

(No Model.)

R. RUSHMORE.  
BOTTLE WASHER.

No. 507,330.

Patented Oct. 24, 1893.

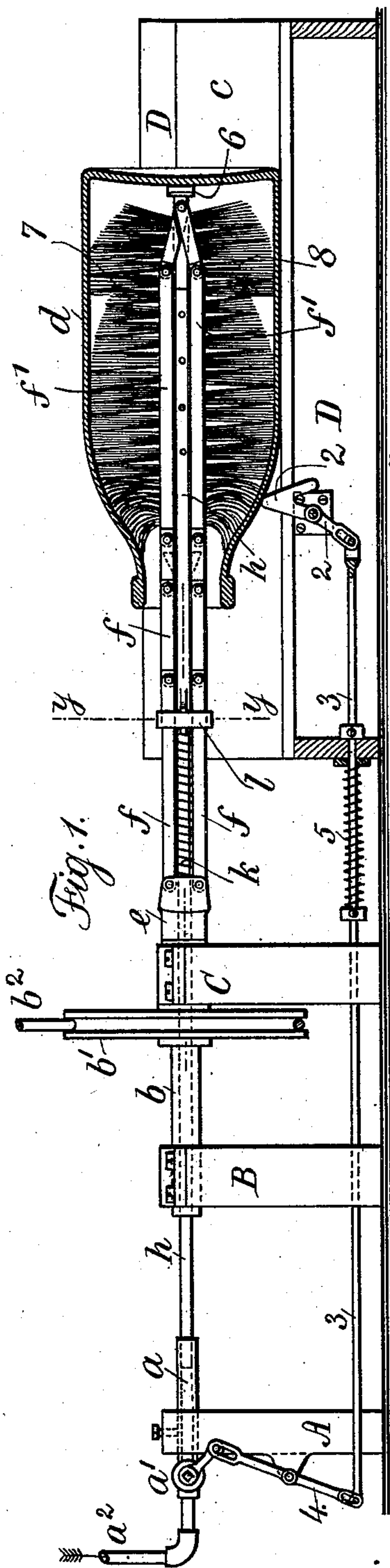


Fig. 1.

