

F. C. STÖCKEL & J. L. T. POPP.
MACHINE FOR FILLING BOTTLES.
APPLICATION FILED FEB. 12, 1910.

969,572.

Patented Sept. 6, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

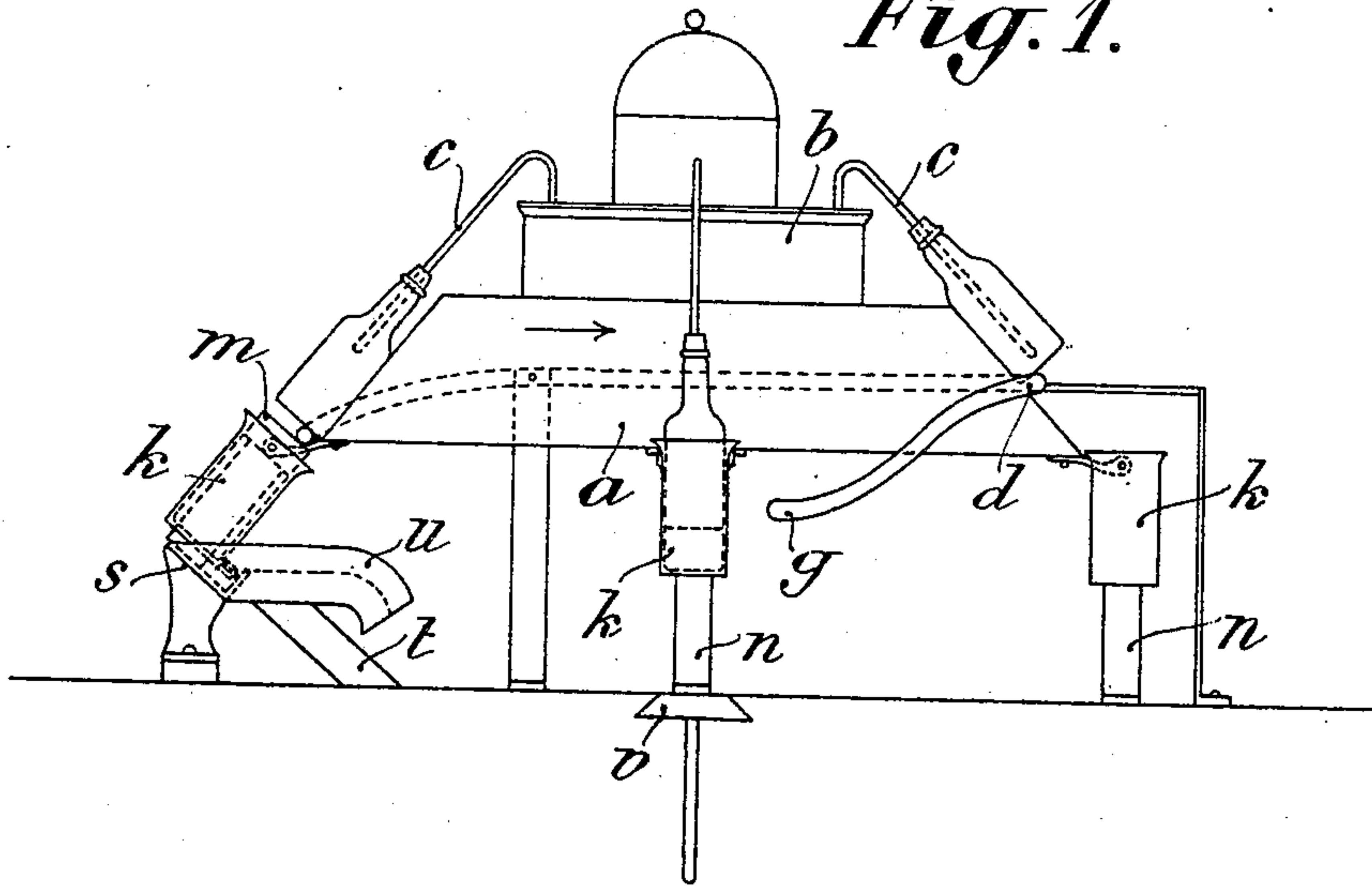
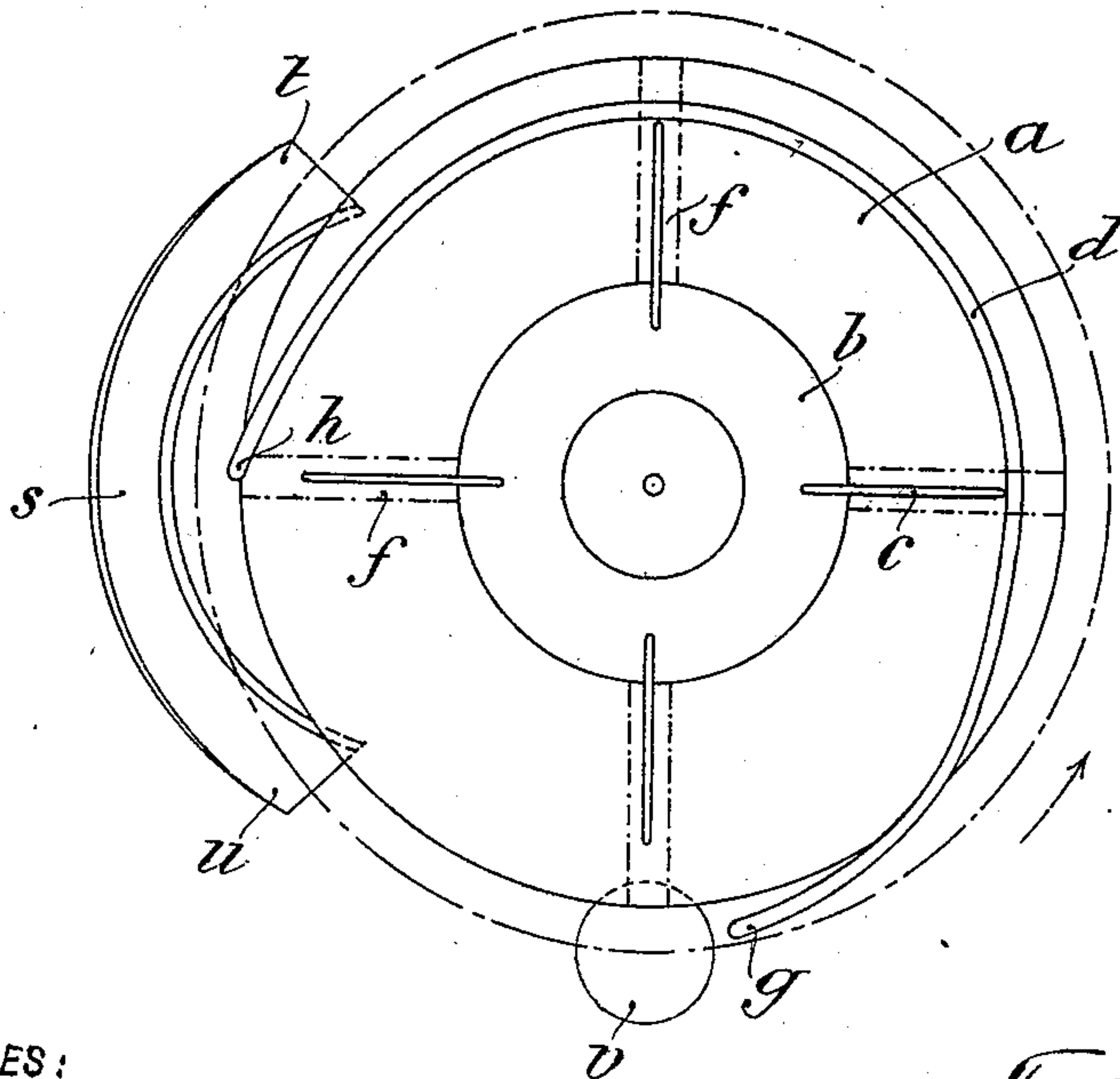


Fig. 2.



