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PATENTED OCT. 6, 1903.

G. NORTON.
BOTTLE FILLING MACHINE.
APPLICATION FILED MAR. 26, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

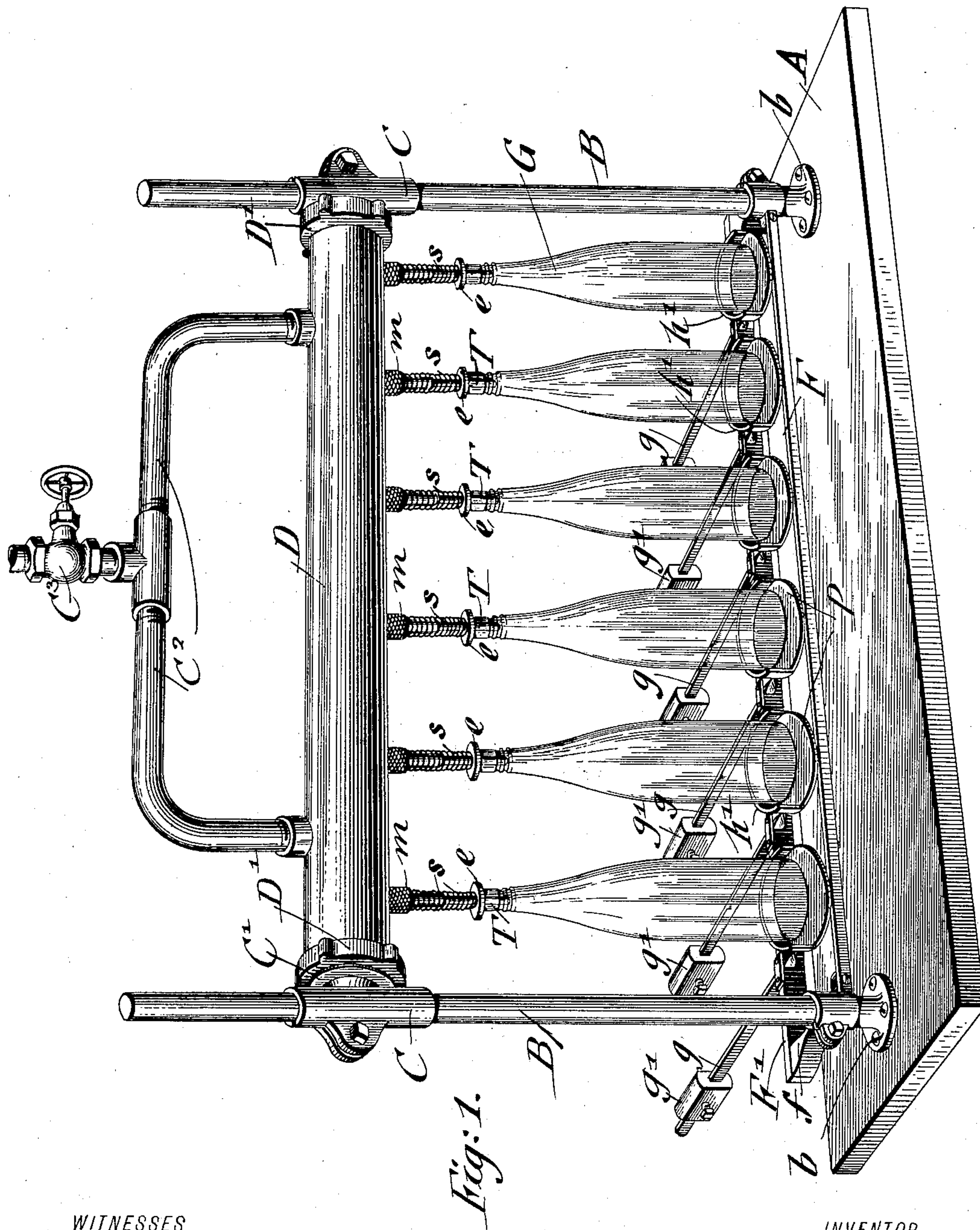


Fig. 1.

