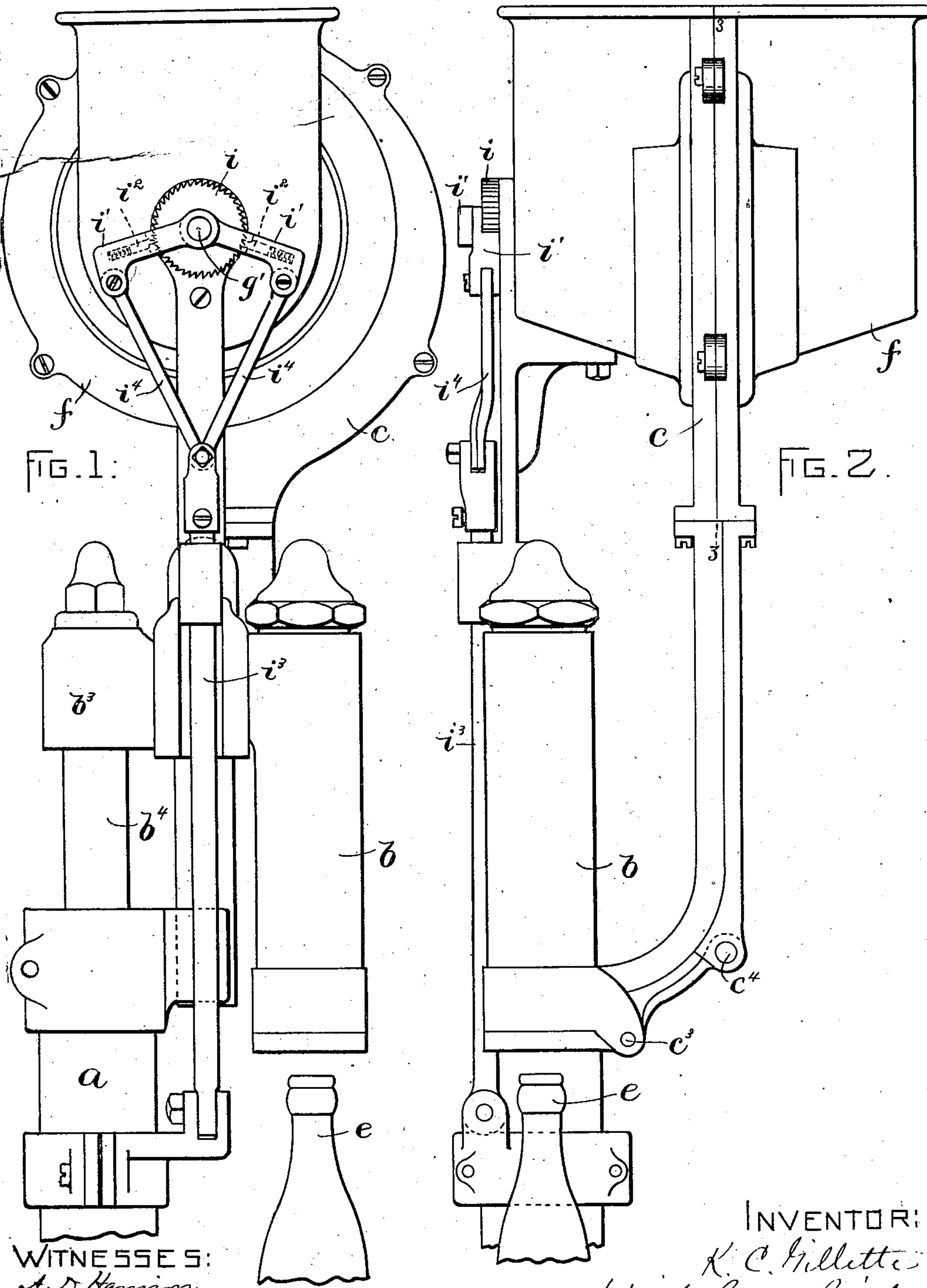


K. C. GILLETTE.

MACHINE FOR FEEDING CROWN BOTTLE STOPPERS.

