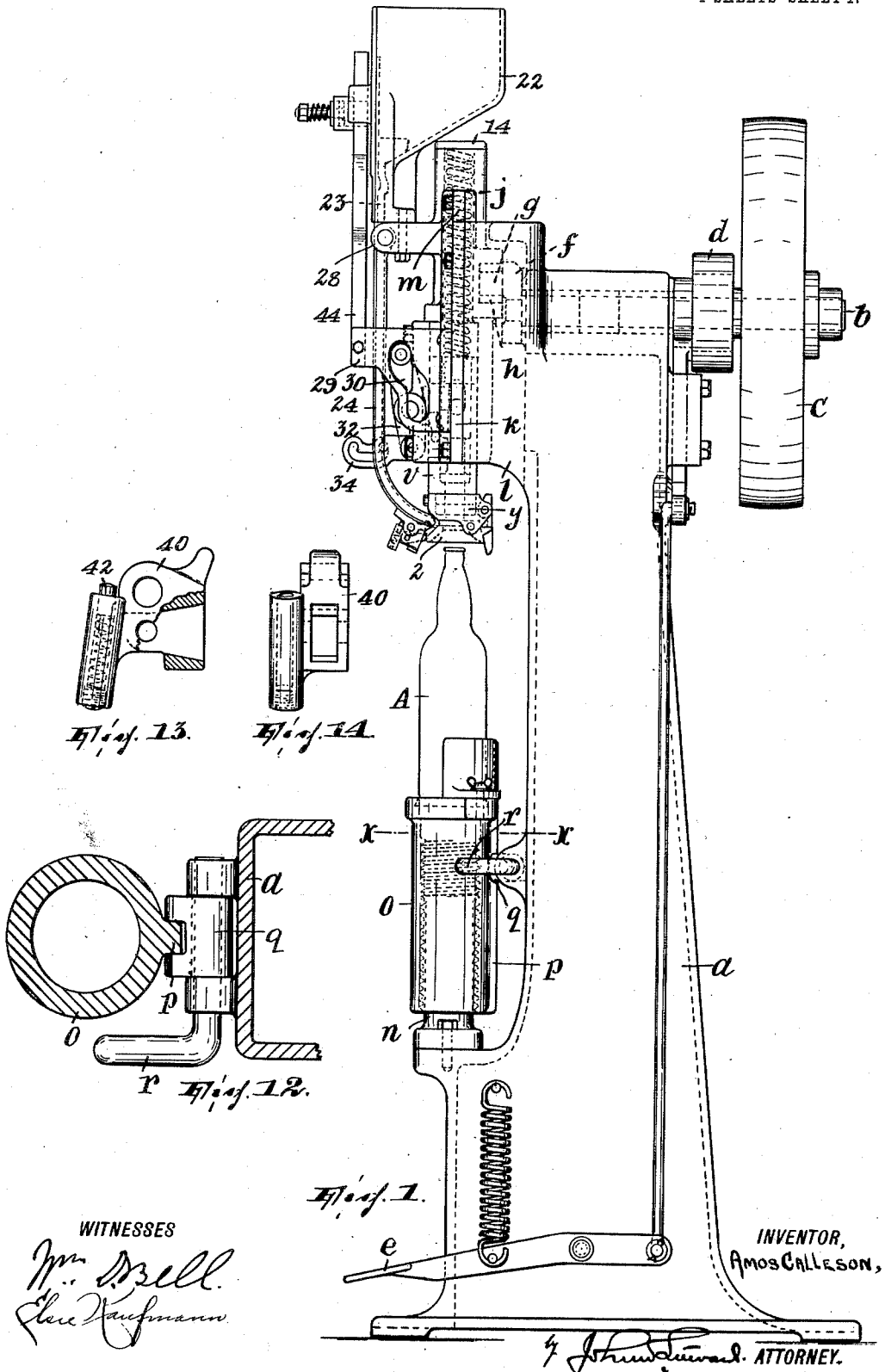


A. CALLESON.  
 BOTTLE SEALING MACHINE.  
 APPLICATION FILED JAN. 24, 1912.

1,078,607.

Patented Nov. 18, 1913.

