

No. 725,531.

PATENTED APR. 14, 1903.

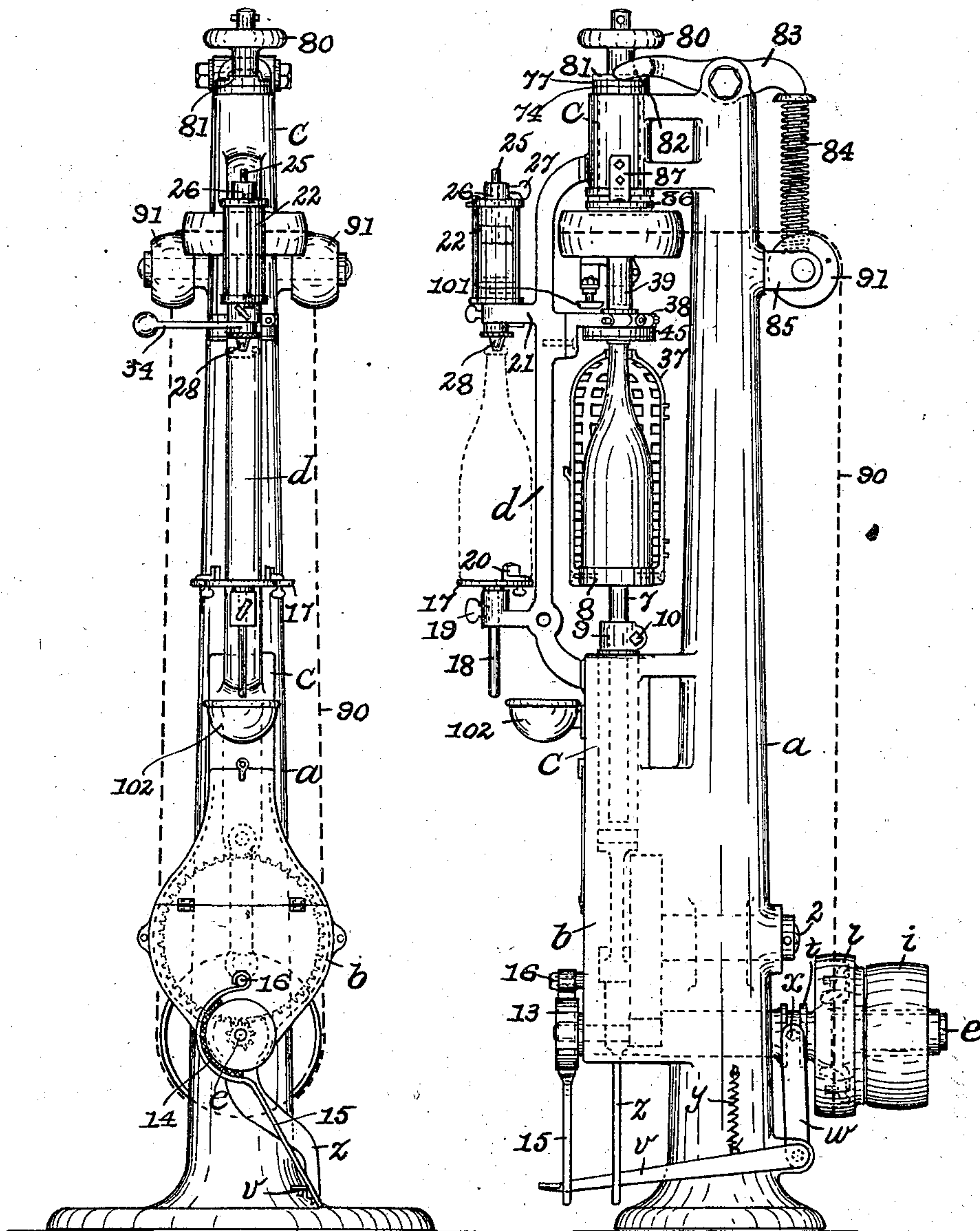
B. ADRIANCE & A. CALLESON.

CARBONATING APPARATUS.

APPLICATION FILED APR. 4, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES: *Fig. 1.*

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Fig. 2.

