(No Model.)

A. E. RICH.

BOTTLE WASHING MACHINE.

No. 332,437. Patented Dec. 15, 1885.

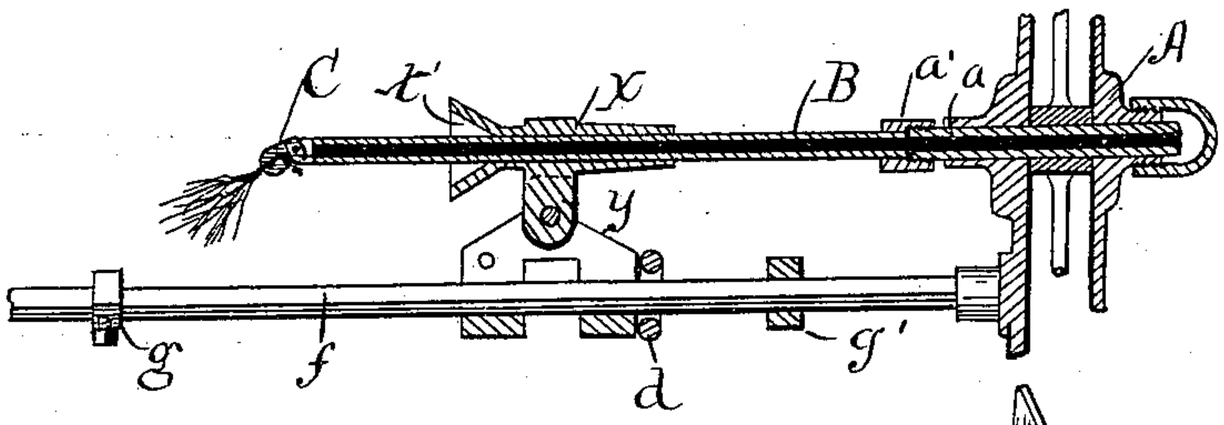

Fig. 2.

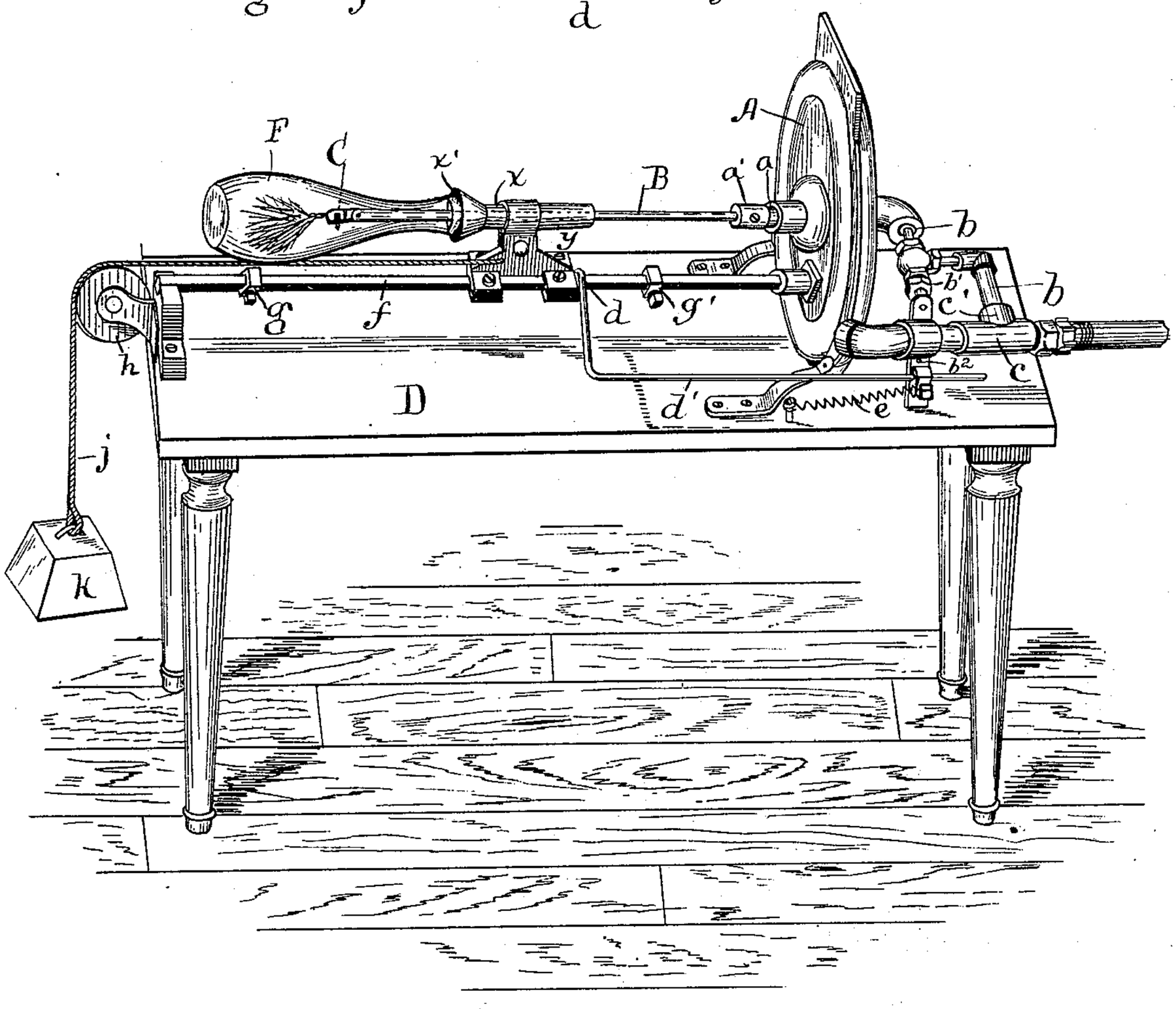

Fig. 1.