No. 592,584.

Patented Oct. 26, 1897.



WITNESSES:

A. D. Harrison.

A. D. Adams

INVENTOR:

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Atty.

(No Model.)

2 Sheets—Sheet 2.

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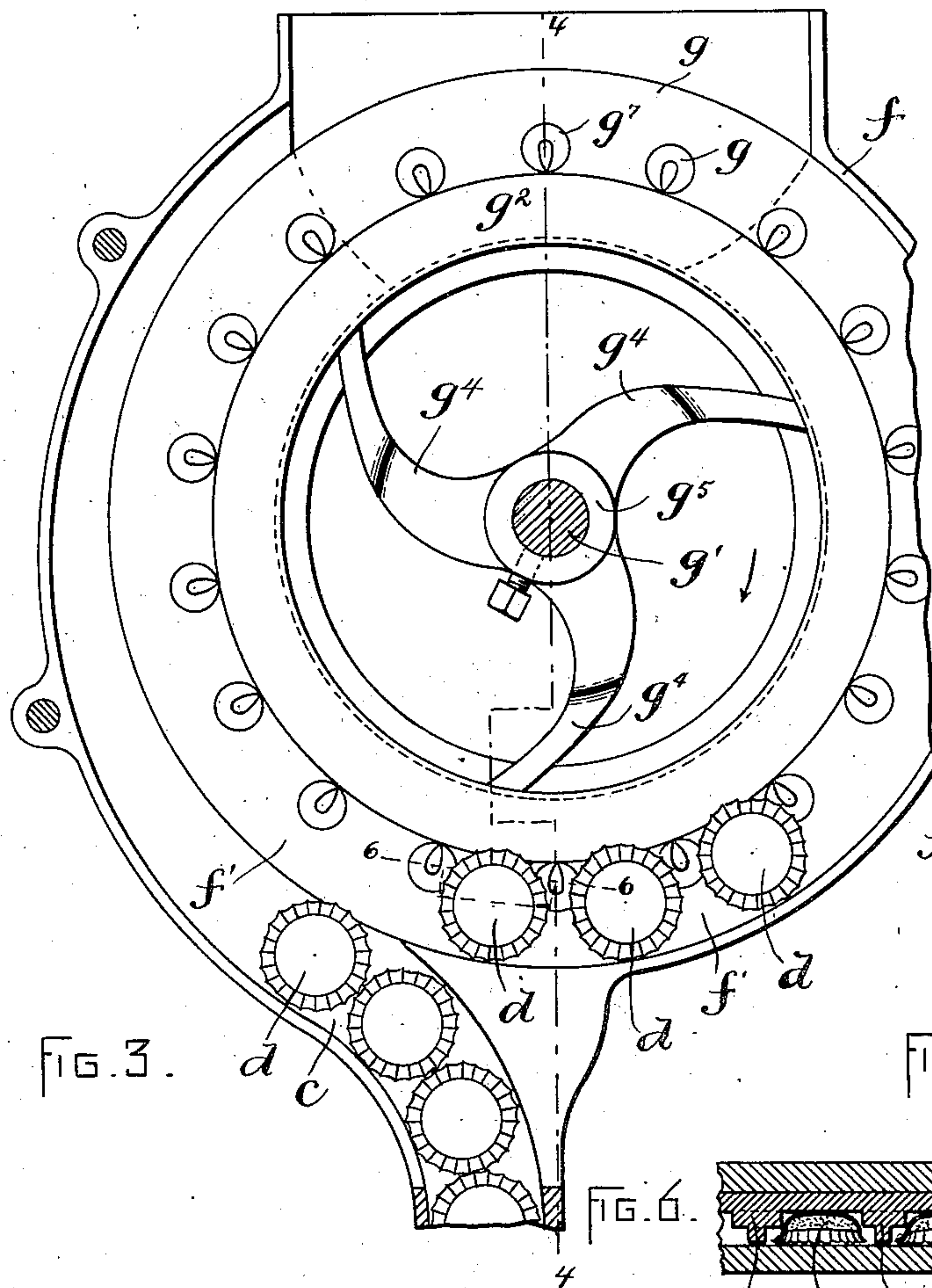


FIG. 3.