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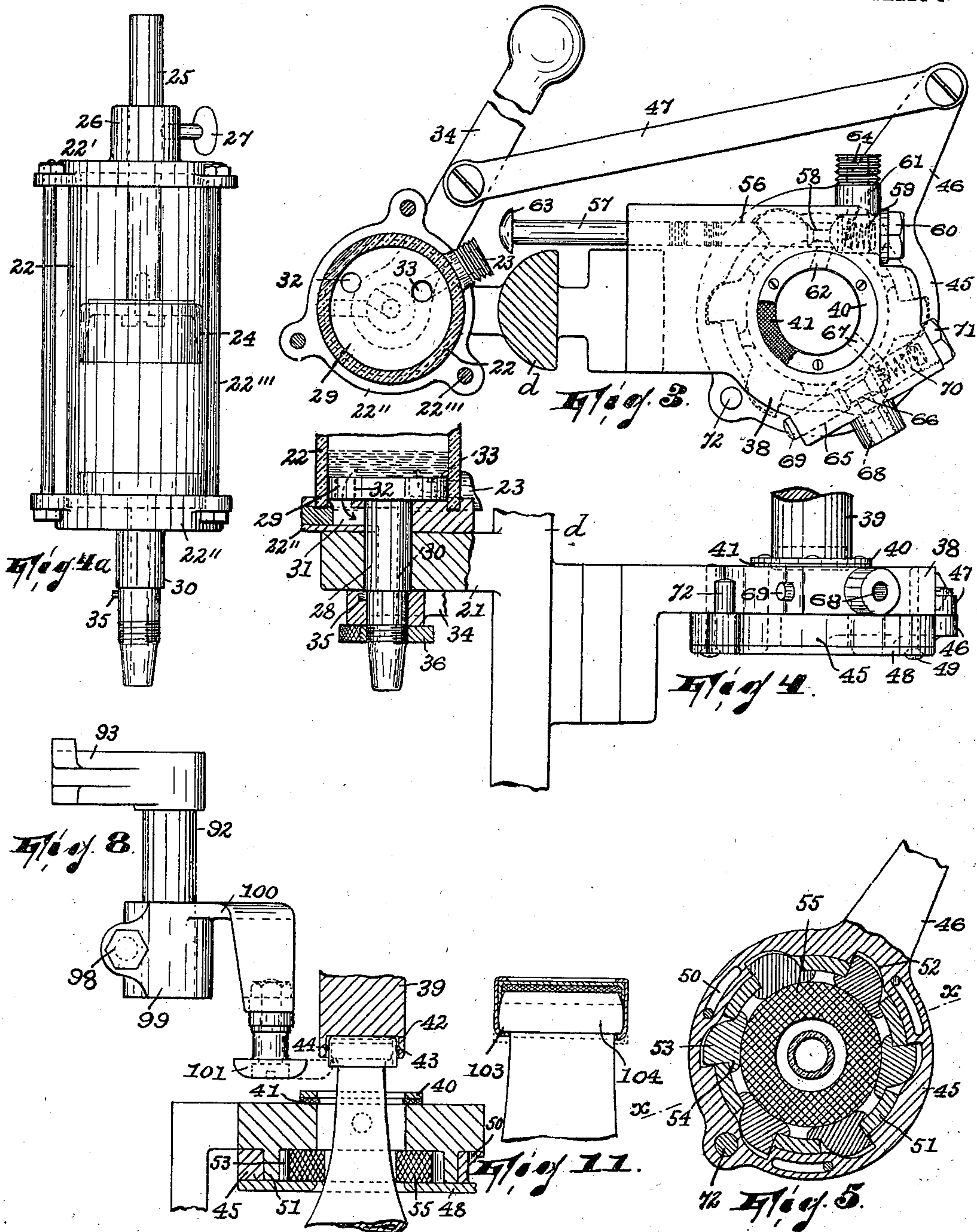
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NO MODEL.

3 SHEETS—SHEET 2.



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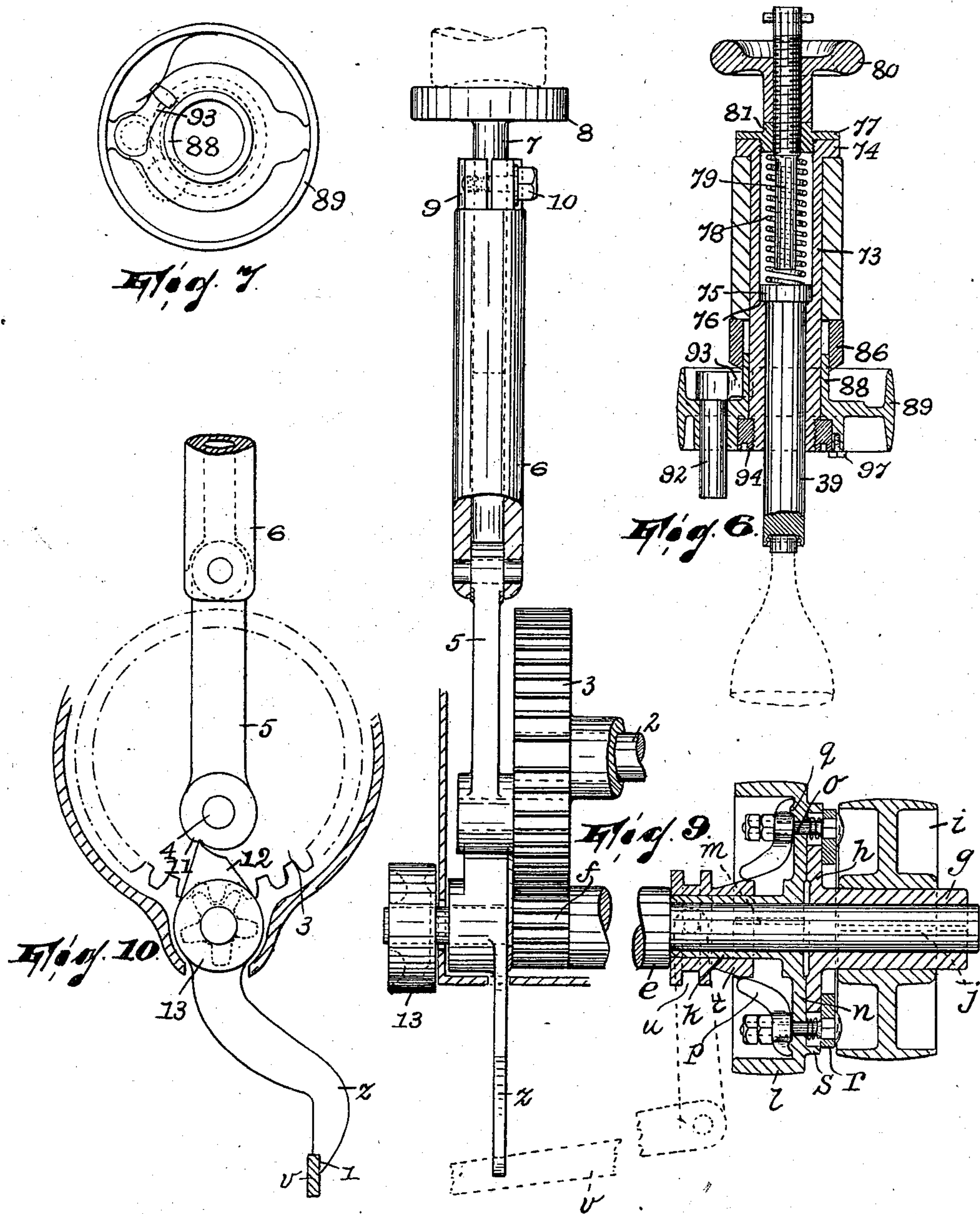
B. ADRIANCE & A. CALLESON.

