(No Model.)

J. L. KIHN & W. T. REED.

BOTTLE WASHER.

No. 573,885. Patented Dec. 29, 1896.

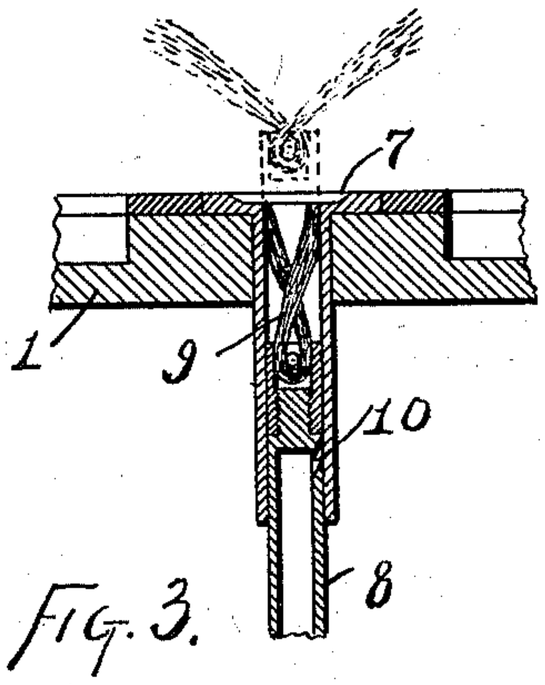

FIG. 3.

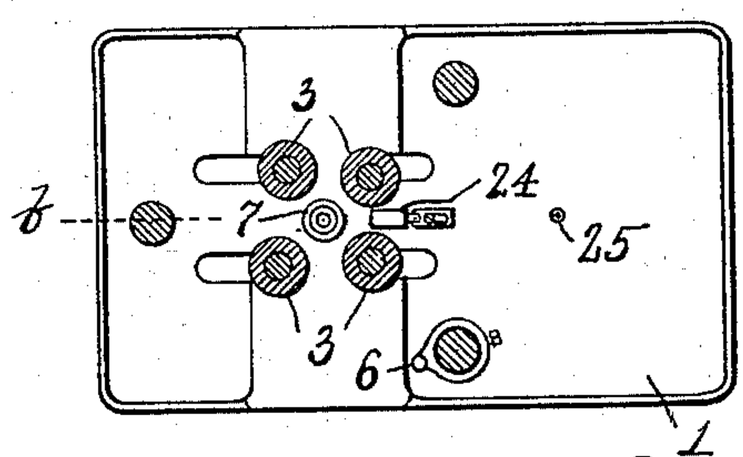

FIG. 2.

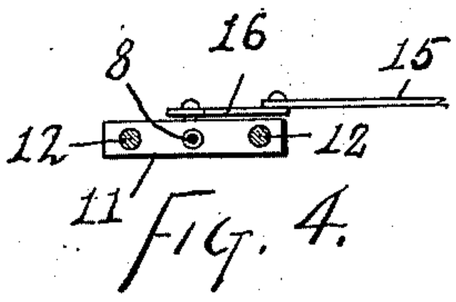

FIG. 4.

