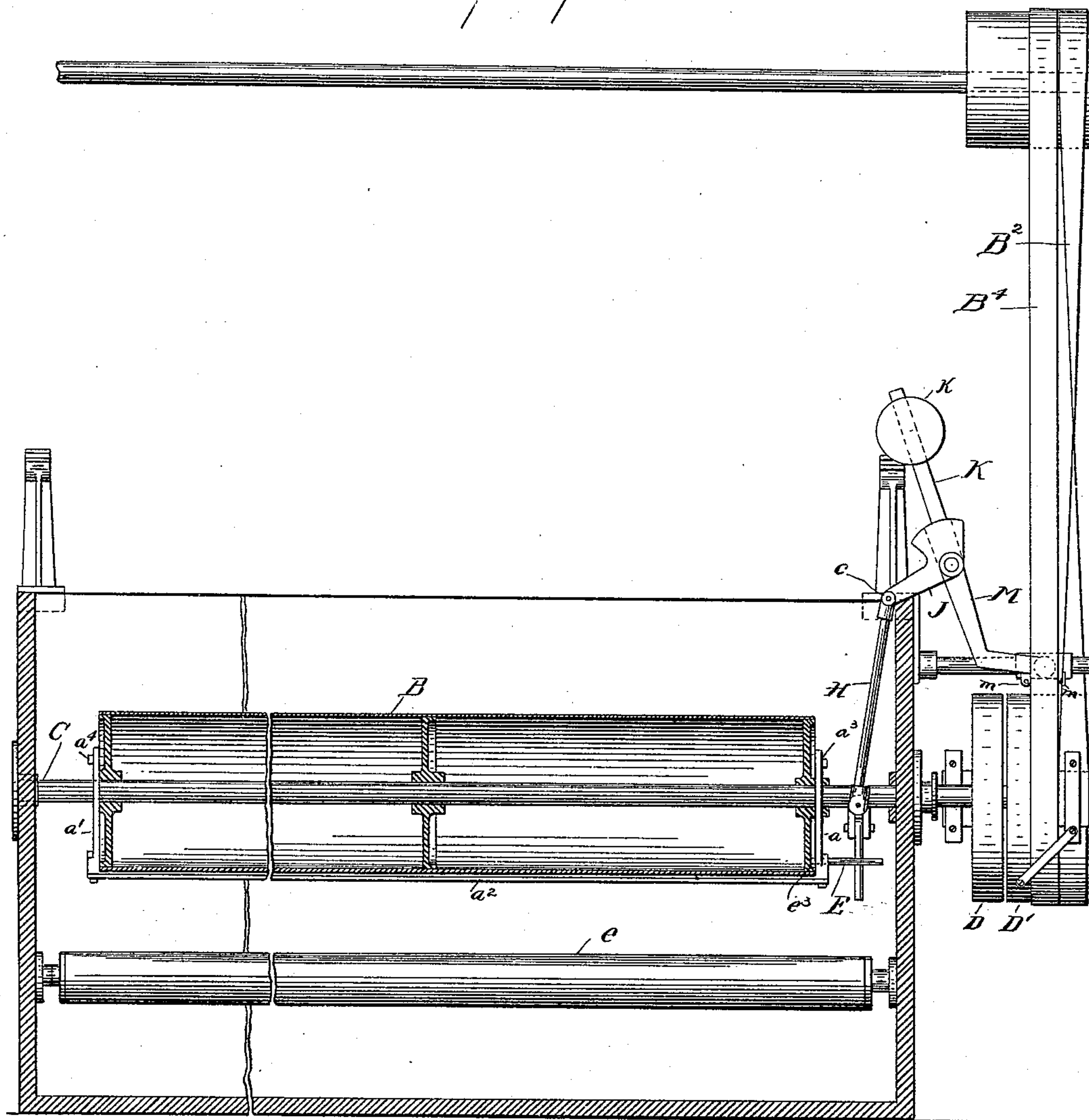
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Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