CARBONATING APPARATUS.

APPLICATION FILED APR. 4, 1902.

NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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

CARBONATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 725,531, dated April 14, 1903.

Application filed April 4, 1902. Serial No. 101,341. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN ADRIANCE and AMOS CALLESON, citizens of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Carbonating Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for bottling liquids, and it has reference particularly to apparatus for bottling carbonated beverages.

In general features of construction and operation the apparatus which constitutes the subject-matter of our present invention is patterned after the bottling-machines which have been patented to William Painter, reference being particularly had to the machine set forth in his United States Letters Patent No. 608,158. In several respects, however, our machine involves material and even radical variations from Painter's machines and indeed from any other machines in this art. In this connection we call attention to what we believe are the principal differences between our apparatus and those heretofore known: first, in that in our machine the device for effecting the dispensing of the syrup or flavoring material involves the employment of a compressible fluid, such as air, as an element adapted to coact with others to gage or measure off the syrup and also as a medium for precipitously expelling the syrup from the receptacle or container portion of such dispensing device upon the release thereof; second, in that in the mechanism whereby a certain elastic sealing-ring or gasket is compressed about the neck of the bottle being operated upon, so as to form with said bottle and certain other parts a hermetically-closed chamber, the said gasket or sealing-ring is acted upon at its periphery by means which exerts pressure on the gasket toward its axial line; third, in that the mechanism is so arranged that the closure-affixing operation is

performed at a point outside of what has been termed in the art the "sealing-head," and, fourth, in that the admission of the carbonating material is adapted to be effected by a special contrivance operative manually independently of the main controlling lever or handle, so that the filling of the bottle may be the more perfectly and nicely effected. These and other differences between our invention and others kindred to it and belonging to the prior art will be hereinafter particularly set forth in the light of the accompanying drawings, in which—

Figure 1 is a view in front elevation of the improved apparatus. Fig. 2 is a side view of said apparatus. Figs. 3, 4, 4^a, and 5 show in detail that particular portion of the mechanism which has for its functions the introducing of the syrup, the introducing of the carbonating material, and the operation of "snifting"—releasing the air from the bottle as the liquids fill the bottle, displacing the air. Fig. 6 is a view, partly in section and partly in elevation, of that detail of the apparatus which consists in the mechanism for capping the bottles, a portion of such mechanism being removed. Fig. 7 is a top plan view of the cap-affixing portion of the mechanism shown in Fig. 6. Fig. 8 is an enlarged detail view of the capping mechanism, showing particularly the cap-affixing device and the relative positions of the sealing-head and the parts directly acting on the cap during the affixing operation, the sealing-head appearing as in section on the line *xx* in Fig. 5. Fig. 9 is a view, partly in side elevation and partly in section, of the mechanism whereby the bottle and cap are assembled. Fig. 10 is a front view of what is seen in Fig. 9; and Fig. 11 shows a bottle-head with the completed cap in position thereon, the cap being shown in section.