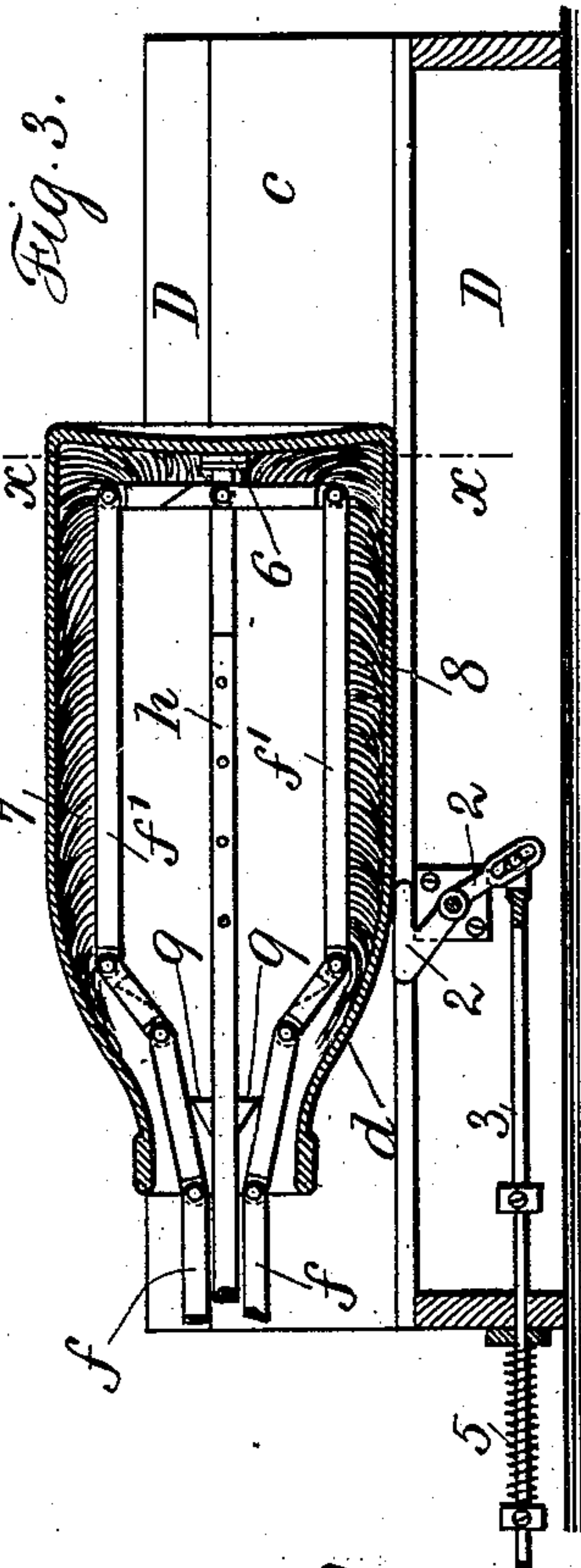


Fig. 3.

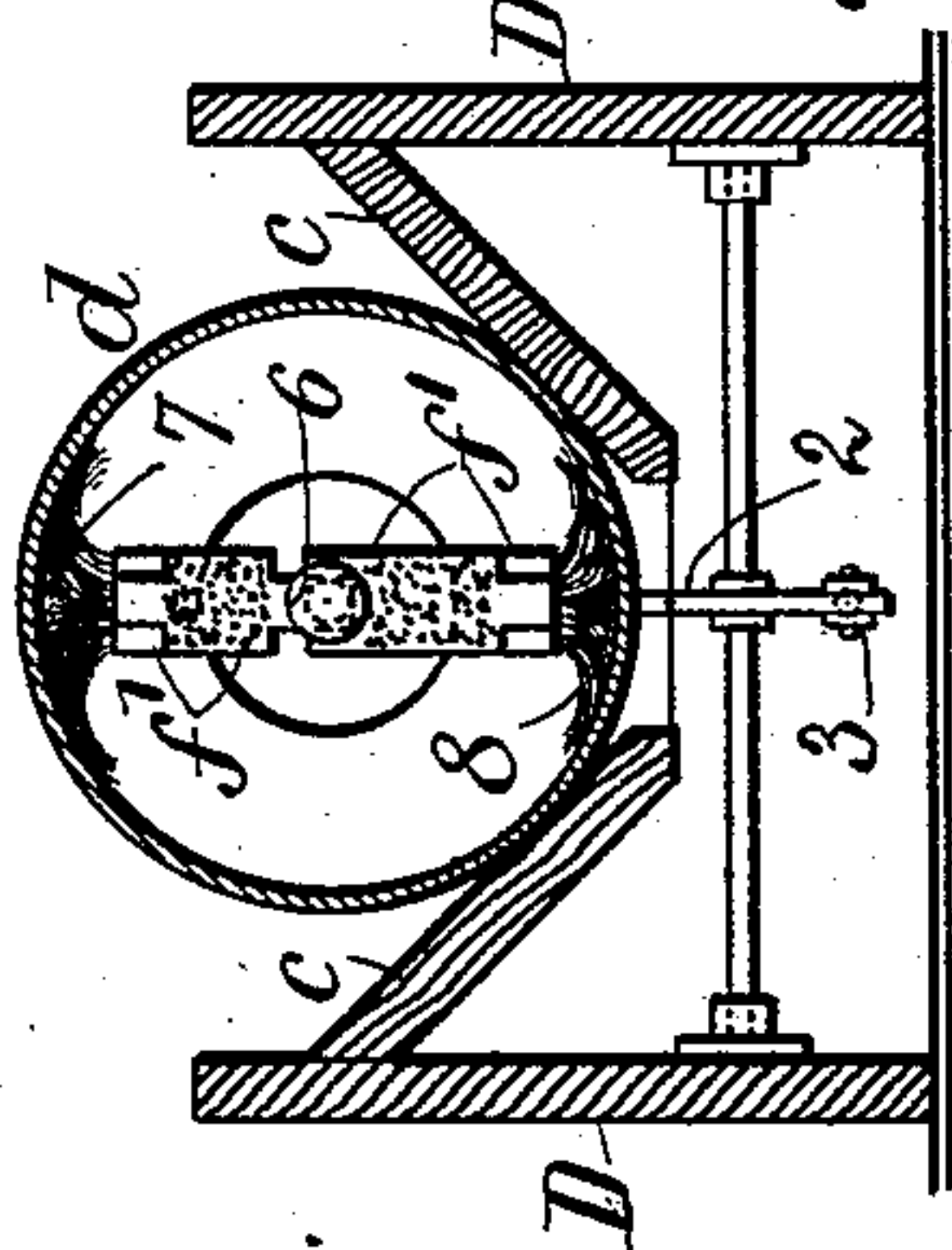


Fig. 4.