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Fig. 3.

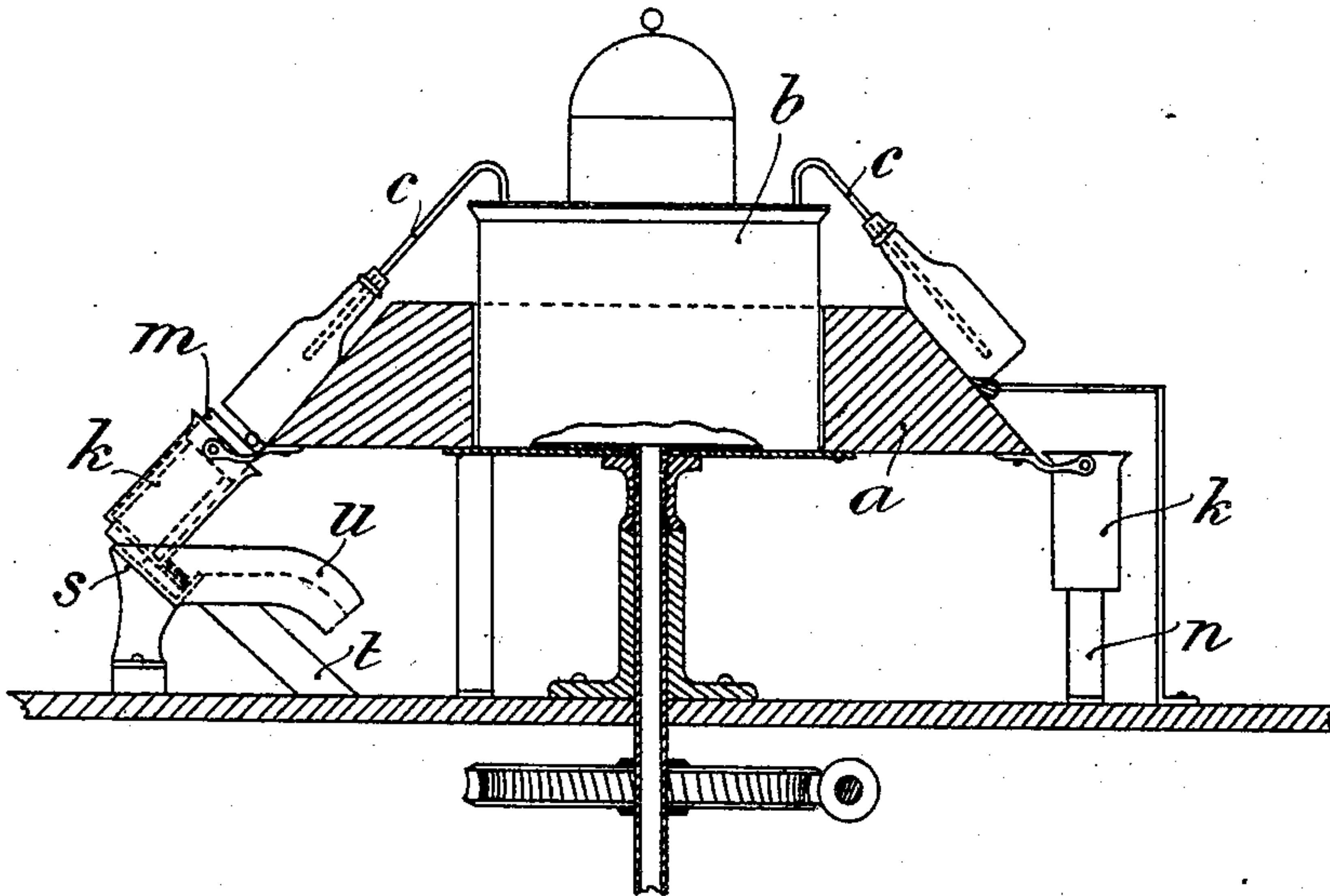