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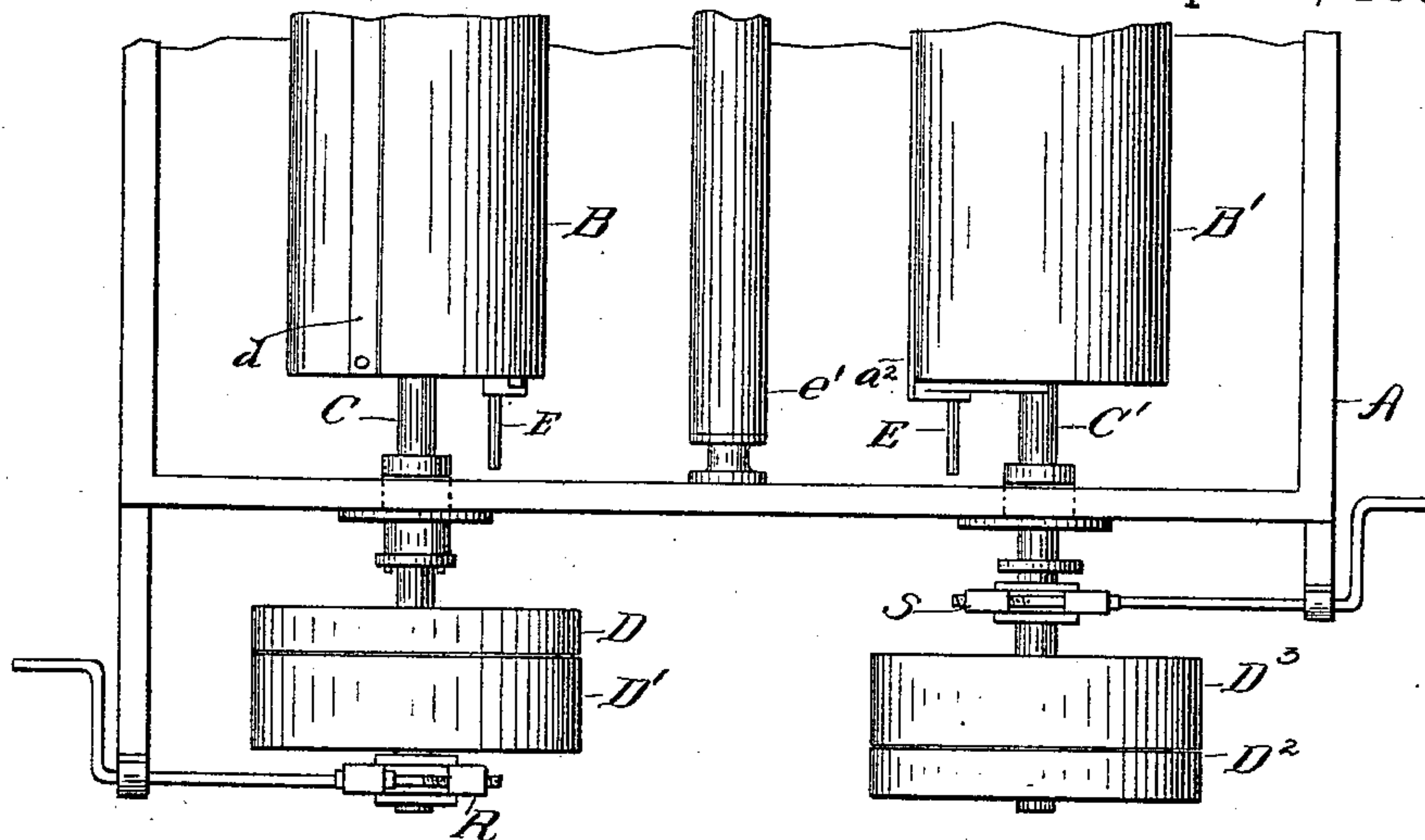


Fig. 3.

Fig. 4.