The various movable parts of the apparatus are carried by a pedestal *a*, having its lower portion formed as a casing *b* and having formed integral therewith aligned vertical bearings *c*, which are connected by a vertical bracket *d*. Penetrating the pedestal in the lower portion of the casing *b* thereof is a revoluble shaft *e*, both ends of which protrude from the pedestal and are reduced, the body portion thereof being formed with gear-

teeth, as at *f*. The rear reduced end of the shaft carries a sleeve *g*, whose inner end is formed with an annular flange *h*. This sleeve is loose upon the shaft and carries a pulley *i*, which is keyed thereto, as at *j*. Between the sleeve *g* and the body portion of the shaft is arranged the sleeve-like hub *k* of another pulley *l*, this pulley being likewise keyed on the shaft, as at *m*. The web portion *n* of the pulley *l* is penetrated by several bolts *o*, carrying each a dog *p*, which is adapted at one end to take its fulcrum on a bead *q*, formed on the inner face of said web, while its other end (the end which is the nearest to the shaft) projects toward the shaft and inwardly at an angle slightly acute with reference to the adjacent portion of the shaft. The head portions of the bolts carry a clamping-ring *r*, which they penetrate, said ring being adapted to take against the outer edge portion of the flange *h* of sleeve *g* and also against a flange *s*, formed on the outer face of the web of the pulley *l*. On the sleeve *k* of the pulley *l* is arranged a cone *t*, formed with an annular channel *u*. This cone projects between the several dogs *p* and is adapted when moved axially and inwardly on the shaft to force the inner ends of said dogs outwardly, thus effecting a pull in the same direction on the bolts *o*.

In view of the foregoing description, it being remarked that the pulley *i* is the one whereby power is taken into the machine from any suitable belt, it will be understood that the mechanism described forms a clutch whereby the shaft *e* may be rotated from the pulley *i* whenever the cone *t* is moved inwardly on the shaft, causing the inner ends of the dogs *p* to spread, and so exert a pull on the bolts *o* that will effect a clamping of the flange *h* of the sleeve *g* (to which the pulley *i* is keyed) between the clamping-ring *r* and the web of the pulley *l*, (which latter is keyed on the shaft.)

v is a bell-crank treadle-lever, whose fork portion *w* carries pins *x*, which engage the channel *u* of the cone *t*, and which lever is fulcrumed near the base of the pedestal *a*. A spring *y* tends to raise the lever, thus forcing the cone outwardly and rendering the dogs and the parts they control idle.

On the front reduced end portion of the shaft *e* is fulcrumed a detent *z*, formed with a notch 1 on its lower end adapted to receive the treadle-lever *v* to hold it depressed, as in Fig. 10.

In the lower portion of the pedestal and above the shaft *e* is arranged a stationary stub-shaft 2, on which is revolubly mounted within the casing a gear 3, which meshes with the toothed portion *f* of the shaft *e*. The gear 3 has a crank-pin 4, to which is connected one end of a pitman 5, whose upper end is pivotally connected to a plunger 6. This plunger is made hollow and receives the vertical stem 7 of a rest 8, the stem carrying a split collar 9, which may be adjustably se-

cured by a bolt 10 on the stem, being adapted to determine the height of the rest. It should be remarked that the plunger 6 slides vertically in the lower bearing *c*. On the lower end of the pitman is formed a projection 11, which at each complete rotation of the gear 3 is adapted to engage a lug 12 on the detent *z* to turn said detent on the shaft *e*, and so trip the treadle-lever *v*. On the front reduced end portion of the shaft *e* is also mounted rigidly a brake-wheel 13. With this brake-wheel engages a shoe 14, formed of leather or other similar material, carried by the curved portion of an elastic lever 15, pivoted to the casing at 16 and having its lower end projecting over the treadle-lever *v*. Whenever the detent releases the treadle-lever, it flies up against the lever 15, causing its shoe to impinge against the brake-wheel.

In the bracket *d* is arranged a rest 17, having its stem 18 secured adjustably in said bracket by a set-screw 19. The rest carries gages 20, adjustable radially thereof. It is adapted to support the bottle while receiving the syrup. Above the rest 17 the arm 21 of the bracket *d* carries a cylindrical vessel 22, preferably composed of transparent glass and having heads 22' and 22'', which are bound together by bolts 22'', said vessel having its lower head provided with a port 23, which may be connected with the supply of syrup by a tube or otherwise. In this vessel is fitted an inverted cup 24, whose annular wall at least is composed of some flexible material, such as rubber or leather, being adapted to snugly fit within the vessel 22. To this cup is fixed the lower end of a gage-rod 25, adjustably secured in the bushing 26 of the head 22' of the vessel by a set-screw 27.

28 is a nozzle projecting through the bottom of the vessel and through the arm 21, in which it is snugly fitted, said nozzle having its upper portion formed as a disk valve 29, which also fits in the vessel 22. The nozzle has the upper end of its port 30 turned off at right angles, being in the plane of a port 31, formed in the bottom head of the vessel 22 and leading into said vessel.