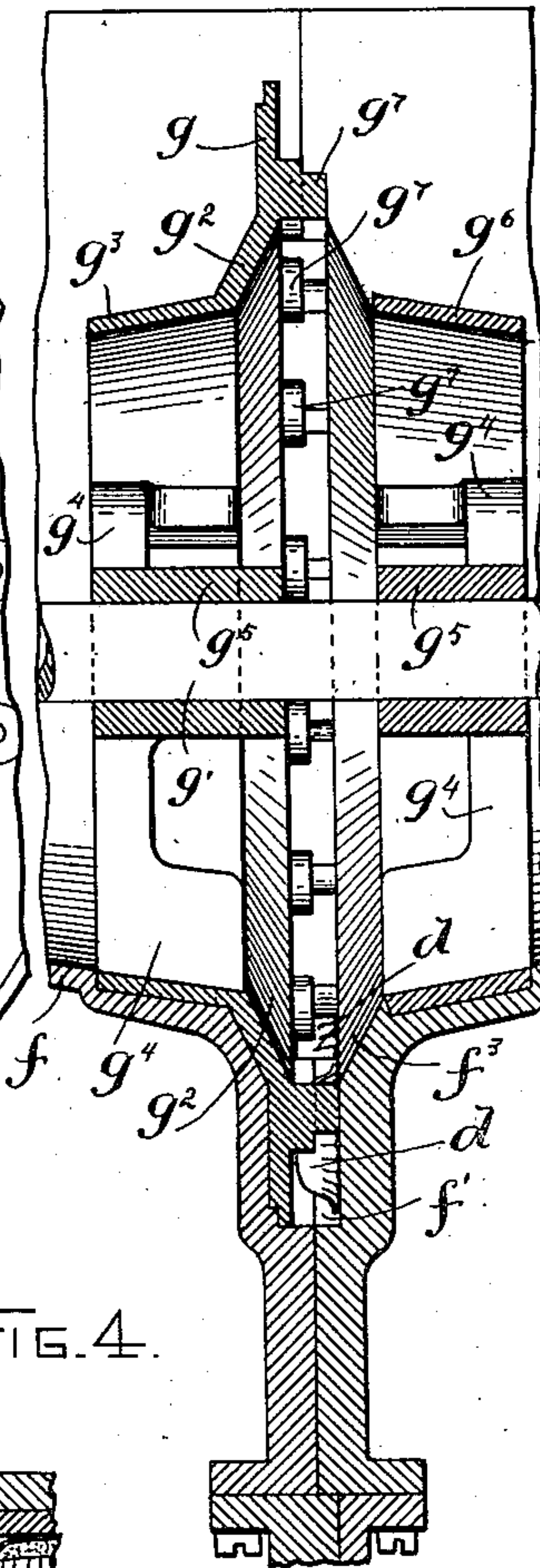


FIG. 4.