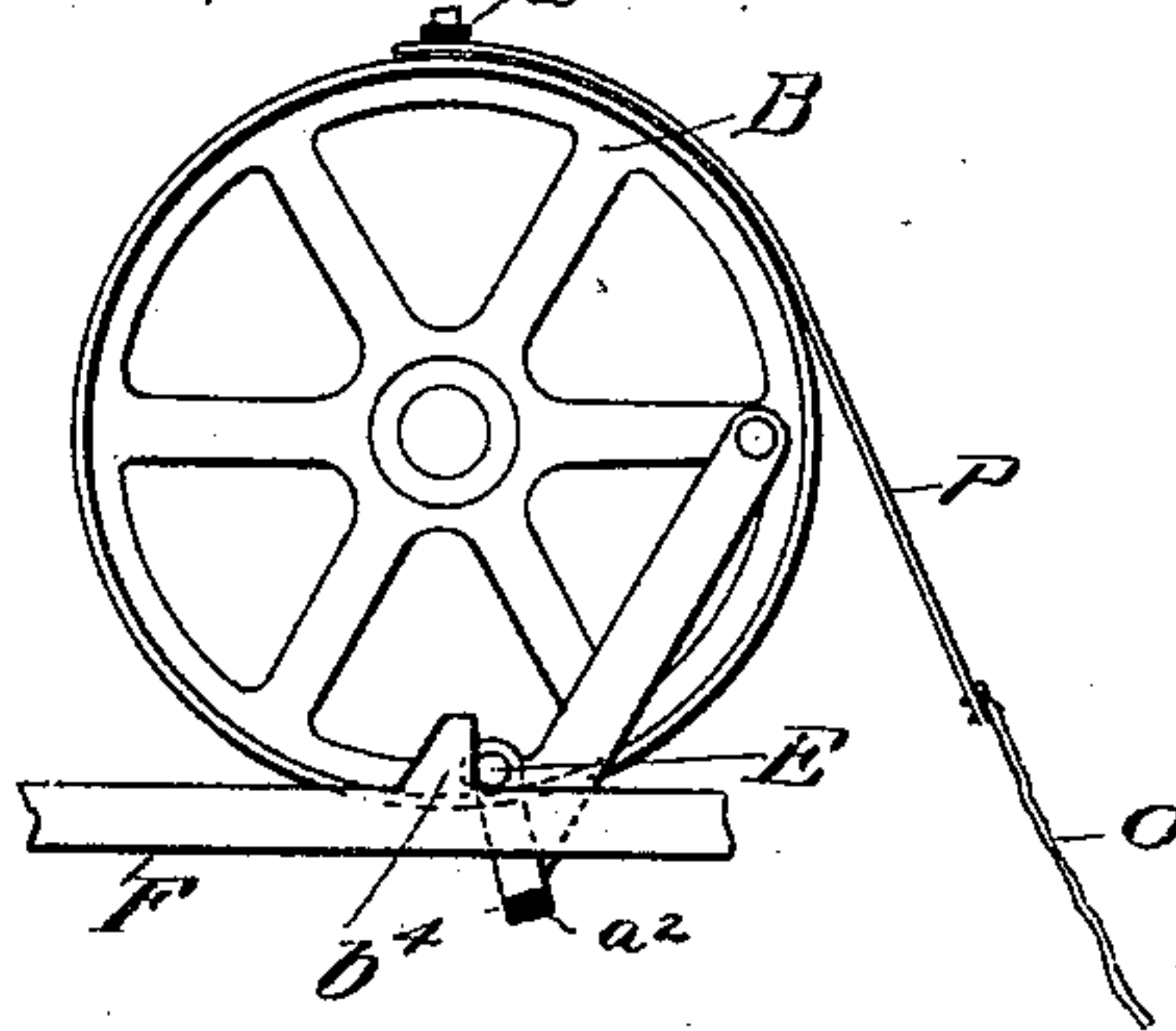
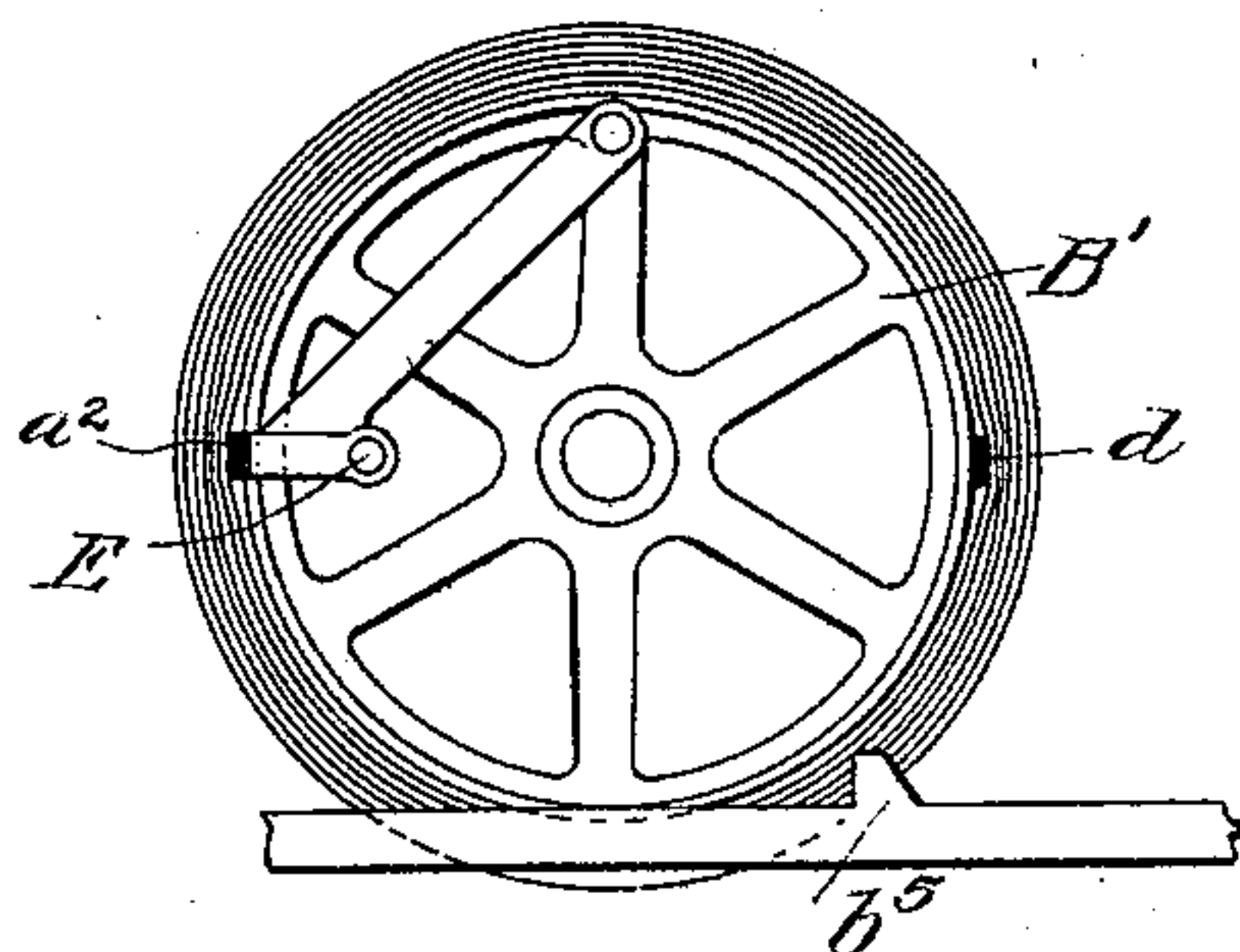