4 SHEETS—SHEET 1.



WITNESSES  
*Wm. Bell*  
*Elise Kaufmann*

INVENTOR,  
 Amos CALLESON,

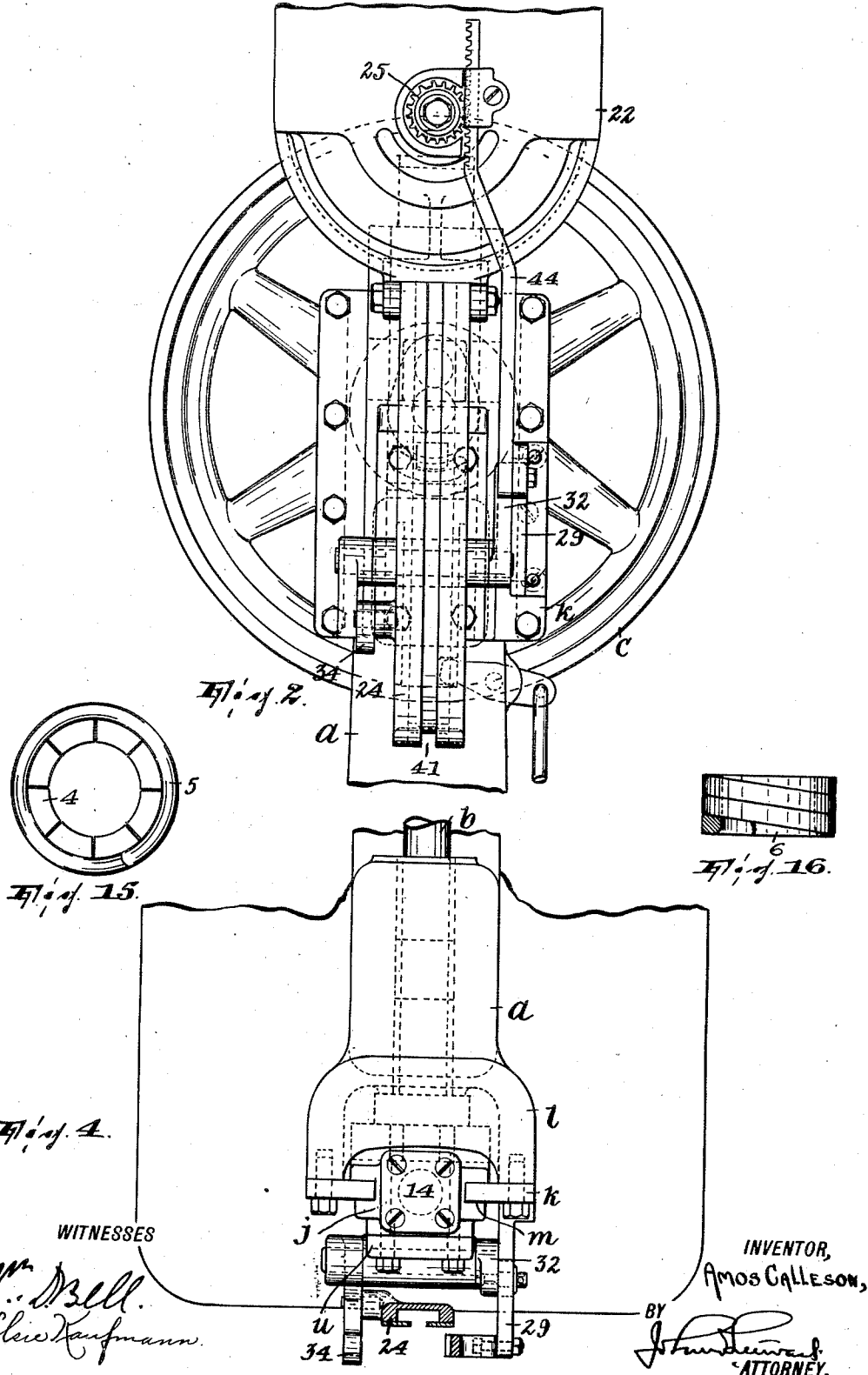
*John Edward* ATTORNEY.

A. CALLESON.  
 BOTTLE SEALING MACHINE.  
 APPLICATION FILED JAN. 24, 1912.

1,078,607.

Patented Nov. 18, 1913.