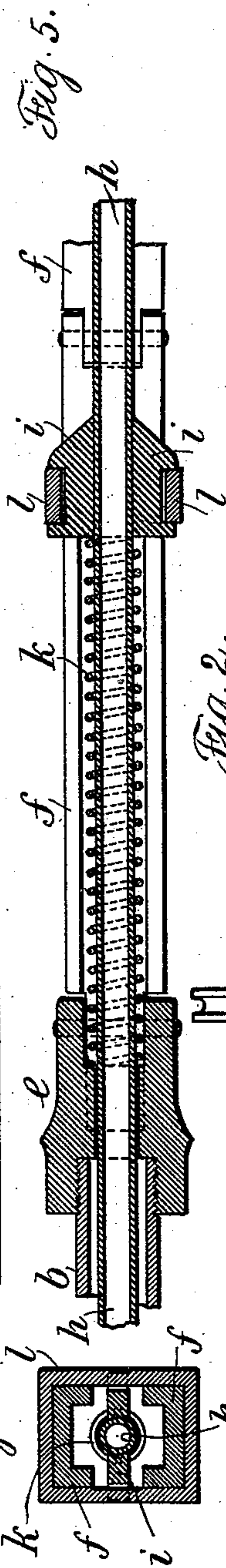


Fig. 5.

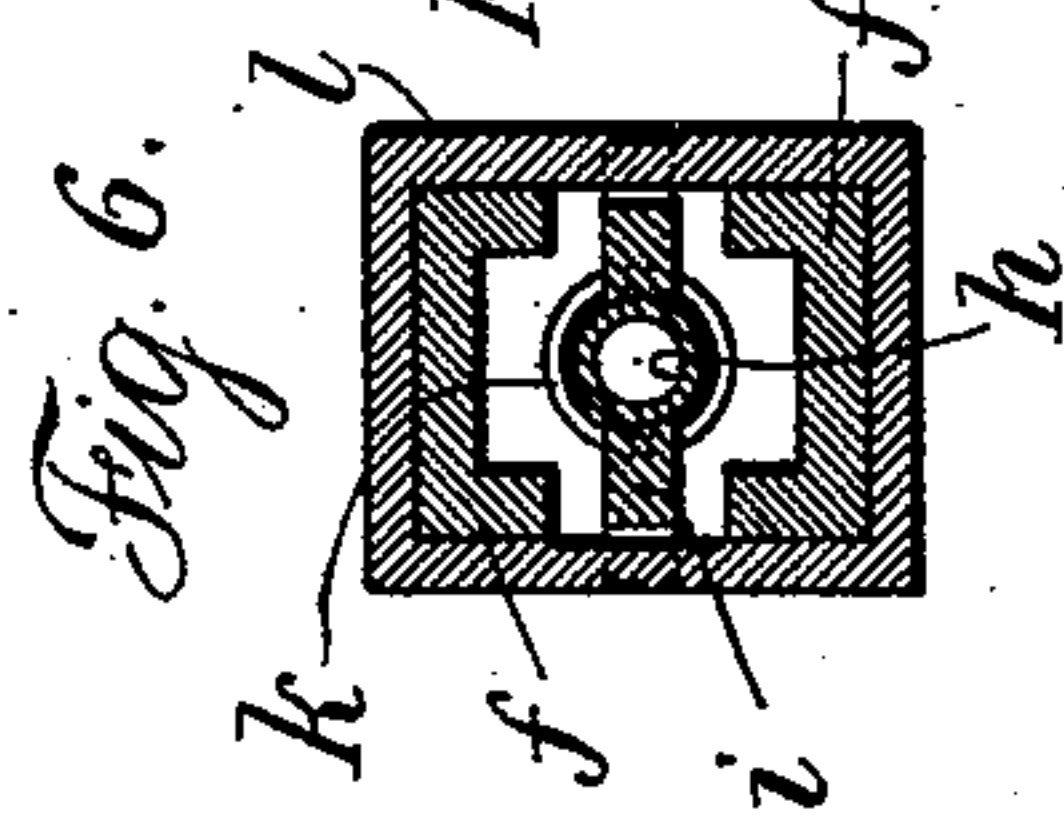


Fig. 6.