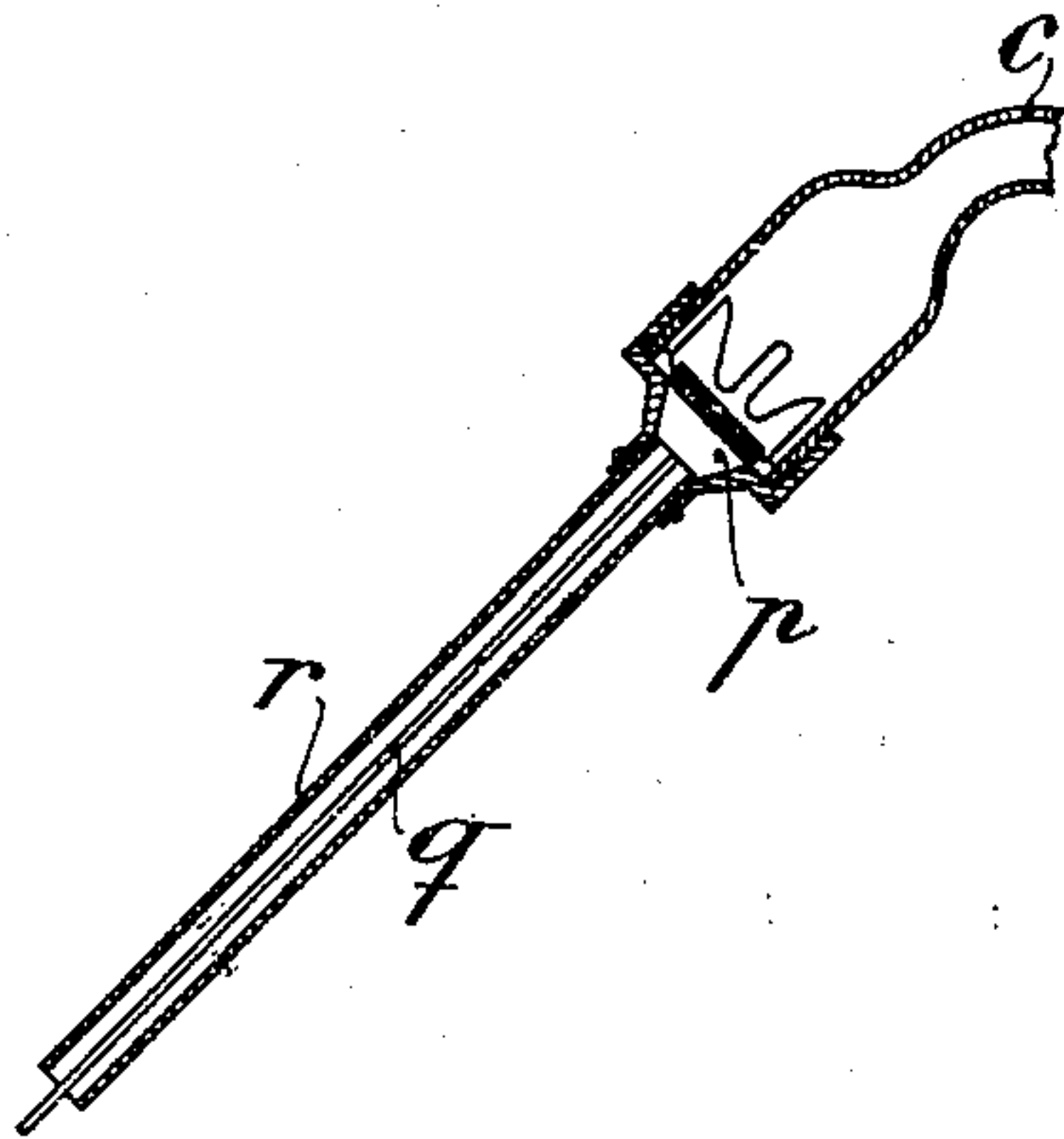


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR FILLING BOTTLES.