4 SHEETS—SHEET 2.



WITNESSES  
*Wm. Bell.*  
*Chas. Kaufmann.*

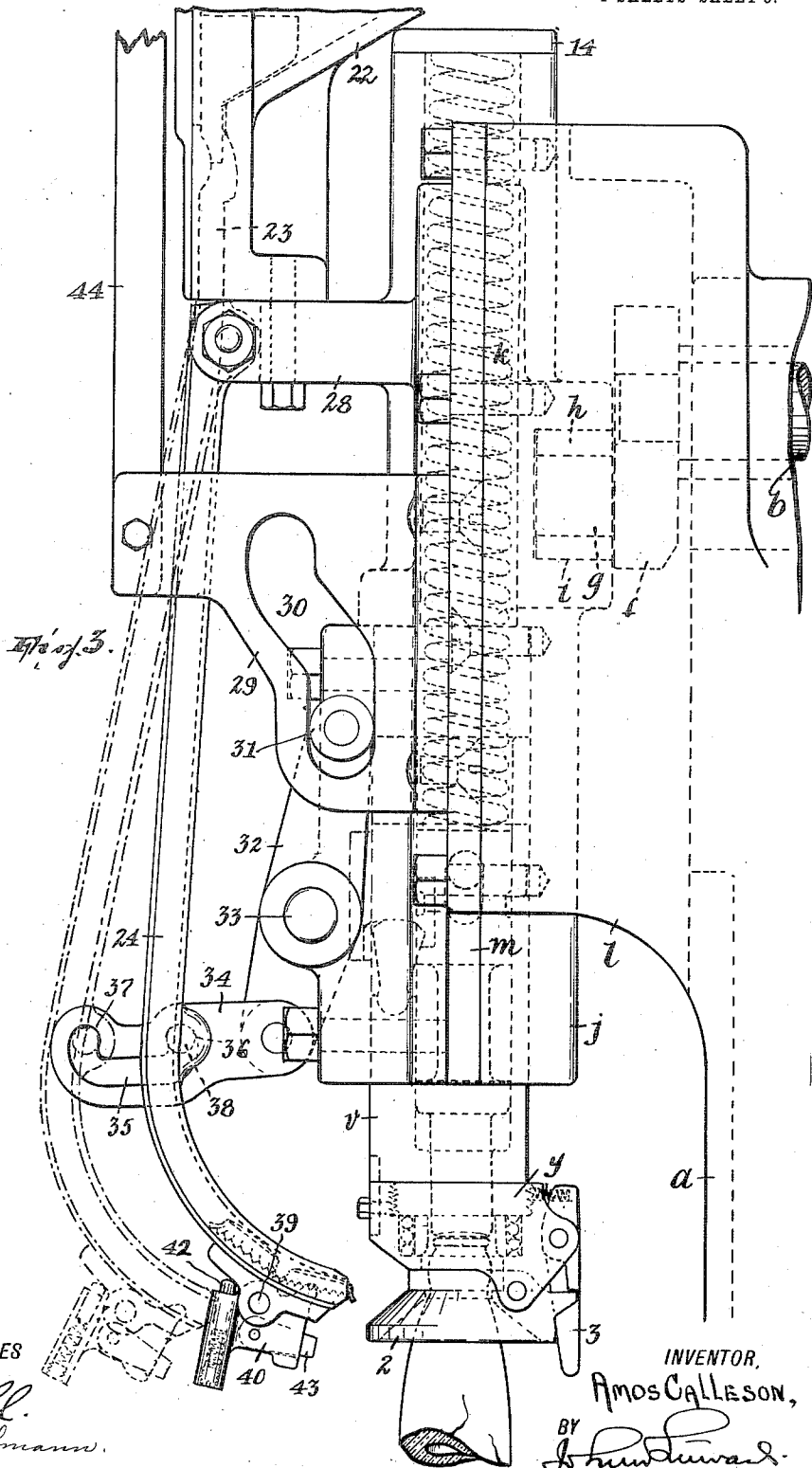
INVENTOR,  
 AMOS CALLESON,  
 BY *John Howard*  
 ATTORNEY.

A. CALLESON.  
 BOTTLE SEALING MACHINE.  
 APPLICATION FILED JAN. 24, 1912.

1,078,607.

Patented Nov. 18, 1913.