WITNESSES
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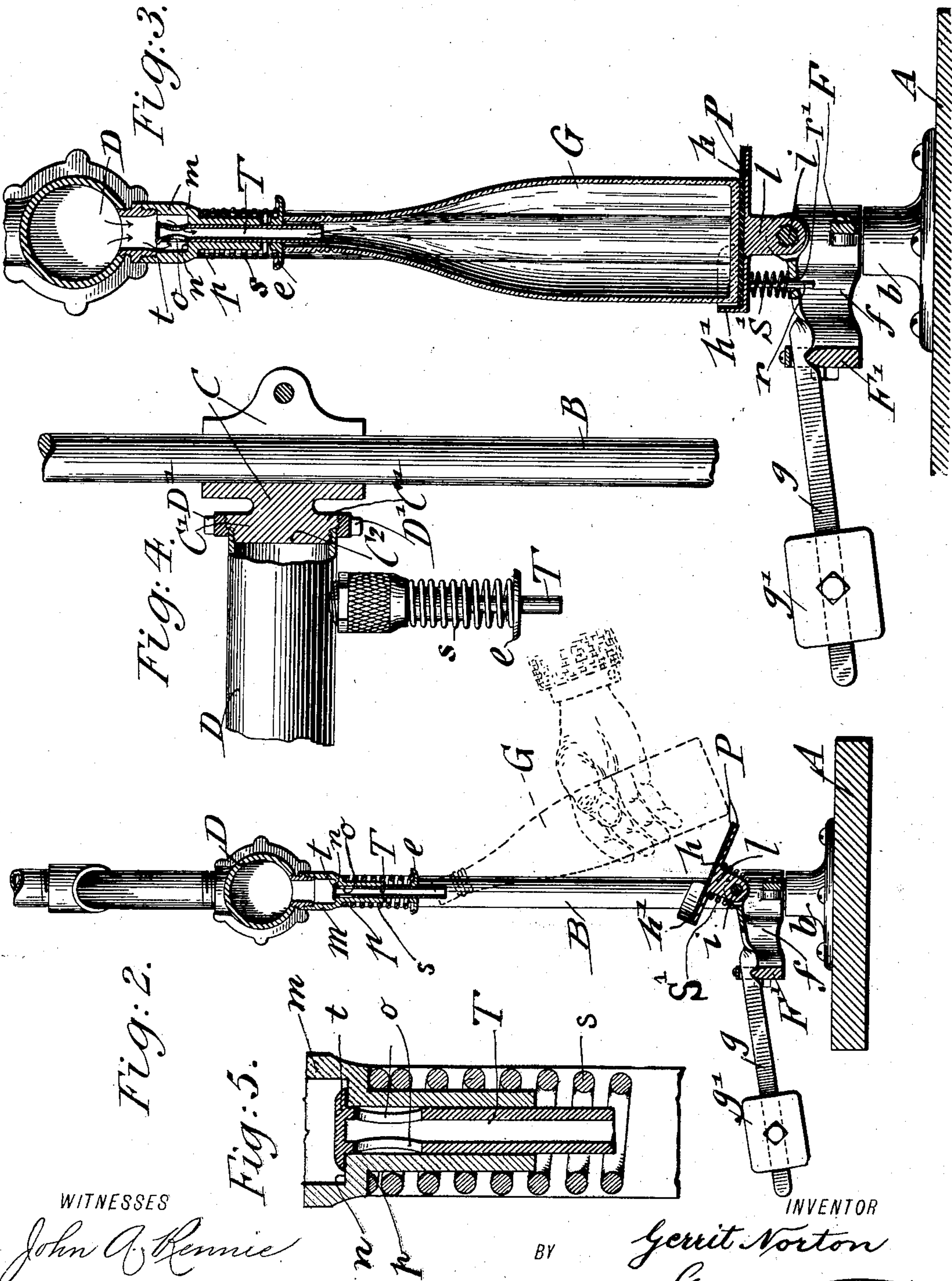
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WITNESSES

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UNITED STATES PATENT OFFICE.

GERRIT NORTON, OF NEW YORK, N. Y., ASSIGNOR TO MARTHA M. NORTON,
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BOTTLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 740,899, dated October 6, 1903.

Application filed March 26, 1903. Serial No. 149,657. (No model.)

To all whom it may concern:

Be it known that I, GERRIT NORTON, a citizen of the United States, residing in New York, borough of Manhattan, and State of New York, have invented certain new and useful Improvements in Bottle-Filling Machines, of which the following is a specification.

This invention relates to an improved bottle-filling machine of that class by which semi-liquid substances—such as catsup, sauces, and the like—are transferred into the bottles in such a manner that when the required quantity is transferred the supply of liquid is automatically interrupted, so that the filled bottle can be readily removed for corking. Heretofore in bottling semiliquids of the kind described the operation was very slow and uncertain, for the reason that siphoning bottle-filling machines could not be employed, as the liquids clogged the siphon, and so prevented the reliable filling of the bottles.