Fig. 5.



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UNITED STATES PATENT OFFICE.

ADOLPH HINZE, OF NEW YORK, N. Y.

APPARATUS FOR WASHING PIECE GOODS.

SPECIFICATION forming part of Letters Patent No. 536,724, dated April 2, 1895.

Application filed December 17, 1894. Serial No. 532,026. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH HINZE, a resident of the city, county, and State of New York, have invented certain new and useful
5 Improvements in Automatic Washing-Machines, of which the following is a specification.

My invention relates to automatic washing machines, and has for its object to produce a
10 machine for automatically washing fabrics in lengths or webs. This machine is applicable also for dyeing and other manipulations of cloth, and in this specification, where I use the term "washing" I would have it under-
15 stood that I mean also to include thereby other and analogous manipulations and treatments of cloth in lengths or webs.

My invention consists in the construction hereinafter set forth and claimed.
20 My invention will be understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the operating parts of an automatic washing machine embodying my invention, the sides of the containing vat therefore being shown in section. Fig. 2 is a broken away front elevation of the same, the vat being shown in section as in the preceding figure. Fig. 3 is a plan view of the
30 right-hand half of the apparatus shown in Fig. 2, the object of such plan being to show the position of the cloth-drums and the belt-shipping apparatus. Fig. 4 is an end view of one of the cloth drums showing the parts in a
35 position to effect a reversal of the apparatus, as hereinafter fully set forth; and Fig. 5 is an end view of the other cloth-drum showing the cloth as wound upon it and the operating parts in a different position.