4 SHEETS—SHEET 3.



WITNESSES  
*Wm. Bell.*  
*Chas. Kaufmann.*

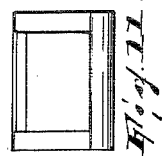
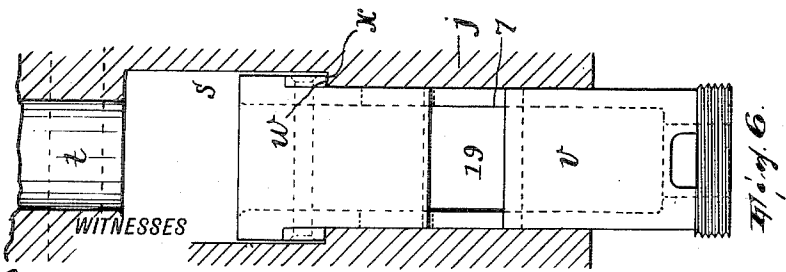
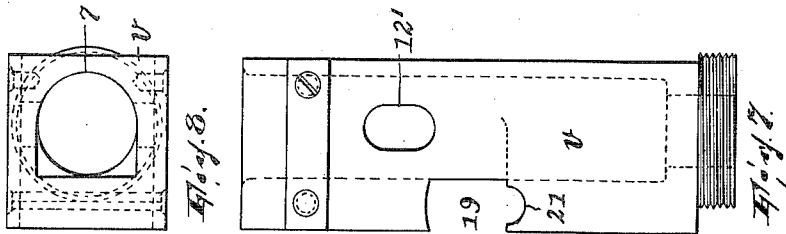
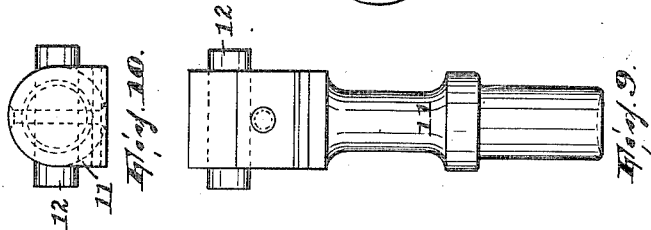
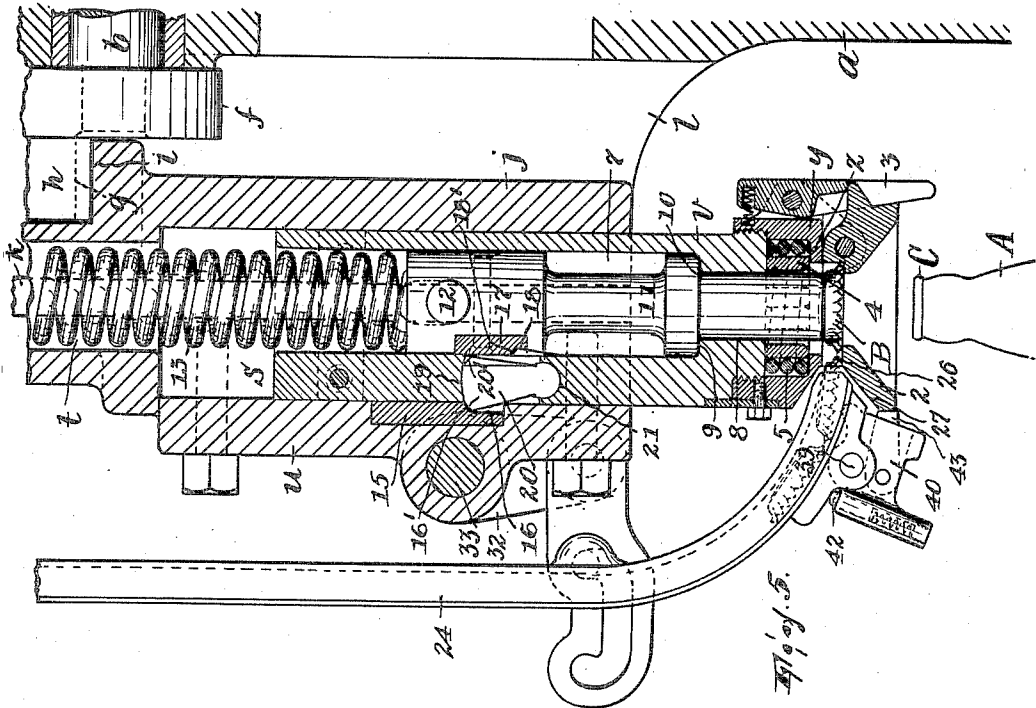
INVENTOR,  
 AMOS CALLESON,  
 BY *J. H. ...*  
 ATTORNEY

A. CALLESON.  
 BOTTLE SEALING MACHINE.  
 APPLICATION FILED JAN. 24, 1912.

1,078,607.