32 and 33 are ports, the former of which penetrates the valve 29 vertically, while the latter affords communication through the valve between the port 23 and the interior of the vessel 22 when said ports register. Respecting ports 30 and 32 it will be noticed that they constitute separate sections of practically a single port, they being adapted to be connected when they are alined with port 31. It should be remarked that the ports 32 and 33 being closer together than the ports 23 and 31 are ports 23 and 33 do not register when ports 31 and 32 register, and vice versa. In view of this arrangement of the ports and of the nature of the cup 24 when the nozzle and valve stand so that ports 31 and 32 register the syrup (which, it should be remarked, is maintained in any suitable container, preferably in such manner as to exert some force upon being permitted to

flow into the vessel) will flow into the vessel in such quantity as the body of air between the inflowing syrup and the cup 24, gaged by rod 25, permits. If the valve and nozzle are then turned, the inflow will be cut off, while the syrup thus measured will be permitted to flow through the nozzle, being quickly ejected therefrom by the body of air which upon the introduction of the syrup into the vessel it compressed.

34 is a lever which is keyed, as at 35, onto the nozzle, being kept in place by a milled nut 36.

After the bottle has received its supply of syrup it is removed by the operative from the rest 17 and placed on the rest 8. This rest carries the usual guard 37, formed in two sections, one of which is removable, (and being removed as shown in the drawings.) This guard prevents the glass of the bottle from flying should any accident cause its breakage. Here the bottle receives its supply of carbonating liquid and is capped.

38 is an annular chamber, which is secured to the bracket *d* and projects inwardly therefrom, forming with certain other parts hereinafter to be described what is called a "sealing-head." Into this sealing-head projects from above a vertically-movable buffer 39, which is sustained and controlled by expedients hereinafter to be particularly referred to. In order that this buffer and the annular chamber 38 may have a tight fit the one within the other, the chamber has secured to it by an annular metallic plate 40 an elastic ring 41, which fits snugly about the buffer. The buffer is formed with a circular recess 42 in its lower end, in a groove 43 in which is set a split ring 44. In preparing to introduce the carbonating liquid and cap the bottle the operative first pushes the cap up through the sealing-head into the recess 42, where it is held by the split ring 44. It may be remarked that the cap preferably used is that shown in Fig. 11, being covered by other United States Letters Patent.

45 is a cam-ring having a radial arm 46, which is connected with the lever 34 by a pitman 47. This ring is secured, so as to turn, to the annular chamber 38 by an annular plate 48, which is in turn secured to the chamber 38 by screws 49, which penetrate slots 50 in the cam-ring. The cam-ring is guided for a true concentric movement by downwardly-projecting lugs 51 of the annular chamber 38. Its cams are formed internally at 52, and with them engages small cam-blocks 53, which project between the lugs 51 and have their inner portions enlarged, as at 54, and bearing against a soft-rubber or other form of elastic and contractile ring 55. By turning the cam-ring the cam-blocks are caused to move inwardly toward the center of the sealing-head, thus contracting the elastic ring 55. The bottle being in place with its neck projecting up into the sealing-head, said elastic ring is caused to fit snugly about it and

press upwardly against the bottom of the chamber 38. Thus by the chamber 38, the buffer 39, the elastic ring 55, and the partially-filled bottle is produced a perfectly-closed space.

The annular chamber 38 is drilled out to form a bore 56, in which is guided the stem 57 of a valve 58, which is connected to and moves with the stem, being held in the position shown in Fig. 3 by a spiral spring 59, disposed between the valve and a removable plug 60. In the position shown in Fig. 3 the valve closes off communication between two ports 61 and 62, which lead from the bore, the one to the atmosphere and the other into the space already mentioned. By pressing the head 63 of the valve-stem 57 communication between said ports through the bore may be established. Onto the threaded portion 64, through which the port 61 extends, may be attached the tube leading to the source of supply of carbonating liquid.

In the annular chamber 38 is formed another bore 65, in which is arranged a valve 66, which controls communication between ports 67 and 68, leading into the bore 65. This valve normally has the end of its stem 69 exposed, being thus held by a spiral spring 70, coiled between the valve and a plug 71. When the cam-ring 45 moves far enough, a pin 72, which it carries, will push against the valve-stem 69, and so move the valve 66, so as to afford communication between the ports 67 and 68.

In the upper bearing *c* is arranged a sleeve 73, having a flange 74 at the top which rests on said bearing. In this sleeve fits the buffer 39, which has its upper end formed with a head 75, which takes against the shoulder 76 in the sleeve to limit the buffer's downward movement. Into the upper end of the sleeve is screwed a bushing 77, between which and the buffer is coiled a spring 78, which presses the buffer downwardly. Into the bushing is screwed a gage 79, the position of which determines the upward movement of the buffer independently of the sleeve. 80 is simply a lock-nut for the threaded gage 79. The top of the bushing 77 is formed with a squared portion 81, which receives the fork 82 of a lever 83, which is fulcrumed in the top of the pedestal and has its forked end pressed downwardly by a spiral spring 84, interposed between the free end of the lever and a bracket 85. Thus even after the buffer engages the gage 79 the resistance to its upward movement will be a yielding one.