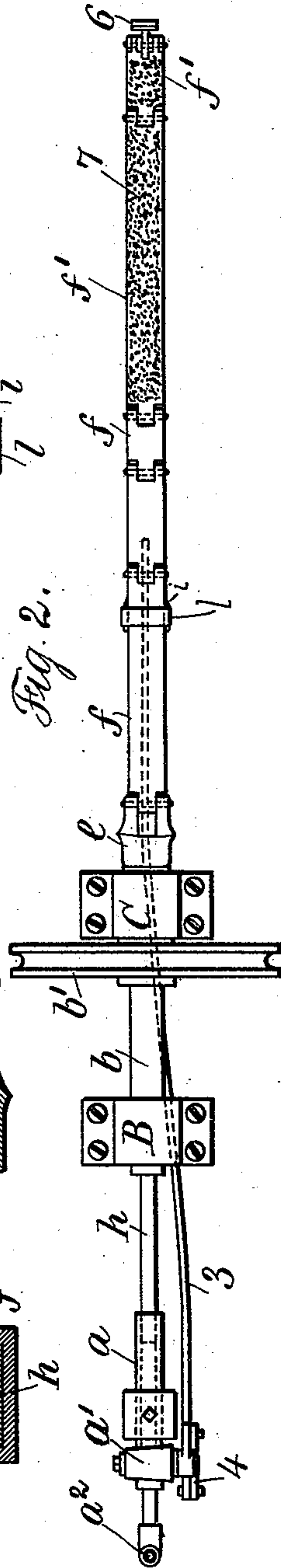


Fig. 2.

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# UNITED STATES PATENT OFFICE.

ROBERT RUSHMORE, OF PLAINFIELD, NEW JERSEY.

## BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 507,330, dated October 24, 1893.

Application filed June 3, 1893. Serial No. 476,447. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT RUSHMORE, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Bottle-Washing Machines, of which the following is a specification.

In many large cities fresh milk is sold to consumers in quart bottles which after their contents are used are returned or gathered up, then cleansed, and refilled for delivery again. These bottles because of the condition in which they are returned frequently require a very vigorous cleaning before it will be safe to again fill them with fresh milk, and my invention, although applicable to the washing of all kind of bottles, is especially adapted for washing and cleansing milk bottles.

In carrying out my invention I employ a rotatable tube carrying at one end arms and jointed brush carriers; a tube supplies water or cleansing liquid under pressure into the bottle, and said tube is preferably longitudinally movable and connected at one end with the extremities of said brush carriers. The bottle to be washed is laid in a receiving trough and moved longitudinally along over the brush carriers so that they come inside the bottle. Simultaneous with this movement said brush carriers are expanded by their lower ends coming in contact with the bottom of the bottle, and the bottle operates a lever to let on the supply of washing liquid. The rotation of the expanded brush carriers and the action of the bristles against the bottle in the presence of the washing liquid under pressure effect a thorough cleansing.

In the drawings Figure 1, is a side elevation and partial section showing my improvement. Fig. 2, is a plan view of the washing mechanism alone. Fig. 3 is a longitudinal section through the bottle with the brush carriers expanded. Fig. 4 is a cross section at  $x x$  of Fig. 3. Fig. 5 is a longitudinal section of the returning mechanism in enlarged size and Fig. 6 is a cross section at  $y y$  of Fig. 1, also in enlarged size.

Upon suitable base supports are provided standards A, B, C, D. The standard A supports a sleeve  $a$ , a supply cock  $a'$  and pipe  $a^2$  through which the washing liquid under pressure is supplied to the machine. The stand-

ards B, C have journal bearings at their upper ends and receive the tube  $b$  upon which is the pulley  $b'$  for a belt  $b^2$  by which said tube and the parts connected therewith are rotated.

The standard D carries a longitudinal receiving trough  $c$  into which the bottle  $d$  to be washed is placed. A lever 2 pivotally connected to the standard D is operated by the longitudinal movement of the bottle which in turn moves the connecting rod 3 and lever 4 to turn on the supply of washing liquid at the supply cock  $a'$ . A helical spring 5 around the rod 3 acts to close the supply cock and return these parts to a normal position as each bottle is removed after washing.