Patented Nov. 18, 1913.

4 SHEETS—SHEET 4.



WITNESSES  
*Wm. Dell*  
*Chas Kaufmann*

INVENTOR,  
 AMOS CALLESON.  
 BY *Andrew A. ...*  
 ATTORNEY.

# UNITED STATES PATENT OFFICE.

AMOS CALLESON, OF BROOKLYN, NEW YORK, ASSIGNOR TO BENJAMIN ADRIANCE, OF  
BROOKLYN, NEW YORK.

## BOTTLE-SEALING MACHINE.

1,078,607.

Specification of Letters Patent.

Patented Nov. 18, 1913.

Application filed January 24, 1912. Serial No. 673,170.

*To all whom it may concern:*

Be it known that I, AMOS CALLESON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bottle-Sealing Machines, of which the following is a specification.

This invention relates to bottle sealing machines in which the sealing operation is accomplished by pressure operating on the bottle longitudinally thereof, and particularly to that class of such machines in which the pressure exerting mechanism, during the working stroke, relaxes in operating upon bottles exceeding a predetermined height.

It is one object of this invention to provide a mechanism of this character which, in respect to reliability in operation, simplicity and compactness of construction and strength and durability of its working parts shall constitute an improvement on the known mechanisms of its class.

The invention includes other novel features, salient among which are the improved means for feeding the closures to the sealing point; an improved type of sealing throat; such a construction and arrangement of the parts of a sealing mechanism and closure feeding means as to secure their proper coöperation, under a condition of movement of one relatively to the other; and means whereby the bottle support may be adjusted to sustain the bottle at the necessary average elevation.

In the accompanying drawings, Figure 1 is a side elevation of the machine; Fig. 2 a front elevation of the upper portion thereof; Fig. 3 a side elevation of the upper portion thereof, the hopper for the closures being broken away; Fig. 4 a plan view, the hopper being removed and its feeding chute shown in section; Fig. 5 a vertical sectional view of the parts directly involved in the accomplishment of the sealing; Fig. 6 a transverse vertical sectional view of the lower part of the sealing-head-carrying plunger, with the body part of the sealing-head therein appearing in elevation; Figs. 7 and 8 are a side and plan views of said body part of the sealing head; Figs. 9 and 10 front and plan views of the stem controlling the relief of the pressure and serving as an ejector; Fig. 11 a rear eleva-

tion of a detent coactive with said stem; Fig. 12 is a sectional view on line  $x-x$ , Fig. 1; Figs. 13 and 14 views of the detent 40 of the closure feeding means; and, Figs. 15 and 16 a plan and side elevation of two forms of sealing throats.

In the frame or pedestal  $a$  is journaled the drive shaft  $b$  carrying, freely revoluble thereon, the pulley  $c$  and having a clutch  $d$  preferably of such type that when, upon operating a suitable controlling means, including a treadle  $e$ , the clutch locks the shaft to the pulley so as to rotate therewith, such rotation will proceed only through a single revolution of the shaft, being terminated by the automatic action of a suitable clutch-tripping mechanism. Said shaft carries a crank disk  $f$  on whose crank pin  $g$  is arranged a block  $h$  which slides in a horizontal slot  $i$  in a plunger  $j$  moving vertically and guided in such movement by the plates  $k$  (bolted to the head  $l$  of the pedestal) whose edges are received in vertical slots in opposite sides of the plunger.

On the pedestal below and in vertical alinement with the plunger is fixed an externally threaded post  $n$  onto which is screwed the internally threaded bottle support  $o$  having an external vertical rib  $p$  which is received by a fork  $q$  having a handle  $r$  and movable from the horizontal position (Fig. 1) pivotally to a vertical position so as to clear the rib and allow vertical adjustment of the support  $o$  by screwing the same in either direction upon the post.

The lower end of the plunger  $j$  has a chamber  $s$  from which extends upwardly through the plunger a bore  $t$ . The front lower part  $u$  of the plunger is removable, as shown.

