

J. K. PROCTOR.
WOOL-WASHING MACHINE.

No. 174,005.

Patented Feb. 22, 1876.

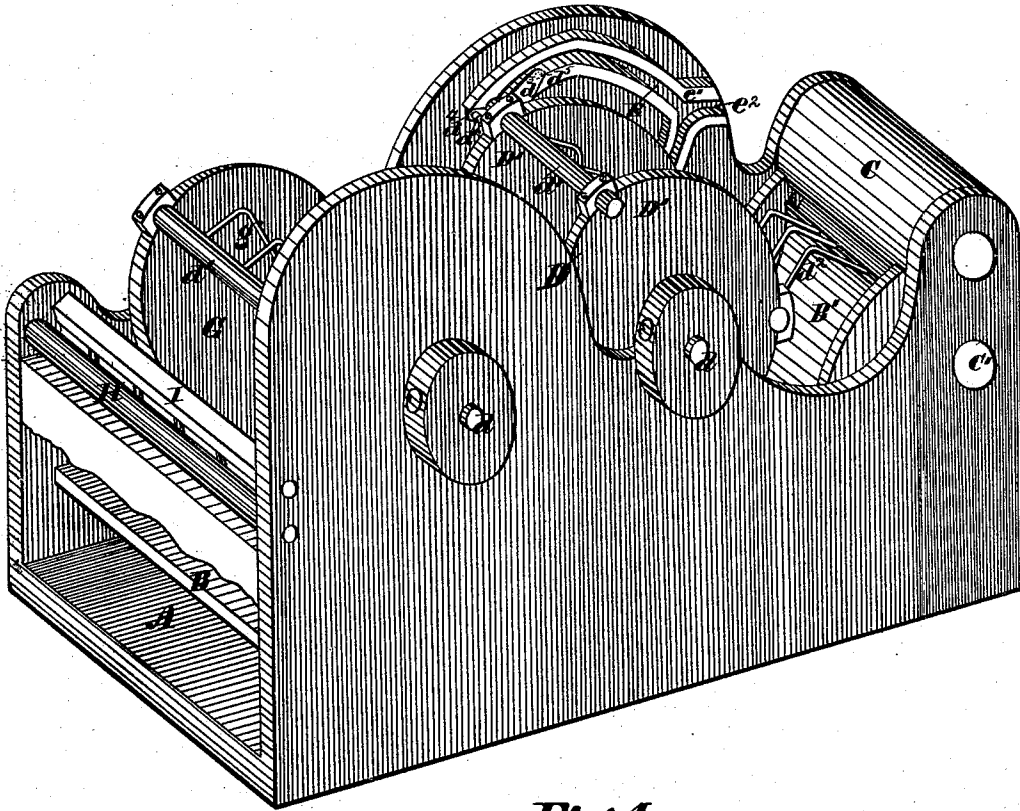


Fig. 1.

Witnesses

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Inventor

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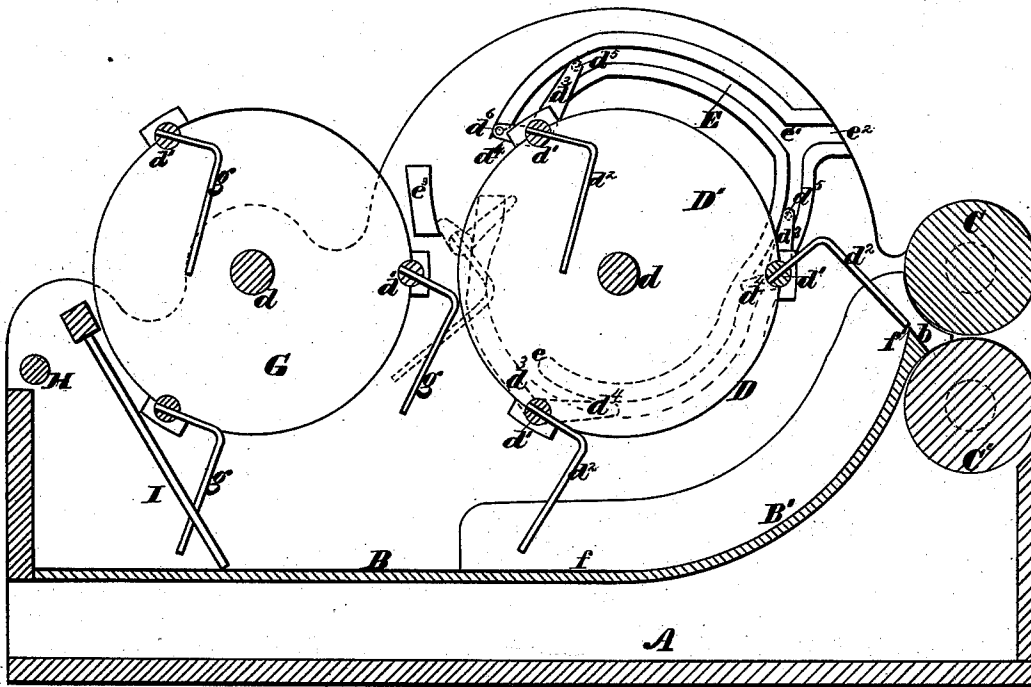