The one end of the rotatable tube  $b$  is made with a head  $e$  and pivoted thereto at opposite points are the jointed arms  $f$  whose outer portions are hinged or jointed to the brush carriers. The brush carriers consist of the arms  $f' f'$  having two joints whose outer faces are provided with projecting bristles to form brushes 7, 8.

The inner tube  $h$  is longitudinally movable and passes through the tube  $b$  and at one end into the sleeve  $a$  and is preferably provided with a packed joint to prevent the escape of washing liquid. The other end of the tube  $h$  passes between the arms  $f$  and brush carriers  $f'$  and its outer end is plugged and provided with a joint pivoted to the knob 6 at the end of the said brush carriers  $f' f'$ . The outer end of this inner longitudinally movable tube  $h$  is perforated for the discharge of washing liquid adjacent to the brushes. A head  $i$  is secured to the tube  $h$  and extends out and between the arms  $f'$  and its ends are notched for the strap  $l$  which encircles the arms and head and around the tube  $h$  between the faces of the heads  $i$  and  $e$  is a helical spring  $k$ . The tube  $b$ , arms  $f$ , brush carriers  $f'$ , inner tube  $h$  and the parts connected thereto all rotate together in their bearings and in the sleeve  $a$ ; and said sleeve is amply long to provide for the longitudinal movement of the inner tube  $h$  when the brush carriers  $f' f'$  are expanded.

In the operation of the mechanism a bottle is placed in the trough  $c$  and moved along over the ends of the brush carriers  $f' f'$ . As the knob 6 touches the bottom of the bottle



the inner tube *h* is moved longitudinally and the brush carriers are expanded to the position shown in Fig. 3 the inclined ribs 9 on the tube *h* assisting the joints of the arms or brush carriers to expand by acting along grooves in their under faces. Simultaneous with this movement the bottle has moved the levers and opened the supply cock *a'* and turned on the washing liquid as hereinbefore described. This washing liquid is delivered from the holes of the inner tube within the bottle while the brushes and their mechanism are revolving at a high speed. The bottle is thus washed and thoroughly cleansed. As the bottle is removed by drawing backward the helical spring *k* acts to project the tube *h* and straighten out or contract the brush carriers *f' f'* and permit of the removal of the bottle, and simultaneously the spring 5 acts to return the levers and rod to a normal position and turn off the supply of washing liquid. The parts are now in position to receive another bottle to be washed when the aforesaid operations will be repeated.

I claim as my invention—

1. In a bottle washing machine the combination with a tube and means for rotating the same, and arms connected to said tube at one end and jointed brush carriers connected together and to the other ends of said arms, of a longitudinally movable liquid supplying tube passing through the aforesaid tube and between said brush carriers and perforated for the discharge of washing liquid connections between the end of said inner tube and the ends of said brush carriers, an expander connected to said inner tube for assisting in throwing out the brush carriers when the inner tube is moved endwise and means for returning the tube to its normal position and contracting said brush carriers substantially as set forth.

2. In a bottle washing machine the combi-

nation with a tube and brush carriers connected together and to said tube and means for rotating said parts, of a trough arranged to receive the bottle lengthwise and along which said bottle can be moved over the brush carriers, means for supplying washing liquid into the bottles, and means actuated by the longitudinal movement of the bottle in its trough for turning on and shutting off the supply of said washing liquid, substantially as set forth.

3. In a bottle washing machine the combination with the tube *b* and means for rotating the same, of the arms *f*, the brush carriers *f'*, the liquid supplying tube *h*, the knob 6 at its end connected with said brush carriers, the head *i*, strap *l* and the helical spring *k*, substantially as set forth.

4. In a bottle washing machine the combination with the tube *b*, arms *f*, brush carriers *f'* and the inner tube *h*, of the trough *c* for the bottle, the supply cock *a'* and tube *a''*, the levers 2 and 4 and connecting rod 3, between the supply cock and trough and the spring 5 for returning the levers and rod to a normal position, substantially as set forth.

5. In a bottle washing machine the combination with rotatable arms and connected jointed brush carriers, of a longitudinally-movable liquid supplying tube perforated for the discharge of said liquid and connected to the ends of said brush carriers, and acted upon by the longitudinal movement of the bottle to expand the brush carriers and with means for contracting said arms, substantially as set forth.

Signed by me this 26th day of May, A. D. 1893.

ROBT. RUSHMORE.

Witnesses:

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