The sealing head of the machine includes, with the sealing appliance and other parts, the body part  $v$ , square in horizontal section. This is fitted into the chamber  $s$  (having removed the wall  $u$ ) and has vertical movement therein limited on the one hand by the top of said chamber and on the other hand by the shoulders  $w$  on said part  $v$  impinging against shoulders  $x$  in the chamber (Fig. 6.) The lower end of the body part  $v$  has screwed onto it the throat holder  $y$ , the throat (or sealing appliance) being supported within it upon its inwardly projecting flange or lip  $z$  (Fig. 5). The throat holder carries, pivoted to it, the usual flaring

mouthpiece 2 which is normally retained in its horizontal or working position by the latch 3.

It is preferred to employ a throat or sealing appliance of a type adapted to adjust itself to cross-sectional variations in the shape of bottle heads entered thereinto. In Figs. 5 and 15 such a throat is shown consisting of segments 4 embraced by a spiral spring 5. In Fig. 16 the throat is simply a spiral spring 6 having its coils close together and each square in cross-section to give a smooth interior.

The body part *v* of the sealing head is penetrated by a vertical bore 7 which is reduced, at 8, at the lower end thereof, forming a shoulder 9. On this shoulder rests normally the shoulder 10 of a stem 11 having trunnions 12 received by opposite slots 12' in the part *v* (and thereby held against turning), and pressed downwardly by a spiral spring 13 interposed between the top of the stem and a cap-plate 14 secured on the top of plunger *j*. This spring therefore normally maintains the stem and body part *v* at their lowest limits of movement, the former in the body part and the latter in the plunger. In the inner face of the wall *u* is fitted a hardened plate 15 having a recess 16 in its inner face shaped at its upper end to form an inclined shoulder 16'. In the adjacent face of the stem 11 at a somewhat lower point in the rest position of the stem is fitted another such plate 17 having a recess 18 shaped at its upper end to form an inclined shoulder 18'. The front wall of the body part *v* has an aperture 19 occupied by a detent 20, of hardened material, which is pivotally seated in a recess 21 at the bottom of said aperture and which at its upper end is thicker than the said wall by just so much that when the recesses of the hardened pieces 16 and 17 are directly opposite each other said detent might be rocked so as to clear either the one or the other of the shoulders 16' and 18'. At the points 20' the detent has surfaces which are inclined at the same angle as said shoulders. In the idle position of the parts (Fig. 5) the detent engages shoulder 16' and so locks body part *v* against elevation, being held in that position by the hardened plate 17 of the stem; when the stem rises until the recess of its plate registers with the detent, upward pressure on body part *v* will cause the detent to wipe off of the shoulder 16' and enter the recess of plate 17, and on the return of the parts the shoulder 18' will wipe against the detent and rock it back into the recess of plate 15.

A is the bottle, and B a closure of the so-called "crown" type.

Describing now the operation of the mechanism so far described: When the plunger *j*, affording a thrust-assuming member for the container-thrust-assuming member con-

stituted by the sealing-head, is depressed, the spring-pressed stem 11 first impinges upon and thus presses the closure down upon the bottle mouth, and then the throat of the sealing-head, now positively locked to the plunger by detent 20, comes to bear upon the flange of the closure and turns each of its component parts downwardly, thus contracting the closure and forcing its indentations into locking engagement with the lip C of the bottle, the throat receiving the contracted closure. During this part of the movement of the interlocked plunger and sealing-head, the stem, yielding to the resistance offered by the bottle, stands substantially stationary. If the bottle exceeds a certain height the sealing-head will be depressed, relatively to the stem, sufficiently to bring the detent opposite recess 18. The detent is normally impelled, due to opposing pressures exerted thereon by the plunger and sealing-head (once the latter bears upon the container) taken with the inclining of the coacting surfaces 16' and 20', to move into position to release the sealing-head, being opposed as to such movement by its controlling member (stem 11) until the recess 18 is opposite the detent. When this latter relation of the parts is accomplished, therefore, the detent is wiped by the plunger into unlocking or releasing position, so that the plunger continues any further downward movement alone. On the plunger rising, the pressure of spring 13 on the stem, taken with the inclining of the co-acting surfaces 18' and 20', effects the shifting of the detent into the initial or locking position as soon as the recess 16 again comes opposite the detent, the stem clearing the sealed bottle from the throat. If the bottle is of less height than that indicated, the recess 18 will stand below the lowest limit of movement of the detent. The sealing will therefore in this case be effected without release of the sealing-head from the plunger.