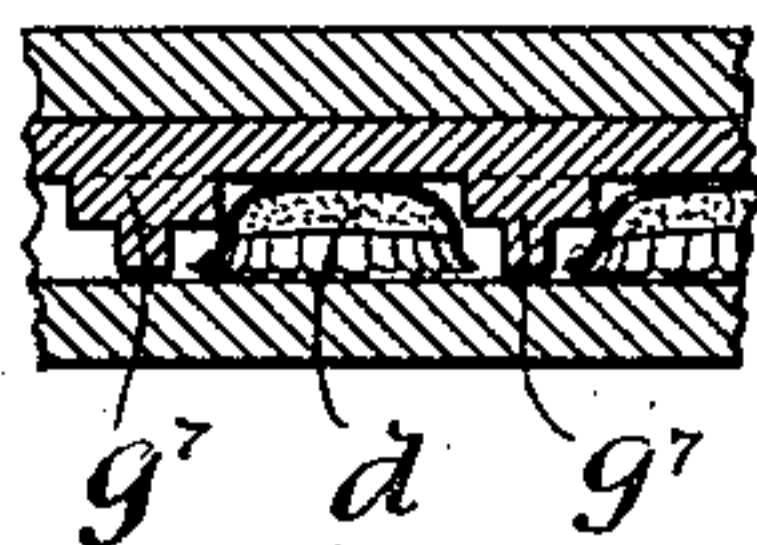


FIG. 6.

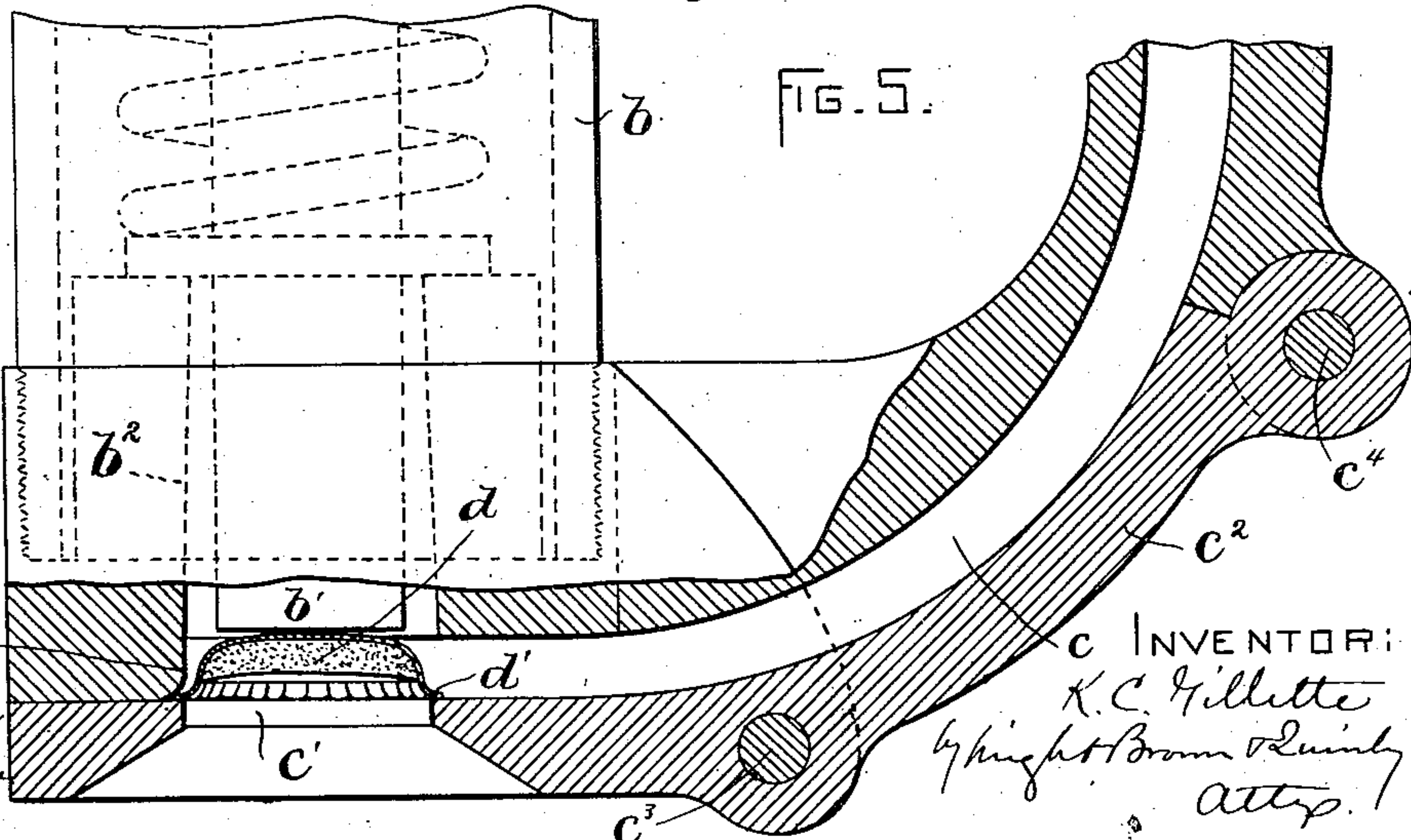


FIG. 5.