969,572.

Specification of Letters Patent.

Patented Sept. 6, 1910.

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To all whom it may concern:

Be it known that we, FRANTS CHRISTIAN STÖCKEL and JONAS LUDVIG THEODOR POPP, citizens of the Kingdom of Denmark, and residing in Copenhagen, in said Kingdom of Denmark, have invented certain new and useful Improvements in Machines for Filling Bottles, of which the following is a specification.

This invention relates to an improved machine for filling bottles in such a manner that during the filling process the bottles are lifted by a rotation table along a suitable guide-rim along the extensions of valved siphon-tubes by which the liquid is transmitted from the liquid-receptacle into the bottle, while on the continuation of the motion of the bottle the supply is automatically interrupted until the bottle is delivered into fulcrumed caps and directed by followers in the caps and a suitable bottle-rest to a corking machine for closing the bottles.

The invention consists in a machine for filling bottles which comprises a rotary liquid receptacle having siphon-tubes, a rotary table of conical shape on which the bottles are supported, a stationary guide-rim on said conical table for supporting the bottles along which they are moved during the filling operation, extension-tubes on said siphon-tubes, valves in said siphon-tubes for opening or closing the extension-tubes, and bottle-receiving cups fulcrumed to said rotary table for receiving the bottles after they are filled, said cups being provided with interior followers and stems for lifting the followers and the bottles into a corking apparatus for closing the bottles.

The invention consists further of certain details of construction which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side-elevation of our improved machine for filling bottles, Fig. 2 is a plan-view, Fig. 3 is a vertical central section, and Fig. 4 is a vertical central section of one of the valved siphon-tubes.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, a represents a rotary table which turns on its vertical central axis and which is provided with a conically inclined circumference. Centrally within and above the table a is arranged a

receiver b to which the liquid, for instance, beer, with which the bottles are to be filled is supplied by a tube passing through the center of the vertical shaft to which the table is attached. The receiver b rotates with the table a . From the receiver b a number of siphon tubes c extend in downward direction, four being shown in the drawings. Around the conically-inclined wall of the rotary table a is arranged a stationary guide rim d which extends approximately around three-quarters of the circumference of the conical portion and the ends g, h of which are bent outwardly and downwardly so as to form a support which, at its middle portion, extends horizontally around the conically-inclined portion of the table. The conically-inclined table a is provided with flat grooves f for supporting the bottles, as indicated by dotted lines in Fig. 2, and by which the bottles can be moved in upward, horizontal and downward position on the guide-rim b .

At the lower end of the conically-inclined table a are arranged, radially in line with the siphon-tubes, cups k of cylindrical shape, at the bottoms of which are arranged followers m , said followers being provided with piston-rods or stems n that extend below the cups. The inner circumference of the cups is somewhat larger than the exterior circumference of the bottles.

The table a is rotated in suitable mechanisms in one and the same direction, as shown by the arrow in Fig. 2. The bottles to be filled are placed on the end g of the stationary guide-rim d , and when they arrive below one of the siphon-tubes they are moved in upward direction along the grooves on the table. As the bottle is taken along by the inclined portion of the table a , it moves along the inclined end g of the guide-rim d , first in upward direction, then in a horizontal position on the middle portion of the rim, and lastly in downward direction on the outgoing end h of the guide-rim b , without requiring any assistance by the attendant.