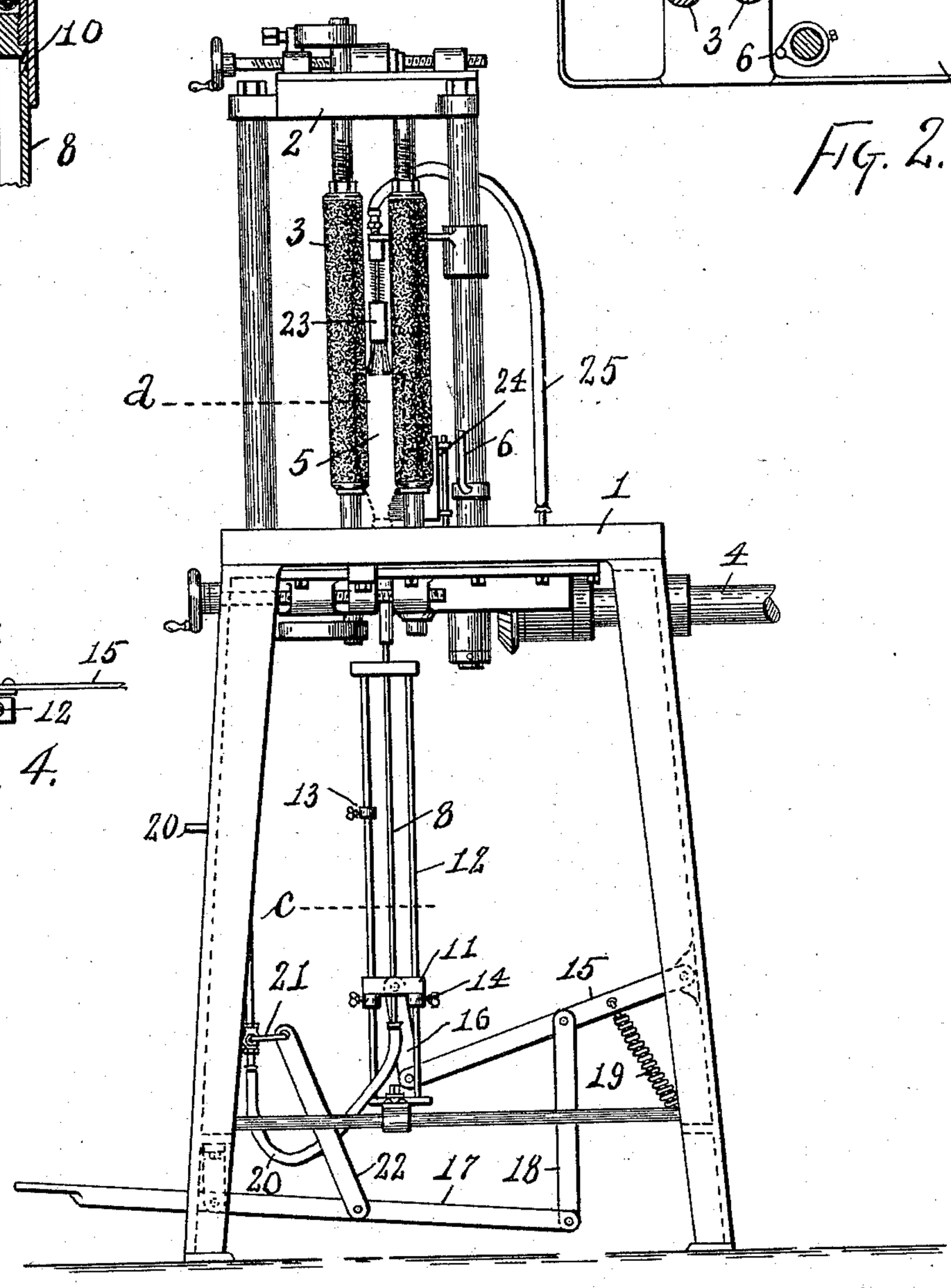

FIG. 1.

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UNITED STATES PATENT OFFICE.

JOHN L. KIHN AND WILLIAM T. REED, OF HAMILTON, OHIO, ASSIGNORS TO CHRISTIAN PABST, OF SAME PLACE.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 573,885, dated December 29, 1896.

Application filed December 11, 1895. Serial No. 571,755. (No model.)

To all whom it may concern:

Be it known that we, JOHN L. KIHN and WILLIAM T. REED, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Bottle-Washers, of which the following is a specification.

This invention pertains to improvements in machines for rapidly cleaning the inside and outside of bottles, such as wine and beer bottles and the like.

Reference is hereby made to United States Letters Patent No. 544,308, granted to us August 13, 1895, for a bottle-washer of the general character herein referred to, and for which the present invention furnishes improvements.

Our present improvements on the machine of said patent will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of a bottle-washer embodying our present improvements; Fig. 2, a horizontal section of the same in the plane of line *a* of Fig. 1; Fig. 3, a vertical section of the central portion of the table in the plane of line *b* of Fig. 2, and Fig. 4 a horizontal section in the plane of line *c* of Fig. 1.

In the drawings, 1 indicates the table of the machine; 2, the head-plate; 3, a nest of four vertically-disposed elastic rolls mounted in spring-pressed sliding bearings in the table and head-plate and adapted while rotating to grip and turn a bottle upon its axis with the neck downward; 4, the driving-shaft, by means of which the rotary motion is given to the rolls; 5, the bottle in position to be washed, gripped between the rolls and turning with its neck resting in a suitable seat in the table, all the parts above referred to, as well as the general structure of the machine, being substantially the same as in our patent to which reference has been made; 6, a handle fulcrum or stud disposed vertically in front of the nest of rolls and somewhat to the right of them, this stud being a short distance above the level of the table and being in the illustration fixedly supported by a collar secured to one of the columns which unites the head-plate to the table, the use of this stud being hereinafter explained; 7, the seat in the upper surface of the table in which the neck of the bottle rests, as in the patent above referred to; 8, a tube arranged for vertical sliding motion through the table in the axis of seat 7, the exterior of the upper end of this tube fitting the bore of the table at the seat, that bore being shown in Fig. 3 as being provided with a bushing extending downwardly to effect, virtually, a thickening of the table where the upper end of the tube 8 fits and slides, the upper end of tube 8 being closed; 9, a brush formed by a bundle of spring-wires bent at the middle and engaging a pin disposed horizontally across a socket in the upper end of tube 8, this socket being, preferably, detachable from the end of the tube by being screwed thereto, as seen in Fig. 3, the tendency of the bundle of wires, if unconfined at their extremity, being to spread, as indicated in dotted lines in Fig. 3, the wires being confined and contracted in the bore of the table when the tube is given downward position to draw the brush below the level of the table, and free to expand, as shown in dotted lines, when the brush is above the table; 10, a diagonal jet-hole in the side of tube 8 near its upper end in such position and at such angle of adjutage as to cause the water jetting from it to intersect a point represented by one of the extremities of the brush when the brush is expanded; 11, a cross-head fast near the lower end of tube 8; 12, a pair of fixed guide-rods for the cross-head 11, supported by a suitable base-piece, supported in turn by the legs of the machine, the construction being such that if cross-head 11 be raised it will elevate tube 8 and project its upper end and the brush upward through the table and into a bottle resting neck down upon the table within the grip of the rolls; 13, an adjustable stop-collar on one of guide-rods 12 to limit the upward movement of cross-head 11, and thus prevent the brush end of the tube from being raised so far as to improperly strike the bottom of the bottle; 14, similar stop-collars, not necessarily adjustable, upon the guide-rods 12 to limit the descent of tube 8 to such point as will insure the retraction of brush 9 below the level of the top