My invention is designed to furnish a bottle-filling machine of the class described in which not only the filling of the bottle takes place with rapidity, but in which every bottle is filled with a predetermined quantity of liquid, after which the supply-tube is automatically closed, so that the bottle can be removed and corked; and for this purpose the invention consists of a bottle-filling machine which comprises a horizontal reservoir for the liquid to be bottled, means for supplying liquid to said reservoir from a tank located above the reservoir, upright supporting-posts, means for adjusting said reservoir higher or lower on said posts, a plurality of guide-sockets at the lower part of the reservoir, spring-actuated valved tubes in said guide-sockets, a guard-plate on the lower end of each tube, and a plurality of platforms located vertically below the supply-tubes and provided with fulcrumed levers with counterbalancing-weights, so that as soon as the required quantity of liquid is transferred into the bottle the same is lowered, and thereby the supply-valve automatically closed.

The invention consists, further, of certain details of construction and combinations of parts, which will be fully described herein-after and finally pointed out in the claims.

In the accompanying drawings, Figure 1

represents a perspective view of my improved bottle-filling machine, showing the bottles during the filling operation. Fig. 2 is a vertical transverse section of the machine shown with a bottle in the act of being placed in position thereon. Fig. 3 is a similar vertical transverse section, but with a modified form of platform-tilting springs shown with the bottle in position for filling, this figure being drawn on a somewhat larger scale. Fig. 4 is a detail view of one end of the reservoir and one supply-tube on the same, and Fig. 5 is a detail view of a guide-socket.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the base of my improved bottle-filling machine, which is preferably made of wood or other suitable material.

B B are upright pillars which are supported in flanged sockets *b*, that are attached to the base A by a number of fastening-screws. To the upper end of the pillars B are applied vertically-adjustable sleeves C, which are fitted at the outside of the pillars with lugs and clamping-screws and provided at the inside with disks C', each of which is screw-threaded and provided with a screw-threaded shoulder C², as shown clearly in Fig. 4. A cylindrical reservoir D, of sheet metal, is screwed onto the shoulder portions C² of the disks C' and firmly held in position by means of screw-rings D', that are screwed to the disks C', as shown in Fig. 4. The sleeves C permit the adjustment of the reservoir D on the upright pillars B to correspond to the size of the bottles to be filled. The liquids—such as catsup, sauces, and similar badly-flowing liquids—to be filled in the bottles G are supplied from an overhead tank through a suitable hose to a branch pipe C², provided with a stop-cock C³, as shown in Fig. 1.

The lower end of the reservoir D is provided with a plurality of tapped holes into which are screwed guide-sockets *m*, provided with a milled portion, so as to be easily removable for cleaning and repairing. In the guide-sockets *m* are placed supply-tubes T, which are provided at their upper ends with a rimmed top *t*, that fits on an interior shoulder *n* of the socket, as shown clearly in Figs. 2

and 5. To the lower part of the supply-tube T is applied an annular collar *e*, between which and an exterior shoulder *p* of the guide-socket is interposed a helical spring *s*, that
 5 has a tendency to keep the rimmed top *t* pressed against the shoulder *n*. The upper end of the supply-tube is provided with openings *o* of sufficient size to permit the free ingress of the liquid or semiliquid to the interior of the supply-tube T.
 10

The lower ends of the pillars B are connected by transverse flat bars F F', one of which, F', is vertically placed and supported on rearwardly-extending brackets *f*, attached to the
 15 pillars B, and serves as a fulcrum for a number of weighted levers *g*. The levers *g* are provided with platforms P at their front ends and with weights *g'* at their rear ends, as shown clearly in Figs. 1 and 3. The other
 20 bar, F, is horizontally arranged and serves for supporting the platforms when the same rest thereon with their filled bottles.

The levers *g* are preferably supported on knife-edges formed in the vertical bar F' and
 25 retained by suitable keepers in position thereon, as shown clearly in Fig. 3. The platforms P are provided with leather facings *h* and a vertical rim *h'* at their rear part, so as to permit the noiseless placing in position of the
 30 bottles to be filled on the platforms and at the same time prevent slipping of the bottles. The weights *g'* of the platform-levers *g* are adjustable, so as to counterbalance the bottle and the quantity of liquid to be filled in
 35 the same, so that each bottle receives the same predetermined amount of liquid. When the liquid is filled in bottles of different sizes, the weights *g'* have to be adjusted in their proper position by filling a trial bottle to the required
 40 height and then placing it on the platform and adjusting the weights until the same balance properly the weight of the bottle and the liquid in the same. The platforms P are provided with center lugs *l*, pivoted by pin *i* to
 45 the front ends of the counterbalanced levers *g*. Around the center lugs *l* are placed helical springs S', between the under side of the platform P and the pivots, so that as soon as the bottle is removed the platform is tilted
 50 in forward direction, as shown in Fig. 2. Instead of this arrangement the platform P may be provided with a rod *r*, which passes downwardly through an opening *r'* in the lever *g*, around which rod the spring S' may be
 55 placed, so as to tilt the platform when the bottle is removed, as shown in Fig. 3. When the bottle is placed on the platform, the bottle abutting against the rim *h'* moves the platform in horizontal position, whereupon
 60 connection is made with the supply-reservoir and the filling operation begun.