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

KING C. GILLETTE, OF NEWTON, MASSACHUSETTS.

## MACHINE FOR FEEDING CROWN BOTTLE-STOPPERS.

SPECIFICATION forming part of Letters Patent No. 592,584, dated October 26, 1897.

Application filed April 8, 1896. Serial No. 586,683. (No model.)

*To all whom it may concern:*

Be it known that I, KING C. GILLETTE, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Feeding Crown Bottle-Stoppers, of which the following is a specification.

This invention relates to mechanism for feeding crown bottle-stoppers from a reservoir or hopper where they are assembled promiscuously to the devices which affix the stoppers to the necks of bottles, each stopper being composed of a cap of sheet metal having a crimped or corrugated flange and a disk of cork or similar material contained in the recessed side of the cap, the corrugated flange of the cap projecting below the cork disk and being adapted to be crimped or closed inwardly, and thus engaged with a shoulder on the neck of the bottle.

The invention has for its object to provide means whereby crown bottle-stoppers may be readily supplied in proper position from a reservoir to the point where they are acted upon by the attaching devices.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a portion of a crown-bottle-stopper-attaching machine provided with my improved crown-feeding mechanism. Fig. 2 represents an edge view of the construction shown in Fig. 1. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents a section on line 4 4 of Fig. 3. Fig. 5 represents a view on a larger scale, showing a portion of the chute which supplies the stoppers to the stopper-attaching mechanism. Fig. 6 represents a sectional view taken on the line 6 6 of Fig. 3.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents a fixed tubular supporting-standard, on which is fitted to reciprocate vertically a head or carrier *b*<sup>3</sup>, which is reciprocated by a rod *b*<sup>4</sup>, connected with a treadle or other mechanism. (Not shown.) To the head *b*<sup>3</sup> is affixed a casing *b*, containing a spring-pressed plunger *b*<sup>1</sup>, which is arranged over the point to which

crown bottle-stoppers *d* are fed by the mechanism of my invention, hereinafter described.

*c* represents a chute which is affixed to and is vertically movable with the casing *b* and is arranged to conduct the stoppers *d* by gravitation from the hopper or reservoir, hereinafter described, the chute having a closed end or stop *c*<sup>6</sup>, arranged to arrest the foremost stopper in the chute when said stopper is directly under the plunger *b*<sup>1</sup>, as shown in Fig. 5. In the bottom of the chute, under the plunger *b*<sup>1</sup>, is an aperture *c*<sup>7</sup> of smaller diameter than the flange *d*<sup>7</sup> of the stopper, said aperture receiving the neck of the bottle *e* when the casing *b* and the plunger thereon are forced downwardly to press the stopper against the neck of the bottle, the stopper being first arrested by the bottle and then acted on by a contracted throat *b*<sup>2</sup> in the casing *b*, said throat bending the flange *d*<sup>7</sup> downwardly and engaging it with a shoulder on the bottle-neck.

A crown-stopper-attaching machine comprising the reciprocating casing having the contracted flange-bending throat and the yielding plunger is now in general use, the crowns being inserted in the casing by hand. My invention relates, therefore, to the chute *c* and mechanism cooperating therewith, as hereinafter described, for feeding stoppers to the casing *b* automatically and by gravitation.