86 is a hollow cone having tabs 87, whereby it is secured to the upper bearing *c*. This cone is spaced from the sleeve 73, and between it and the sleeve extends the hub 88 of a pulley 89, arranged to revolve on the sleeve. By means of a belt 90, which extends around the pulley and then up over a pair of pulleys 91, carried by the bracket 85, and then around said pulley 89, the latter is driven. In the pulley is journaled a spindle

92, arranged parallel with the axis of the pulley and carrying at its upper end a finger 93, normally pressed inwardly by a plate-spring 93' on the pulley, but which when the pulley is elevated is forced outwardly by the cone 86. It should be remarked that the pulley is carried by a ring 94, which is screwed onto the lower end of the sleeve 73, the head of a screw 97 limiting the upward movement of the pulley relatively to said ring. On the lower end of the spindle is secured by a bolt 98 the split portion 99 of an arm 100, the arm preferably being made of strong elastic material and having its free end turned downwardly. To the end of the arm is secured a revoluble knurl 101.

102 is a cup or other form of receptacle secured to the pedestal and adapted to receive the supply of caps.

Previously to describing the operation of the machine it should be remarked that two bottles are operated upon in the machine practically at the same time, one receiving the syrup and the other receiving the carbonating material and being capped. They are therefore fed to the machine, advanced from the rest 17 to the rest 8, and delivered from the machine as fast as the operative can work.

A bottle being placed on the rest 17 and another one placed on the rest 8, the latter being already provided with its supply of syrup, the operative draws the lever 34 toward him until the ports 32 and 31 register. Previously to this ports 23 and 33 registered, permitting the syrup to flow into the vessel 22 in a quantity predetermined by the height of the previously-adjusted cup 24. The valve being turned as aforesaid, the syrup flows out of the vessel 22 into the bottle. Referring now to the operation as it affects the other bottle, (on the rest 8,) the movement of the lever 34, above referred to, through the pitman 47 caused the cam-ring 45 to turn. Before the bottle in question is placed on the rest 8, as has been already stated, a cap is introduced into the lower end of the plunger 39. When the bottle is placed in position, moreover, its neck is introduced up into the elastic ring 55. Therefore when the cam-ring is turned by the operative drawing the lever 34 toward him, causing the elastic ring to contract after the manner and by the means already described, a perfectly-closed cavity will be formed by the partially-filled bottle, the elastic ring, the chamber 38, and the plunger 39, as described above. The operative then presses upon the valve-stem 57 to open the valve 58, whereupon the carbonating liquid flows into the bottle. The inflowing liquid tends, of course, to compress the air which is in the bottle, so in order to release the air after permitting the valve 58 to close again the operative draws the lever 34 still farther toward him—that is to say, sufficiently so that the pin 72 engages the stem 69 of and moves the valve 66 to open it. By way of the ports which this valve controls the air escapes. The lever being then

immediately slightly returned sufficiently to permit valve 66 to close, the valve-stem 57 is then again pressed on to open valve 58 and complete the filling of the bottle with the carbonating liquid, whereupon the valve-stem 57 is released. The operative now presses upon treadle-lever *v*, still holding lever 34, so that the consequent actuation of the clutch will cause the pulley *l* to be driven. From the pulley *l* through the shaft *e* its toothed portion *f*, gear 3, pitman 5, and plunger 6 the rest 8 will be elevated, raising the bottle until its mouth is projected into the cap which is being held by the buffer 39. When the bottle is pressed sufficiently against the cap, so that it forms therewith a perfect seal, the lever 34 and the parts it controls may be returned to their original positions; but up to this step of the operation they should not be moved, lest the seal be broken at the junction of the bottle-neck and the elastic ring 55, and the pressure in the bottle thus vitiated. As the bottle is elevated, pushing up the buffer 39, the latter impinges against the lower end of the gage 79, causing said gage, the sleeve to which said gage is connected by the bushing 77, and the pulley 89 and parts it carries, through the ring 94, to rise. As the parts referred to approach their uppermost limit, the pulley and the parts it carries being meantime rotated about the sleeve 73 by the belt 90, the finger 93 on the spindle 92 is forced outwardly by the cone 86, causing the knurl-carrying arm 100 to move inwardly. The knurl, which has been previously adjusted to the proper position, is thus forced into engagement with the cap, spinning its lower edge into the form shown in Fig. 11, where it appears bent around the lower edge 103 of the bottle-head 104. The cap is thus firmly and permanently secured on the bottle, and it will be found practically impossible to remove it except after the manner peculiar to it. When the operative pressed downwardly on the treadle-lever *v*, it was held there by the detent *z*, whose lower end slipped over the top of said treadle-lever and received it in its notch 1. When the operation of capping the bottle is completed, therefore, the projection 11 on the pitman 5 engages the lug 12 on the detent, moving it, and so tripping the treadle-lever and throwing off the clutch. This occurs after the parts which raise the bottle have descended again, and it of course results in power being thrown off the pulley *l* and parts it controls, which are then immediately stopped by the brake 15 being actuated by the rising treadle-lever *v* and caused to impinge against the brake-wheel. The bottle being thus filled with the carbonating material and capped is removed, and the one which was meantime receiving its supply of syrup is advanced to its position to undergo the same operation.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a fluid-dispensing mechanism, of a vessel having valve-controlled inlet and outlet ports disposed near one end thereof, said vessel being otherwise
 5 closed, a flexible cup interposed in said vessel between said ports and the other end of said vessel and having its concave side disposed toward said ports, and a gage-rod secured to said cup and adjustably arranged in
 10 said vessel, said vessel inclosing a fluid body between said cup and the ports, substantially as described.