On each siphon-tube c is arranged a tubular extension r and in said extension the stem q of a valve p , which stem projects somewhat below the lower end of the extension-tube. The projecting end reaches down to the bottom of the bottle when the same arrives on the inclined portion g of the

guide-rim *d*. When the bottle arrives on the horizontal portion of the rim, the stem *g* is lifted in upward direction by the bottom of the bottle, so that the valve *p* is opened and thereby the liquid immediately supplied to the bottle, until the same is filled with liquid up to a level with the level of the liquid in the receiver *b*. The bottle is filled while passing over the horizontal portion of the rim *d* and is moved then over the downwardly-inclined end *h* of the rim in downward direction along the conical-inclined portion of the table until the lower end of the valve-stem *g* is released from the bottom of the bottle and the valve *p* closed.

At the lower end of the table *a*, near the end *h* of the guide-rim, is arranged a stationary segmental channel *s*, of the form shown in Figs. 1 and 2. The ingoing end *t* of the flanged channel *s* is inclined and takes up during the rotation of the table the rod or stem *n* of the follower of the cup *h* which is located under the filled bottle delivered by the end *h* of the guide-rim and moves thereby the follower in upward direction, as shown in dotted lines in Fig. 1, while simultaneously the bottle slides easily without shock over the inclined portion of the table on to the follower, as soon as it is placed in line with the axis of the cup. During the continuation of the rotary motion of the table *a*, the rod *n* passes over the downwardly-bent end *u* of the guide-channel *s* and onto a convex-plate *v*, which is part of a corking machine, (not shown) said plate being lifted at the same time when the rod *n* arrives over the same, so that the mouth of the bottle is pressed against the cork-holding tube of the corking machine and the cork forced into the mouth of the bottle. The plate *v* is of sufficient width to permit the corking action of the bottle while the rod *n* passes over the plate *v* which takes up a sufficient length of time while the table continues its rotary motion, so that the corking of the bottle can be accomplished.

The fixed channel *s* may be extended at both ends and shaped in proper manner, and can be so arranged that the bottles while resting on the followers are lifted by the channel over the extensions of the siphon-tubes and lowered again, so that the filling and corking operations can take place at the proper time. In this case the bottles are placed at the beginning of the operation into the oscillating cups and remain in the same during the entire filling and corking operation, so that thereby the guide-rim *d* can be dispensed with.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. A machine for filling bottles, compris-

ing a liquid-receiver, a rotary table having a conically-inclined portion surrounding the table, a stationary guide-rim surrounding said table, siphon-tubes extending from the receiver over the inclined portion of the table, extension-tubes for said siphon-tubes, valves in said siphon-tubes having stems abutting against the bottom of the bottles so that the valves are opened and the bottles filled as they are moved along the guide-rim.

2. A machine for filling bottles, comprising a receiver for the liquid, a rotary table having a conically-inclined circumference, means for lifting the bottles while they are moving along the inclined circumference of the rotary table, cups pivoted to the lower edge of the table, followers in said cups provided with rods or stems, a stationary guide-channel engaging the lower ends of the follower-rods or stems, and a vertically-reciprocating supporting plate for lifting the followers and bottles and delivering the latter to a corking machine.

3. In a machine for filling bottles, the combination of a liquid-receiver, a table surrounding the same and provided with a conically-inclined circumference, means for rotating the receiver and table, supports on said circumference for receiving the bottles, and stationary guide-means extending partly around the table for guiding the bottles around the table.

4. A machine for filling bottles, comprising a liquid-receiver, a table surrounding the same and provided with a conically-inclined circumference, means for rotating the receiver and table, siphon-tubes extending from the receptacle in downward direction over the inclined portion of the table, said siphon-tubes being provided with extension-tubes, valves at the ends of said siphon-tubes, valve-stems extending through the extensions and projecting below the same, means for guiding the bottles around the table and onto the extension-tubes for opening the valves when the ends of the stems abut on the bottoms of the bottles while the bottles are raised to their highest position on the inclined portion of the table.

In testimony, that we claim the foregoing as our invention, we have signed our names in presence of two subscribing witnesses.

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ROSE LICHTENSTEIN.