Fig. 2.

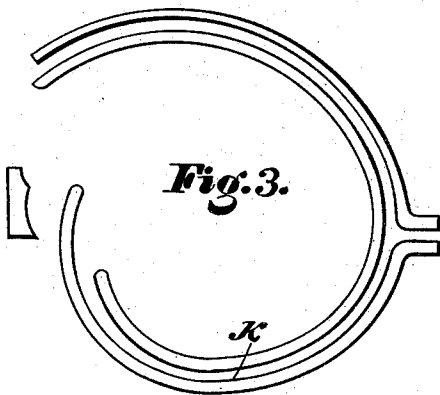


Fig. 3.

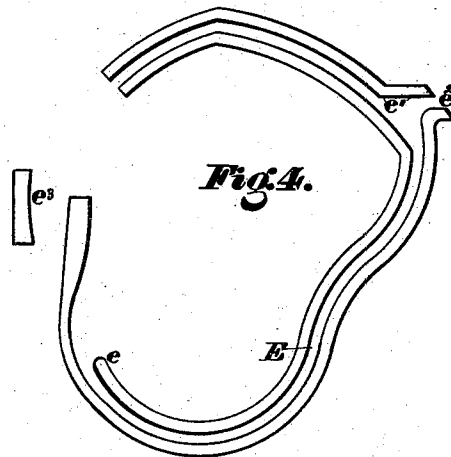


Fig. 4.

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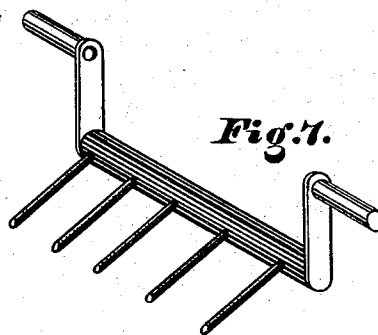
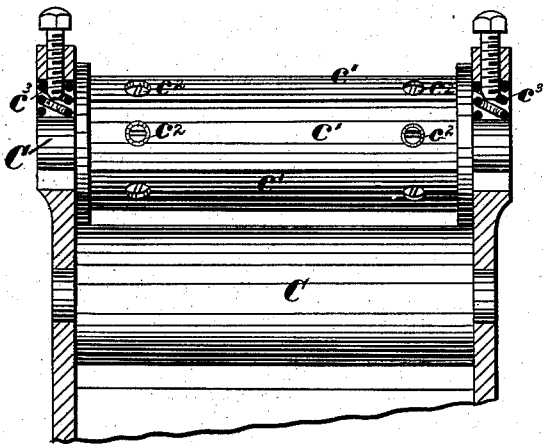
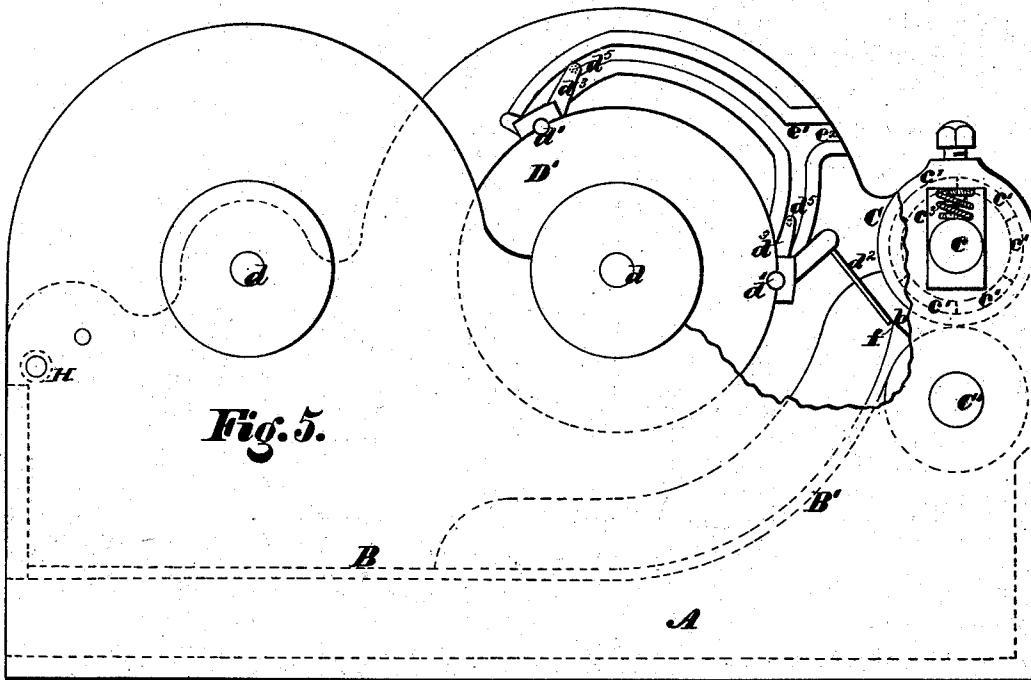
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UNITED STATES PATENT OFFICE.