2. In a liquid-dispensing apparatus, the combination of a hollow structure forming a
 15 receptacle, and a rotary part adapted to control the flow of the liquid through said receptacle, said rotary part having ports one of which is divided to form separate sections and said hollow structure having a port adapt-
 20 ed to connect the sections of said divided port and also having another port adapted to register with the other port of said rotary part, substantially as described.

3. In a liquid-dispensing apparatus, the
 25 combination of a suitable vessel having an inlet-port, and a rotary part comprising a nozzle penetrating one of the walls of said vessel and a valve inclosed in said vessel, said
 30 valve having ports one of which is registerable with said inlet-port and said wall of the vessel having a port with which the other port of said valve and the port of said nozzle are registerable, substantially as described.

4. In a bottle-filling mechanism, the com-
 35 bination of a filling-chamber, a sealing device for forming a sealed connection between said chamber and the bottle to be filled, said chamber having a port leading into its space, a
 40 valve controlling the communication through said port, and a movable part carried by said chamber and controlling both said valve and said sealing device, substantially as described.

5. In a bottle-filling mechanism, the com-
 45 bination of a filling-chamber, a sealing device for forming a sealed connection between said chamber and the bottle to be filled, said chamber having a port leading into its space, a
 50 valve controlling the communication through said port, and a movable part engageable with and controlling both said valve and said sealing device, substantially as described.

6. In a bottle-filling mechanism, the com-
 55 bination of a filling-chamber, an elastic sealing-ring carried by said chamber and adapted to form a sealed connection between said chamber and the bottle to be filled, said chamber having a port leading into its space, a
 60 valve controlling the communication through said port, and a rotary part carried by said chamber and engageable with and adapted to control said valve and the sealing device, substantially as described.

7. In a bottle-filling mechanism, the com-
 65 bination of a syrup-dispensing apparatus, a filling-chamber, a sealing device for forming a sealed connection between said chamber

and the bottle to be filled, said chamber hav-
 ing a port leading into its space, a valve con-
 trolling the communication through said 70
 port, a movable part controlling said valve and the sealing device, and operative connection between said part and the controlling
 device of said syrup-dispensing apparatus, substantially as described. 75

8. In a bottle-filling mechanism, the com-
 bination of a syrup-dispensing apparatus, a
 filling-chamber, said filling-chamber having
 a port leading into its space, a valve con-
 trolling said port, rotary parts, one of said 80
 parts being the controlling member of the dispensing apparatus and the other being adapted to actuate said valve, and operative
 connection between said parts, substantially
 as described. 85

9. In a bottle-filling mechanism, the com-
 bination of a syrup-dispensing apparatus, a
 filling-chamber, a contractile sealing device
 for forming a sealed connection between said
 chamber and the bottle to be filled, rotary 90
 parts, one of said parts being the controlling member of the dispensing apparatus and the other being adapted to control said sealing
 device, and operative connection between
 said parts, substantially as described. 95

10. In a bottle-filling mechanism, the com-
 bination of a syrup-dispensing apparatus hav-
 ing a controlling part, a filling-head or filling-
 chamber having liquid admission and snift-
 ing ports, a valve for the snifting-port, a ro- 100
 tary part carried by said chamber and controlling said valve, and another valve controlling said admission-port and having a
 handle disposed in close proximity to said
 first-named controlling part, substantially as 105
 described.

11. The combination, in a mechanism for
 filling bottles or other containers, of a filling-
 head or filling-chamber, a movable part
 adapted to coact with said filling-head or fill- 110
 ing-chamber and with the bottle to produce a thereby-inclosed space, and a closure-affixing means for the bottle disposed outside of
 said space, said part being adapted to receive
 the thrust of the bottle and to be movable 115
 therewith into operative contiguity to said closure-affixing means, substantially as described.

12. The combination, in a mechanism for
 filling bottles or other containers, of a filling- 120
 head or filling-chamber, a movable closure-receiving part adapted to coact with said filling-head or filling-chamber and with the bot-
 tle to produce a thereby-inclosed space, and
 a closure-affixing means for the bottle dis- 125
 posed outside of said space, said part being adapted to receive the thrust of the bottle and to be movable therewith into operative con-
 tiguity to said closure-affixing means, sub-
 stantially as described. 130

13. The combination, in a mechanism for
 filling bottles or other containers, of a filling-
 head or filling-chamber, a closure-holding
 part movable relatively to said filling-head or

filling-chamber and adapted to coact therewith and with the bottle to form a thereby-inclosed space, a bottle-holding means movable in the direction of movement of said part, and a closure-affixing means for the bottle disposed out of said space, substantially as described.