40 Heretofore in this class of machines it has been customary to provide two drums and to wind the cloth upon one drum and unwind it from the other drum simultaneously passing the cloth through the liquid during its period
45 of transit from drum to drum. When now the cloth had been fully wound upon one drum and completely unwound from the other drum, the machine was stopped by hand and reversed by hand and again started, so that the
50 motion of the cloth would be the converse of its previous motion, that is to say, the cloth would be wound upon the empty drum and

unwound from the full drum. This operation was repeated as often as necessary. Now by my invention I dispense with these various
55 manual manipulations and provide an apparatus in which the reversal of the motion of the drums and cloth will be effected automatically without any intervention of the operator, thus saving both time and labor,
60

I will first proceed to describe the apparatus and will then describe its operation in detail, it being remembered, however, that I have merely shown this apparatus as one form of my invention, for it will be obvious that the
65 construction of the apparatus may be greatly varied and the location of the parts changed without departing from the spirit of my invention. So therefore I would have it understood that in thus describing in positive
70 terms one form of apparatus, I do not mean to thereby limit myself to the form thus specifically described, as other and analogous forms will readily suggest themselves to those who may desire to enjoy the fruits of my in-
75 vention.

In the drawings, A represents a vat or other suitable receptacle within which some of the working parts of the apparatus are contained.

B B' are two cloth-drums carried upon suitable shafts C C'. Upon the shaft C a fast pulley D is mounted, alongside of which a loose pulley D' is hung, and upon the shaft C' is a fast pulley D² and a loose pulley D³.
80

B³ is a pulley carried upon an overhead
85 shaft and is belted with the shaft C by a belt B⁴, and with the shaft C' by a belt B². Carried by each drum is a movable abutment, shown in the present instance as a pin E carried upon a suitable frame consisting of the
90 side-bars a a' pivoted to the ends of the drums by pivots a³ a⁴ and connected by a connecting bar a² which extends across the face of the drum and is adapted to lie against the said face, the side-bars and connecting bar being
95 freely movable on the pivots of the side-bars.

F is a shifter-bar which is freely movable longitudinally and is supported by links b b' pivoted to the ends of the bar and at b² b³ to suitable supports, such for instance as the
100 side of the vat. Carried upon this shifter-bar F are lugs b⁴ b⁵, shown in the present instance as projecting from the bar, but it will be readily apparent that the bar may be recessed

to form shoulders. These lugs b^4 b^5 co-operate with the pins E of the drums to effect the reversal of the apparatus, as will be fully set forth.

5 Pivoted to a suitable support adjacent to the shifter-bar is a bell-crank lever G which is pivoted to the shifter-bar by a pivot b^6 , and to whose free end is pivoted a connecting-rod H by a pivot b^7 .

10 I is a rock-shaft carried in suitable bearings and is provided with an arm J to which the connecting-rod H is pivoted by a pivot c. Carried also by the rock-shaft is an arm K which carries a counterbalancing weight k 15 which is adjustable along the length of the bar and which may be held in its adjusted position by a set-screw k' . Mounted also upon the rock-shaft I are belt-shippers L, M. The belt-shipper M is provided with prongs 20 or fingers m which embrace the belt b^4 and serve to shift or ship it, and the belt-shipper L is provided with prongs or fingers l which embrace the belt B^2 to shift or ship it.

Mounted within the vat are rollers e e' e^2 25 over which the cloth is carried in its transit through the vat from one drum to another.

N N are suitable brackets in which may be placed rollers or drums for bringing the cloth to the vat.

30 R and S are strap brakes or other suitable tension devices for adjusting the tension upon the cloth when it is being unwound from either drum.

Before proceeding to describe the detailed 35 operation of my device, I will describe the function and operation of the pin E and the parts therewith connected. It will be observed that the frame consisting of the side-bars a a' and the connecting bar a^2 are freely 40 movable upon the pivots a^3 a^4 and carries with it the pin E in all its movements. It will also be observed that when cloth is wound upon the drum, it will overlie the bar a^2 and will hold the same firmly against the face of 45 the drum so that the pin E will be held free from engagement with the lug or shoulder on the shifting-rod with which it co-operates. This position is clearly shown in Fig. 5. When now the cloth has become fully unwound from 50 the drum, the bar a^2 will be permitted to fall away from the drum and bring the pin E into position to contact with its co-operating lug or shoulder on the shifting-rod. It will be observed, however, that the inner end e^3 of 55 the pin E will come against the flange or edge of the drum which will serve to limit the movement of the frame which carries the said pin E.