*f* represents a hopper or reservoir which is attached to the upper end of the chute *c* and is adapted to contain a mass of stoppers *d*. Said reservoir is preferably of the general form represented in Figs. 1 and 2, it having a rounded bottom portion which is inclined downwardly from the ends of the hopper to the central portion, where the hopper communicates with the chute *c*, as shown in Figs. 2 and 4, this arrangement being preferred because the inclination of the bottom of the hopper thus provided causes the stoppers placed in the hopper to gravitate from all parts of the hopper toward the receiving end of the chute. The hopper is provided with a marginal recess or cavity *f*<sup>1</sup>, which is formed to contain a series of stoppers *d*, placed edgewise in the manner indicated in Figs. 3 and 4, the width of the recess being sufficient to enable it to contain one stopper at any given point.

*g* represents an annular stopper-feeding



flange or ring which is rigidly connected in any suitable way with a driving-shaft  $g'$ , journaled in bearings in the hopper  $f$ , said flange entering the recess  $f'$  and being in close proximity to one side thereof, there being a stopper-receiving space between the flange and the opposite side of the recess  $f'$ . As here shown, the flange  $g$  is connected by means of an inclined web  $g^2$  with an annular wheel-rim  $g^3$ , connected by arms  $g^4$  with a hub  $g^5$ , affixed to the shaft  $g'$ . A similar annular rim  $g^6$  is affixed to the shaft by means of arms  $g^4$  and a hub  $g^5$  at the opposite side of the recess from the rim  $g^3$ , said rims  $g^3$  and  $g^6$  being separated from each other by a space which permits the stoppers to fall readily from the lower portion of the hopper into the recess  $f'$ . The inclined web  $g^2$  cooperates with an inclined face  $f^3$ , formed on the interior of the hopper, in guiding the stoppers into the recess  $f'$ , the said web  $g^2$  and face  $f^3$  forming a flaring throat or mouth communicating with the recess  $f'$ , as shown in Fig. 4. The annular rims  $g^3$  and  $g^6$  and the arms  $g^4$ , that connect them with the hubs affixed to the shaft  $g'$ , constitute stirring or agitating devices which prevent the stoppers from being clogged at the central portion of the hopper, the spaces or passages formed by said rims and arms being sufficiently large to permit the stoppers to pass freely from the outer portions of the hopper to the recess  $f'$ .

The flange  $g$  is provided with a series of projections  $g^7$ , which extend across the recess  $f'$  and are separated from each other by spaces, each of which is formed to receive a crown  $d$  when the latter is in the position shown in Figs. 4 and 6, said projections preventing the admission of crowns into the recess  $f$  in any other position, so that the stoppers that enter said recess all face in one direction. The projections  $g^7$  may be of any suitable form adapted to produce this result.

The chute  $c$  communicates with the lower portion of the recess  $f'$ , as shown in Fig. 3, and receives the stoppers therefrom, the stoppers being fed to the mouth of the chute by the step-by-step rotation of the flange  $g$  in the direction indicated by the arrow in Fig. 3, said rotation being imparted by suitable mechanism connected with the shaft  $g'$ . In the present case I have shown a ratchet  $i$  affixed to the shaft  $g'$ , arms  $i'$   $i'$  mounted to oscillate upon said shaft and provided with pawls  $i^2$   $i^2$ , which engage said ratchet, a rod  $i^3$ , which is pivoted at  $i^3$  to an ear affixed to the standard  $a$ , and links  $i^4$   $i^4$ , connecting said rod with the arms  $i'$ , the arms being oscillated by the reciprocating motion of the head  $b^3$ , the rod having no vertical motion.

The operation is as follows: The downward movement of the head  $b^3$ , which causes the attachment of a crown to a bottle held below the casing  $b$ , and the succeeding upward movement of said head, which elevates the said casing above the point where the next bottle is to be placed, are imparted to the chute  $c$

and hopper  $f$ , the shaft  $g$  and the agitating and feeding devices connected therewith being thus rotated step by step, so that the stoppers are caused to enter the recess  $f'$ , are properly positioned thereon, and are fed one by one into the chute, down which they pass by gravitation to the point where they are presented to the bottles. It will be seen that by mounting the hopper and chute on the reciprocating head the chute is enabled to deliver the stoppers by gravitation alone, no mechanism being required to transfer the stoppers from the chute to the attaching mechanism. Hence the machine is materially simplified and its operation made much more reliable than in mechanisms of this character heretofore used.