Involved in the use of this apparatus is the advantage that, aside from the pressure of spring 13 (which is sufficient simply to produce a hermetic contact between the soft lining of the closure and the bottle mouth and hold the closure properly seated during sealing), the compression strain to which the bottle is subjected is precisely proportioned to the resistance of the closure to change in its shape in order to accomplish sealing, being further eliminated after sealing has been accomplished. Thus, so far as strain on the bottle is concerned, in place of all bottles being subjected to a pressure which is calculated to overcome the maximum resistance of closures to bending, the strain is in each case only what is needed to accomplish such bending. The extent to which the sealing head yields after the sealing is accomplished may vary according to the

height of the bottle; thus compensation for variations in bottle heights is afforded. Because of the ability of the sealing head to yield the sealing throat may be only just so high as effectually to accomplish the sealing without the closed bottle head passing clear through the throat (necessitating some expedient thereupon to clear it from the throat) and permitting bottles to be operated upon having necks too thick below the mouth to enter the throat a distance appreciable for compensation.

The machine is provided with a hopper 22 carried by the plunger *j* (and therefore moving therewith) and through whose discharge outlet 23 the closures are fed to the chute 24, being made to enter said outlet in properly facing disposition by means, not shown, actuated by the oscillating spur wheel 25. The chute discharges the closures through an aperture 26 in the side of the mouth piece 2 (Fig. 5), and in view of the described vertical movement of the sealing head in the plunger and the fact that it is preferable to have the discharge end of the chute at the moment when a closure leaves the same as close to the ultimate resting position of the closure in the sealing head as possible, requiring a cavity 27 to be formed in the side of parts of the sealing head for the reception of the discharge end of the chute, the chute is made to recede out of such cavity during the up and down movement of the sealing head. Therefore, at its upper end, the chute is pivoted on the brackets 28 and is swung back and forth on its pivot as follows: A fixed cam plate 29 is secured to one of the plates *k* and in the cam slot 30 thereof plays a roller 31 on one end of a lever 32 fulcrumed at 33 in the plunger and having pivotally attached to its other end a latch 34 having a horizontal slot 35 with recesses 36 and 37 at the ends thereof. The chute has a laterally projecting pin 38 received by the recess 36, the interlocking of the latch and chute being preserved by the weight of the latch. As the plunger rises and falls, carrying with it the hopper and chute, the chute swings back and forth, being made to clear the cavity 27 at the moment when the sealing head is released and recedes into the plunger with the bottle. When the pin 38 is made to engage in recess 37 the chute will be locked back temporarily out of coacting relation to the sealing head.

Pivoted to the lower end of the chute, at 39, is a detent 40 for the closures; at one side of its fulcrum 39 it enters the slot 41 of the chute so as to bear against the underside of a closure (thus holding the same against advance under the pressure of those behind it), said detent being held in that position by a spring-pressed pawl 42, at the other side of its fulcrum, bearing against the chute. When the chute swings in to its feeding po-

sition the detent is tripped so as to release the closure held thereby and allow it to be advanced into the sealing head by the pressure of those behind it. This tripping is preferably accomplished through the medium of a dog 43 pivoted in the detent and engageable with the mouth-piece, shifting slightly upwardly on its pivot when, after the inception of the impact, the chute continues some further inward movement.

Attached to the plate 29 is a rack 44 which engages with the spur-wheel 25 so that when the hopper moves with the plunger the mechanism in the hopper operated by the rotation of the plunger will be kept in motion.

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

1. A sealing mechanism including, in combination, a container-thrust-assuming member movable thrustwise and having means to receive the impact of the container, another thrust-assuming member, a detent interlocking said members together and opposing thrust-movement of the first member relatively to the second member, said detent being movable, and normally impelled, into unlocking relation to said members, and a container-actuated controlling member normally opposing but movable to allow unlocking movement of the detent and also having means to receive the impact of the container, substantially as described.