JOSIAH K. PROCTOR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAMES SMITH & CO., OF SAME PLACE.

IMPROVEMENT IN WOOL-WASHING MACHINES.

Specification forming part of Letters Patent No. **174,005**, dated February 22, 1876; application filed December 16, 1875.

To all whom it may concern:

Be it known that I, JOSIAH K. PROCTOR, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Wool-Washing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a perspective of my invention. Fig. 2 is a vertical longitudinal section. Figs. 3 and 4 are plan views of the cam-grooves, which give a fixed and uniform motion to the teeth on the forwarding and lifting carriers. Fig. 5 is a side elevation partly broken away. Fig. 6 is an end view partly in section, showing the squeeze-rolls and their bearings; Fig. 7, detail view.

The primary object of my improvements is to obtain a continuous feed or unvarying onward motion of the stock throughout the entire length of the bowl of the machine from the moment it is admitted until it is delivered to the squeeze-rolls, and to accomplish this by means of rotating or revolving carriers or forks, having teeth hung upon revolving shafts, which are controlled in their movements by cam-grooves or cams, in lieu of the reciprocating devices heretofore employed, having an intermittent motion.

A further object of my invention is to cause the carrier by which the stock is advanced to the lifting-carrier to move said stock through the bowl in a horizontal plane instead of in the arc of a circle, by means of teeth hung upon revolving shafts, which are controlled in their movements by cam-grooves or cams.

A still further object of my invention is to obtain a positive motion of the shafts and teeth of the forwarding and lifting carriers, as distinguished from a loose swinging or gravity motion, by means of cam-grooves or cams.

A still further object of my invention is to provide means whereby the stock may be delivered, as wet or as saturated as possible, to the squeeze-rolls.

A still further object of my invention is to provide means whereby the wool, after being lifted out of the liquor, will be prevented from sliding back into the same, and whereby the intermediate carrier, heretofore required between the forks and squeeze-rolls, is dispensed with.

A still further object of my invention is to provide improved means for squeezing the cleansing-liquor from the stock, the same consisting in the employment of a cushioned roll held down by means of springs on its journals.