of the table; 15, a lever with one end pivoted to the base-structure of the machine, its other end coming below cross-head 11; 16, a link connecting the free end of this lever with cross-head 11; 17, a foot-lever pivoted at the base of the machine; 18, a link connecting this foot-lever with lever 15, so that lever 15 may be raised by the action of the foot-lever; 19, a spring serving to draw tube 8 to its lower position; 20, a water-pipe leading to the lower end of tube 8 from some source of supply of water under pressure; 21, a valve in this water-pipe normally closed; 22, a link connecting valve 21 with the foot-lever in such manner that as the foot-lever is actuated to elevate tube 8 the valve 21 is opened; 23, a brush supported over the bottom of the bottle as the bottle is gripped by the rolls, as in our patent before referred to; 24, a brush supported on the table for brushing the exterior of the neck of the revolving bottle, as in said patent, and 25 a water-pipe leading from a suitable source of supply and serving to drench the bottom and exterior of the bottle while rotating.

The rolls will be adjusted to have a suitable grip upon bottles of the size being dealt with, and the rolls will be in continuous motion. The bottle will be placed neck down upon the table in front of the portal formed between the front pair of rolls. The fingers of the operator will grasp stud 6, and the ball of his hand will be brought against the bottle to force it through between the front pair of rolls, which yield to permit the entry of the bottle, the bottle expelling outwardly to the rear the bottle which was previously between the rolls. The new bottle is now within the grip of the rolls and being rapidly turned by them while its neck rests in the seat 7, the exterior of the bottle being washed and polished by the exterior brushes and by the rolls. While the exterior of the rotating bottle is being thus acted upon, the feed-lever is actuated, causing the upper end of tube 8 to rise into the bottle, carrying brush 9 with it, the brush expanding against the interior wall-surface of the bottle, the brush being non-rotary and acting on the rotary bottle while drenched with water from jet-hole 10.

We claim as our invention—

1. In a bottle-washer the combination with a table provided with an aperture or socket, of a non-rotary, reciprocatory jet-tube movable within the socket, a normally-expanded brush upon the extremity of the tube capable of contraction within the socket, and mechanism above the table for sustaining and rotating an inverted bottle and means for reciprocating the tube.

2. In a bottle-washer the combination with a table, a nest of rotary vertical rolls having bearings in a head-plate above the table, and roll-actuating mechanism, of a reciprocatory tube piercing the table within the nest of rolls a normally-expanded brush upon the extremity of the tube designed to be contracted when retracted below the surface of the table, and mechanism for actuating the tube to contract and release the brush.

3. In a bottle-washer the combination with a table provided with a seat in its surface for the reception of a bottle, of a nest of vertical rotary rolls having bearings in a head-plate above the table designed to sustain and rotate the bottle, a reciprocatory tube piercing the table concentric with the seat and intermediate of the rolls, a normally-expanded brush upon the extremity of the tube, jet-holes piercing the tube transversely, means for reciprocating the tube to retract the brush below the table, roll-actuating mechanism and brushes in contact with the exterior of the bottle.

4. In a bottle-washer, the combination with a table and mechanism thereabove designed to sustain and rotate an inverted bottle, of a reciprocatory tube piercing the table, a cross-head supporting the tube, cross-head guide-rods, a water-supply pipe provided adjacent to its lower extremity with a valve, a flexible pipe connecting the water-supply pipe and the tube, a spring-retracted lever pivoted to the table and connected with the cross-head by a link, a foot-lever pivoted to the table and directly connected through independent links to the valve in the water-supply pipe and to the spring-retracted lever.

5. In a bottle-washer the combination with a table provided with a tube or bushing extending downwardly from its surface, of a reciprocatory jet-tube having a closed end and movable within the tube or bushing said jet-tube having jet-apertures below the closed end, a normally-expanded brush upon the end of the jet-tube and means for reciprocating the jet-tube thereby retracting the brush below the table into the depending tube or bushing, whereby the flow of water may be cut off by the retraction of the tube within the bushing.

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