2. A sealing mechanism including, in combination, a container-thrust-assuming and sealing member movable thrustwise, another thrust-assuming member, a detent interlocking said members together and opposing thrust-movement of the first member relatively to the second member, said detent being movable, and normally impelled, into unlocking relation to said members, and a container-actuated controlling member normally opposing but movable to allow unlocking movement of the detent, substantially as described.

3. In combination, a container-thrust-assuming member movable thrustwise, a controlling member movable thrustwise substantially longitudinally of the thrust-line of the first member, another thrust-assuming member, a detent movable in the first member crosswise of said thrust-line into opposed relation to one and unopposed relation to the other of the second and third members and vice versa, said detent and the second member having co-engageable surfaces one of which is oblique to the thrust-line and said detent and the third member having co-engageable surfaces one of which is likewise oblique to said thrust-line and said oblique surfaces being disposed at an angle to each other, substantially as described.

4. In combination, a thrust-assuming

member, a container-thrust-assuming member movable thrustwise in the first member and having a bore extending longitudinally of its thrust-line, a controlling member arranged and movable longitudinally in and guided by said bore, and a detent movable in the second member crosswise of said thrust-line into opposed relation to the first member and unopposed relation to the controlling member and vice versa, said detent and said first member having co-engageable surfaces one of which is oblique to the thrust-line and said detent and the third member having co-engageable surfaces one of which is likewise oblique to said thrust-line and said oblique surfaces being disposed at an angle to each other, substantially as described.

5. In combination, a container-thrust-assuming member movable thrustwise, another thrust-assuming member, a detent movable in the first member crosswise of its thrust-line into opposed relation to the second member, said detent and second member having co-engageable surfaces one of which is oblique to said thrust line, and a controlling member having wiping contact with and holding the detent in opposed relation to said second member and movable independently of the first member longitudinally of the thrust-line out of holding relation to said detent, substantially as described.

6. A throat for a bottle sealing apparatus consisting of a piece of yielding material wound spirally around the axis of the throat, substantially as described.

7. A throat for a bottle sealing apparatus consisting of a piece of elastic material wound spirally around the axis of the throat, substantially as described.

8. A throat for a bottle sealing apparatus including a seal-contracting member consisting of a piece of yielding material wound spirally around the axis of the throat, substantially as described.

9. A throat for a bottle sealing apparatus including a seal-contracting member consisting of a piece of elastic material wound spirally around the axis of the throat, substantially as described.

10. In combination, a supporting structure, a sealing-head-including member movable therein, a closure-feeding member movable in said structure toward and from the first member, a cam-device on said structure, and mechanism, operatively connecting said members and engaging the cam-device, for transmitting movement to the second member on movement of the first member, substantially as described.

11. In combination, a threaded post, a bottle supporting member having screw-thread engagement with and rotative on the

post, the frame, and a locking device pivoted on a horizontal axis in the frame, said member and the locking device having projections and one of said projections being recessed and receiving the other, substantially as described.

12. In combination, with the frame, cooperative means for bringing the body and closure parts into assembled relation with each other, one of said means being movable toward and from the other and having, yieldable therein from the other means, a device to receive and carry the closure parts, and said movable means having, movable therein into and out of closure-transferring relation to said device, a closure-feeding chute, and means for moving said chute on movement of said movable means, substantially as described.

13. In combination, with the frame, cooperative means for bringing the body and closure parts into assembled relation with each other, one of said means being movable toward and from the other and having, yieldable therein from the other means, a device to receive and carry the closure parts, and said movable means having, movable therein into and out of closure-transferring relation to said device, a closure-feeding chute, and means, including a part fixed against movement with the movable means, for moving said chute on movement of said movable means, substantially as described.

14. Pressure exerting means for forcing a bottle and its closure into sealing relation to each other, the same having a yielding sealing head, in combination with a movable closure feeding chute having its discharge end arranged in closure-transferring relation to the sealing head and means, controlled by the pressure exerting means, for moving the chute out of transferring relation to the sealing head on the pressure stroke of the pressure exerting means, substantially as described.

15. The combination, with means to subject the bottle and closure to sealing pressure including a sealing head, of a closure-delivering chute having its discharge end in closure-transferring relation to said head, said head being yieldable out of closure-receiving relation to the discharge end of the chute, and means, actuated from the first means, for checking the feed of closures through the chute during the pressure stroke of said first means, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

AMOS CALLESON.

Witnesses:

LOUIS F. STUMPF,  
E. CRONENUTS.