14. The combination, in a mechanism for filling bottles or other containers, of a filling-head or filling-chamber, a spring-pressed closure-holding part movable relatively to said filling-head or filling-chamber and adapted to coact therewith and with the bottle to form a thereby-inclosed space, a bottle-holding means movable in the direction of movement of said part, means for moving said bottle-holding means toward said part, and a closure-affixing means for the bottle disposed out of said space, substantially as described.

15. In a bottle-capping mechanism, the combination of the bottle-holding means, two structures, one of which is substantially rigid relatively to the other and is provided with a cone, and the other of which is yielding, said other structure comprising a cap-affixing tool, a rotary part carrying said tool, and a cap-holding part, substantially as described.

16. In a bottle-capping mechanism, the combination of the bottle-holding means, two structures, one of which is substantially rigid relatively to the other and is provided with a cone, and the other of which is yielding, said other structure comprising a cap-affixing tool, a rotary part carrying said tool, and a cap-holding part, said cap-holding part being itself yieldingly mounted in said yielding structure, substantially as described.

17. In a bottle-capping mechanism, the combination of a suitable support and the bottle-holding means, of two structures, one of which is substantially rigid relatively to the other and is provided with a cone, and the other of which is yielding, a knurl adapted to spin an annular depression in the cap, and a lever structure carrying said knurl and adapted to be engaged by said cone upon the movement of said yielding structure, said yielding structure comprising a rotary part and said lever structure being mounted in said rotary part, and another part of said yielding structure being adapted to receive the bottle-cap, said bottle-support being movable toward said yielding structure, substantially as described.

18. In a bottle-capping mechanism, the combination of a suitable support, a sleeve movable longitudinally in said support, a cone surrounding said sleeve and carried by said support, a pulley rotatable about said sleeve and movable with the same, a lever structure fulcrumed in said pulley and adapted to engage said cone to be thereby turned on its fulcrum, and a knurl carried by said lever structure, substantially as described.

19. In a bottle-capping mechanism, the combination of a suitable support, a sleeve mov-

able longitudinally in said support, a cone surrounding said sleeve and carried by said support, a pulley rotatable about said sleeve and movable with the same, a lever structure fulcrumed in said pulley and adapted to engage said cone to be thereby turned on its fulcrum, a knurl carried by said lever structure, and a buffer arranged in said sleeve and movable longitudinally thereof, substantially as described.

20. The combination, in a bottle-capping mechanism, of a support for the bottle, means for elevating the support, a substantially rigid part, a cone carried by said part, a yielding structure arranged in said part to move vertically and disposed above said bottle-support, said yielding structure comprising a rotary part, a lever structure carried by said rotary part, one arm of said lever structure being adapted to engage said cone upon the movement of said yielding structure, and a knurl carried by said lever structure and adapted to spin an annular depression in the cap upon being moved thereby against the cap, substantially as described.

21. In a mechanism for filling bottles and other similar containers with fluids, the combination of an annular chamber having a valve-controlled fluid-supply port and a valve-controlled air-release port, a closure for the top of said chamber, a contractile elastic ring in the bottom of said chamber adapted to receive the mouth portion of the container, a cam-ring revolvably mounted on said chamber, cam-lugs interposed between said cam-ring and the contractile ring, and a projection on said cam-ring adapted to actuate the valve for the air-release port, substantially as described.

22. The combination, in a mechanism for filling bottles or other containers, of two parts movable the one relatively to the other, one of said parts being a filling-head or filling-chamber and having an opening leading to the atmosphere and the other of said parts being adapted, by virtue of the relative movement of said parts, to either close or open said opening, substantially as described.

23. The combination, in a mechanism for filling bottles or other containers, of two parts movable the one relatively to the other, one of said parts being a filling-head or filling-chamber and having an opening leading to the atmosphere and the other of said parts being adapted, by virtue of the relative movement of said parts, to either close or open said opening and being also adapted to receive the impact of the bottle-closure during the closing operation, substantially as described.

24. The combination, in a mechanism for filling bottles, of a filling-head or filling-chamber, a movable part adapted to coact with said filling-head or filling-chamber and with the bottle to produce a thereby-inclosed space, and a closure-affixing means for the bottle disposed outside of said space, said part being adapted

to receive the thrust of the bottle while the closure is being affixed and said part and the affixing means having a relative movement the one toward the other, substantially as described. 15

5 25. In a bottle-filling and closure-affixing apparatus, the combination of a filling-head or filling-chamber, a closure-affixing mechanism disposed at a point somewhat removed
10 from said filling-head or filling-chamber, and means for moving the bottle to be filled from the filling-head to the closure-affixing means,

said closure-affixing mechanism comprising a part engageable and movable with the bottle, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 31st day of March, 1902.

BENJAMIN ADRIANCE.
AMOS CALLESON.

Witnesses:

F. G. PITCHER,
WILLIAM J. HOWIE.