Referring to the accompanying drawing, A shows the bowl of the machine, having a false bottom, B, and curved incline B'. C and C' are the squeeze-rolls, one of which—by preference, the upper one—is constructed as follows: *c* represents an iron shaft, to which are attached segmental wooden sections *c*¹ *c*¹, fastened by screws *c*² *c*². Over the wooden sections yarn or other fibrous material is designed to be wound, forming an elastic or cushion roll. On the journals of this roll are springs *c*³ *c*³, pressing it toward the under roll C'. D represents the lifting-carrier, by means of which the stock is raised out of the liquor in the bowl and delivered to the squeeze-rolls. This carrier is composed of the heads D' D', affixed to a shaft, *d*, and provided with revolving shafts *d*¹, in which are firmly fastened L-shaped teeth *d*². To one end of the shafts *d*¹ are secured crank-arms *d*³ *d*⁴, having anti-friction-rollers *d*⁵ *d*⁵, which move in a cam-groove, E, formed in or upon the adjacent side of the bowl A. This cam-groove is so shaped that from the point *f* to the point *f'* the teeth *d*² will move at or about right angles to the bottom and incline. As soon, however, as said teeth have reached the point *f'* they begin to assume a vertical position, so as to more readily draw out of the stock deposited by them on the chute *b*, which descends from the upper end of the incline B' toward the squeeze-roll C'. This movement of the teeth is rendered positive by means of the roller *d*⁵ on the arm *d*³ entering the offset *e*², causing a partial revolution of the shaft *d*¹. In other words, from the moment the roller *d*⁵ enters the cam-groove E at *e* the arm *d*³ moves in advance of the arm

d^4 . When the roller d^5 strikes the shoulder e^1 the shaft d^1 is revolved, said roller passing into the offset e^2 , and the arm d^4 then moves in advance of the arm d^3 , until the roller d^5 strikes the shoulder or cleat e^3 , producing another partial revolution of the shaft d^1 and bringing the arm d^3 again in advance of the arm d^4 . The partial revolution of the shaft d^1 , caused by the contact of the roller d^5 with the cleat e^3 , brings the teeth d^2 , as they descend, into a nearly horizontal plane, so as the better to press the stock under them. The entrance of the roller d^5 into the cam-groove E at e restores the teeth d^2 to the position shown in full lines in Fig. 2. G represents the carrier, of which one or more may be employed, and by means of which the stock is forwarded to the lifting-carrier after being fed into the bowl upon the roller H and beneath or back of the grating I. This carrier is constructed and operated substantially like the lifting-carrier, the form, however, of the cam-groove K, by which its shafts and teeth are moved, being different from that of the cam-groove E, so as to cause its teeth g to pass vertically, or nearly so, into the grating I, to sweep along the bottom of the bowl in a straight line or horizontal plane, and to draw out of the liquor vertically. The grating I is for disintegrating the lumps of stock drawn through it. The lifting-carrier D raises the stock from the liquor in the bottom of the bowl, and deposits it at once in a thoroughly saturated condition upon the chute b , thus dispensing with the intermediate carrier heretofore required between the lifting-fork and the squeeze-rolls, and avoiding all possibility of the stock sliding back into the bowl, to obtain which result retaining-pins on the incline, or equivalent devices, were heretofore regarded as necessary.

The cam-grooves E and K give a positive action to the teeth of the carriers, enabling them to do their work more effectively than if permitted to swing loosely or operate by grav-

ity, controlling the desired positions for said teeth in a manner not possible to be attained by mere gravity.

Instead of L-shaped teeth, crank-shafts having straight teeth, as shown in Figs. 5 and 7, may be employed.

What I claim as my invention is—

1. A wool-washing machine, in which the stock is passed through the bowl by means of a revolving carrier or carriers, the teeth of which are hung upon revolving shafts, and controlled in their movements by cam-grooves, substantially as shown and described.

2. In a wool-washing machine, the combination, with a revolving lifting-carrier, of a revolving pushing-carrier, by means of which the stock is advanced through the bowl without being lifted from the bottom of the bowl, substantially as shown and described.

3. In combination with the carriers E G, either or both, the double crank-arms d^3 d^4 , on the shafts d^1 , for causing the desired partial revolution of said shafts, as set forth.

4. In combination with the incline B' and the chute b inclining in the opposite direction or toward the squeeze-roll, a lifting-carrier, which raises the stock out of the liquor and deposits it upon said chute, so as to dispense with an intermediate carrier and prevent said stock from being washed back into the bowl, substantially as shown and described.

5. In a wool-washing machine, a cushion-roll, composed of a central metallic shaft, c , and wooden segmental sections c^1 , in combination with bearing-springs c , substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of December, 1875.

JOSIAH K. PROCTOR.

Witnesses:

M. DANL. CONNOLLY,
CHAS. F. VAN HORN.