There is a liability of clogging, for the clearance of which it is necessary to have access to the lower end of the chute. For this purpose there has been heretofore devised a removable section of the lower end of the casing containing an opening for the neck of the bottle and a chamber for the crown or cap in communication with the chute, said section being independent in construction of the chute and being screwed onto the lower end of the plunger-casing. This could not be readily removed and when turned on again, after removing, must be adjusted to register accurately with the path of the stoppers or crowns in the chute. To avoid these objections and to facilitate the opening and closing, I have made the casing extension and crown-chamber a part of the chute and have jointed the lower end of the chute, so that the entire end, containing the casing extension and crown-chamber, can be swung down away from the casing, leaving the whole open for the clearance of any clogging.

In the drawings, referring particularly to Fig. 5, the casing for the plunger is shown at  $b$ . It is joined to the chute, the lower end of which is shown on the right-hand side of the figure. Within the chute is the curved channel thereof. This extends without interruption underneath the casing  $b$  and under the plunger, and the end of it forms the chamber in which the crown rests when in proper position for the operation of the machine. The movable section of the chute is shown at  $c^2$ . It is jointed to the fixed portion of the chute at  $c^1$  and extends down and underneath the part of the chute which is connected to the casing closing upon it, the opening in the movable part  $c^2$  being adapted to receive the neck of the bottle. Thus the movable part of the chute forms the lower wall of the chute-passage, and when it is swung down both the passage and the chamber in which the crown rests are exposed to view and may be cleared of any obstruction. The movable part is held in place, when raised, by a pin  $c^3$ , which passes through downwardly-extending ears on the fixed part, the position of these ears being shown in dotted lines in Fig. 5.

I do not limit myself to the details of



mechanism here shown and may variously modify the same without departing from the spirit of my invention and may adapt the machine for feeding stoppers or other devices of different form from that here shown.

I claim—

1. In a machine of the character specified, the combination of a reciprocating head carrying a plunger to apply the stoppers; a chute affixed to said head and arranged to deliver stoppers to said plunger by gravitation, the said-chute reciprocating with the plunger; a stopper-reservoir communicating with said chute; and means for adjusting stoppers in the reservoir and feeding them to the chute.

2. A machine of the character specified comprising a hopper having a marginal stopper-receiving recess; a chute communicating with said recess; and a rotary feeding-flange projecting into the recess and provided with spacing projections formed and arranged to cause the entrance of the stoppers into said recess in a predetermined position.

3. A machine of the character specified, comprising a hopper having a marginal stopper-receiving recess and flaring walls leading into the same; an annular rim fitting the interior of the hopper and having a flaring flange adapted to one of the flaring walls of the hopper and also provided beyond said flaring flange with a feeding-flange occupying the marginal recess and provided with spacing projections; a shaft journaled in the hop-

per and carrying the said rim, and a chute leading out of the marginal recess of the hopper.

4. A machine of the character specified, comprising a hopper having a marginal stopper-receiving recess, a chute communicating with said recess, a rotary feeding-flange projecting into the recess and provided with spacing projections, a rotary shaft journaled in the hopper, annular rims located at opposite sides of the said recess, one of said rims carrying the feeding-flange, and arms secured to the shaft and to said rims, the rims being separated by a throat or opening coinciding with the recess.

5. In combination, a casing and a plunger therein, a feeding-chute connected with the casing and adapted to convey the crown or cap to its position beneath the plunger, and a movable section of said chute jointed to the fixed part, extending under the case and provided with an opening for the bottle, and arranged when moved away from the fixed part to open the channel, all substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 3d day of 60 April, A. D. 1896.

KING C. GILLETTE.

Witnesses:

A. E. GILLETTE,  
C. F. BROWN.