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UNITED STATES PATENT OFFICE.

AUGUSTUS E. RICH, OF FALL RIVER, MASSACHUSETTS.

BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 332,437, dated December 15, 1885.

Application filed June 23, 1884. Serial No. 135,711. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS E. RICH, of Fall River, county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Bottle-Washing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate corresponding parts.

Figure 1 is a perspective view of the machine. Fig. 2 is a vertical longitudinal section of the principal operative parts of the machine.

The object of the present invention is to furnish a simple, effective, and inexpensive machine for washing the interior of bottles. The novel manner of connecting the spindle of the washer directly to the shaft of the motor enables me to dispense with all superfluous parts and to operate the whole machine with considerable less power than it is necessary to employ in the constructions now in use.

Referring to the drawings, A is a motor, and which may be driven either by water, steam, gas, electricity, or other means. I represent a water-motor in drawings in explanation of my invention. The body of the motor is secured to the frame D in the usual manner.

B is a hollow spindle, secured to the shaft of the motor, but preferably detachable therefrom, by which connection the spindle is sustained and revolved. The brush and its holder (which form the subject-matter of a separate application) terminates the outer extremity of the spindle.

a is the motor-shaft, which, to facilitate my invention, I make with a hole through its length. On the opposite side of the motor proper from the spindle side is attached a pipe, *b*, which pipe connects with the main supply-pipe of the motor, and is indicated by *c*. Between the pipe *c* and the connection of pipe *b* with the hollow shaft *a*, I place a valve, *b'*. Connected with the valve *b'* is the lever b^2, and this is connected to the rod *d'*, by which said lever is oscillated at right angles to the water-pipe in which the valve is placed. The rod or arm *d'* is also connected with the slide *d*. The guide-rod *f* is placed under the spindle, and is parallel thereto. Upon the guide-rod *f* the slide *d* is placed, and which is operated as hereinafter described. Upon the spindle is placed the bottle-guide *x*. The bottle-guide is made to slide upon the spindle, and is guided and supported by the bottle-guide slide *y*. This slide *y* is fitted to the guide-rod *f*. The outer end of the bottle-guide is formed flaring, as shown by *x'*, Fig. 1, and serves to guide the bottle. A pulley, *h*, with cord *j* and weight *k*, draws the slide *y* and bottle-guide *x* toward the outer end of guide-rod *f* and of spindle B. *g g'* are stops placed on the guide-rod *f*. The spindle is coupled to the shaft *a* at *a'*.

F is a bottle being washed. The valve *b'* is kept closed by the action of the spring *l*, acting upon the lever b^2.

Having now described the parts, I will explain its mode of operation. The water entering the pipe *c* actuates the motor and revolves the shaft *a* and spindle B and brush and its holder C. The bottle-guide *x* is drawn to the outer end of the spindle B, the end *x'* passing over the brush and its holder C. The bottle-nose is then placed against the mouth *x'* of the bottle-guide *x*. Now, by pressing the bottle forward the bottle-guide slides inwardly upon the spindle, guided by the guide-slide *y*. Moving upon the guide-rod *f*, the brush enters the bottle. When the brush reaches the bottom of the bottle, (or before that time, if desired,) the guide-slide presses against the slide *d* and communicates motion to the rod *d'*, and opens the valve *b'* by means of the connecting-lever b^2. Upon the opening of valve *b'* the water leaves the pipe *c* at *c'*, and passing through the hollow shaft *a* and through the hollow spindle B, and thus into the interior of the bottle. During all this time the brush is being rapidly revolved. Upon the withdrawal of the bottle the weight and cord draw the bottle-guide to the end of the spindle, and the spring *l*, acting upon the lever b^2, closes the valve *b'*, and the water is thus prevented from being thrown upon the person of the operator when the bottle is withdrawn. Any convenient form of motor may be used, and in case electricity is used or other force other than water the pipe *b* may be connected with any convenient source of water-supply. The connection of the rods *d'* and d^2 may be varied, so that more or less water may be allowed to pass

through the pipe *b*, and consequently through the spindle B and into the bottle itself. The rods may also be adjusted so that water may be let into the bottle before the brush reaches the bottom of it; or it may be adjusted so that no water at all will enter the interior of the bottle.

The direct connection of the spindle to the shaft *a*, I deem of much importance, as I thereby do away with all unnecessary friction, and am enabled to do the work with less power than I could otherwise do. It also simplifies the parts and greatly cheapens the construction.

I am aware that a flaring bottle-guide has been used in bottle-washing machines, and I therefore do not claim that in itself as new. Neither is the hollow spindle detached from the motor-shaft original with me; but

What I claim, and desire to secure by Letters Patent of the United States, is—

1. An organized bottle-washing machine consisting of the motor A, provided with a hollow shaft, *a*, spindle B, detachably secured to the shaft *a*, and carrying the brush-holder C, bottle-guide *x*, supported by slide *y*, guide-rod *f*, slide *d*, rod *d'*, lever b^2, valve *b'*, spring *e*, pipes *b c*, pulley *h*, cord *j*, weight *k*, and table D, all arranged, combined, and adapted to operate substantially as and for the purposes set forth.

2. In a bottle-washing machine, the combination of the guide-rod *f*, placed on a line parallel with the shaft or arbor of the motor, the slide *d*, adapted to be operated on the guide-rod by contact with the guide-slide *y*, the stops *g g'*, the rod *d'*, lever b^2, valve *b'*, and spring *e*, all substantially as and for the purposes set forth.

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