O is the cloth to be washed, dyed or otherwise 50 manipulated and is secured to each drum by a short strip of fabric P which is secured to the drum by a batten d .

The detailed operation of my device is as follows: Supposing the parts to be in the po- 65 sitions shown in Figs. 1 and 2; as shown, the drum B' is being driven and is winding the cloth to be washed around itself and unwind-

ing it from the drum B, which drum will rotate freely for the reason that its belt B^4 is now on the loose pulley. As soon as the cloth 70 to be washed has become unwound from the drum B and the pressure thereof removed from the bar a^2 , the pin E of this drum and its carrying frame will swing outward from the center of the said drum, and as the drum 75 turns farther by reason of the fact that there still remains wound therein the short length of fabric P, the pin E will be brought in contact with the lug b^4 , (see Fig. 4,) and as the drum continues its motion, the shifting- 80 rod F will be moved longitudinally to the left. This movement of the shifting-rod F will swing the bell-crank lever G on its pivot, push upward upon the rod H, thereby rock- 85 ing the shaft I and its connected mechanism. The movement of the shaft I will cause the belt-shipper M to shift or ship its belt from the loose pulley D' to the fast pulley D, and will cause the belt-shipper L to move its belt from the fast pulley D² to the loose pulley D³. 90 The drum B will now be positively driven in the direction opposite to the arrow in Fig. 1, thus winding the cloth upon itself and the drum B' will be free to revolve to allow the cloth to be unwound therefrom. As soon as 95 the cloth has been unwound from the drum B', the frame on this drum carrying the pin E will swing away from the center of the drum, causing the pin E to be brought into engagement with the lug b^5 , thereby shifting 100 the rod F in a direction opposite to that in which it was before shifted, thus restoring the belts to their original positions and causing the cloth to be wound upon the drum B' and unwound from the drum B. These op- 105 erations may be repeated as often as desired or necessary.

Having described my invention, what I claim, and desire to secure by Letters Patent, is— 110

1. In an apparatus of the character described, the combination with a pair of drums, upon one of which the cloth is wound while it is being unwound from the other drum, of reversing mechanism for reversing the move- 115 ment of the cloth actuated by the unwinding of the cloth from the drum from which it is being unwound, substantially as described.

2. In an apparatus of the character described, the combination of a driven drum 120 upon which the cloth is being wound, an idle drum from which the cloth is being unwound, mechanism for disconnecting the driven drum from its driving mechanism and for connecting the driving mechanism to the idle 125 drum, and means for actuating such mechanism by the unwinding of the cloth from the idle drum, substantially as described.

3. In a machine of the character described, the combination of a driven drum upon which 130 the cloth is being wound, an idle drum from which the cloth is being unwound, mechanism for disconnecting the driven drum from its driving mechanism and for connecting the

driving mechanism to the idle drum, and a movable pin carried by the idle drum and adapted to be brought into engagement with the shifting mechanism to actuate the same, and means for controlling the position of the pin by the unwinding of the cloth from the idle drum, substantially as described.

4. In a machine of the character described, the combination of a pair of drums, upon one of which cloth is adapted to be wound while it is being unwound from the other drum, of reversing mechanism for reversing the motion of the drums, the same consisting of one or more belt-shippers actuated from a rock-shaft, a shifter-bar and mechanism intervening between the rock-shaft and shifter-bar, and a pin carried by one of the drums arranged to be brought into engagement with the shifter-bar by the unwinding of the cloth from the drum, substantially as described.

5. In a machine of the character described, the combination of a shifter-bar arranged

with mechanism for reversing the motion of the cloth, of a movable pin arranged to be brought into engagement with the said shifter-bar to actuate the same, substantially as described.

6. In a machine of the character described, the combination of a pair of drums as B B' and mechanism for driving the same, a movable pin carried by each drum, a shifter-bar as O provided with lugs to co-operate with the pins carried by the drums, of a rock-shaft as I, a connection between the shifter-bar and the rock-shaft for communicating motion thereto, and shifting mechanism carried by the rock-shaft for engaging and disengaging the drums from their driving mechanism, substantially as described.

ADOLPH HINZE.

Witnesses:

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