My improved bottle-filling machine is operated as follows: One bottle after the other is placed in position on the platform by first
 65 placing the mouth of the bottle on the lower end of the supply-tube and simultaneously moving the bottom of the bottle on to the

platform in backward direction, as shown in dotted lines in Fig. 2. As soon as the platform is in horizontal position the operator
 70 releases his hold on the bottle, whereby the weight of the lever raises the empty bottle and forces the same against the collar of the supply-tube. The supply-tube is thereby raised, and the liquid enters the same by the
 75 openings and passes into the bottle. As soon as the bottle is filled to the required height the weight of the bottle plus the weight of the liquid in the same lowers the counterbalanced platform and simultaneously by
 80 the pressure of the spring acting on the collar of the supply-tube closes the supply-valve, so that no liquid can pass from the reservoir through the supply-tube. The filled bottle is then removed by taking hold of the
 85 lower part of the same, so as to keep the platform in its lower position, which permits the final removal of the bottle from the lower end of the supply-tube without any opening of the valve. One bottle after the other after
 90 being filled is thus removed and replaced by a new bottle, which being raised by the counterbalanced platform opens the valve so as to produce the automatic supply of liquid to the same.
 95

The advantages of my improved bottle-filling machine are that the opening and closing of the valves of the supply-tubes takes place automatically as the empty bottles are placed
 100 in position or filled bottles removed, so that the quick and reliable filling of the bottles with a predetermined quantity of semiliquid is obtained, whereby the bottles are immediately ready for corking without any further manipulation of the same.
 105

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A bottle-filling machine, comprising a reservoir, means for supplying liquid to said
 110 reservoir, bottle-filling devices connected with said reservoir, counterbalanced levers, a platform pivoted to each of said levers, and means for tilting each platform relatively to its lever when the bottle has been removed,
 115 substantially as set forth.

2. A bottle-filling machine, comprising a reservoir, means for supplying liquid to said
 120 reservoir, bottle-filling devices connected with said reservoir, a plurality of counterbalanced levers, a platform pivoted to each of said levers, a transverse supporting-bar for supporting each platform when in its lowest position, and means for tilting each platform relatively to its lever when the bottle has been
 251 removed therefrom, substantially as set forth.

3. A bottle-filling machine, comprising a reservoir, means for supplying liquid to said
 130 reservoir, bottle-filling devices connected with said reservoir, means for vertically adjusting the reservoir with the bottle-filling devices, a plurality of counterbalanced levers, a platform on said levers, and means interposed between the platforms and levers for

tilting the platforms after the bottles have been removed from the same, substantially as set forth.

4. A bottle-filling machine, consisting of a reservoir for the liquid, means for supplying liquid to said reservoir, a plurality of guide-sockets at the lower part of said reservoir, valved and spring-actuated supply-tubes in said guide-sockets, and adapted to be inserted into the bottle-necks, fulcrumed and counterbalanced levers, platforms pivoted to said levers, and means interposed between the platforms and levers for tilting the platforms after the bottles have been removed therefrom, substantially as set forth.

5. In a bottle-filling machine, the combination, of a lever, a platform on said lever, means for counterbalancing the weight of the platform and bottle thereon, and means for tilting the platform relatively to the lever when the bottle has been removed, substantially as set forth.

6. In a bottle-filling machine, the combination, with a base-plate, of upright pillars supported on the same, a transverse bar between said pillars, a bar back of said transverse bar, counterbalanced levers fulcrumed to said rear bar, platforms located above the front

bar and pivoted to the ends of the levers, and springs interposed between the under side of the platforms and the counterbalanced levers, for tilting the platforms when the bottle is removed from the same, substantially as set forth.

7. In a bottle-filling machine, the combination, with a base-plate, of upright pillars supported on the same, a transverse bar supported by rearwardly-extending brackets of said pillars, levers fulcrumed to said bar, and provided with adjustable weights at one end, a plurality of platforms, a rim on one side of each platform, a lug on the lower side of each platform pivoted to the free ends of the levers, springs interposed between the platforms and levers, and a transverse bar between said pillars for supporting the platforms when in their lowest position, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GERRIT NORTON.

Witnesses:

PAUL GOEPEL,
C. P. GOEPEL.