

M. P. HEDDY.
BOTTLING MACHINE.

No. 519,060.

Patented May 1, 1894.

Fig. 1.

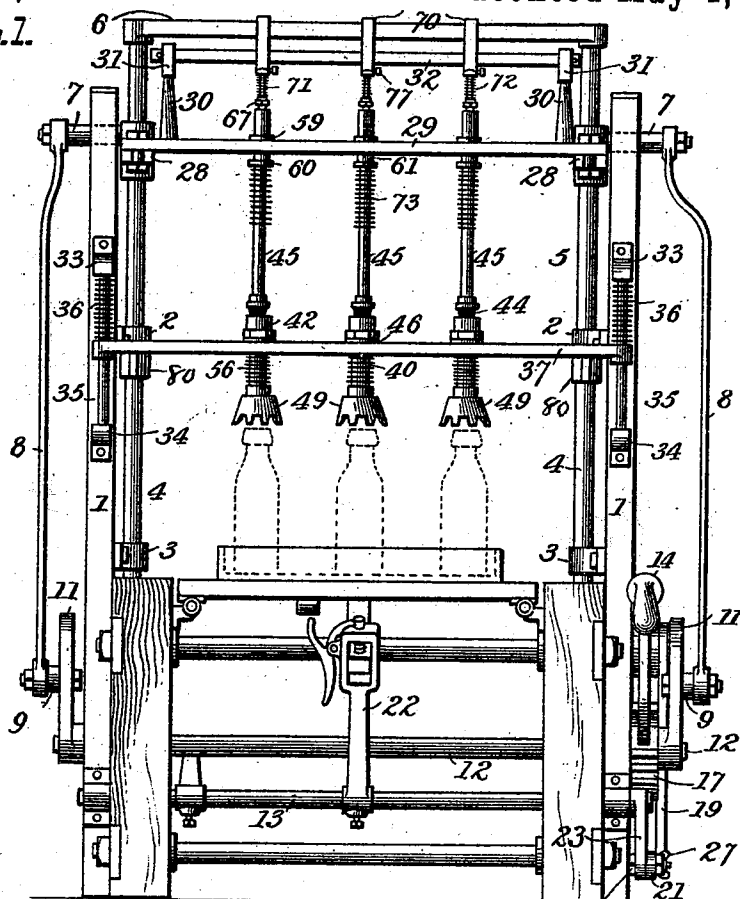


Fig. 8.

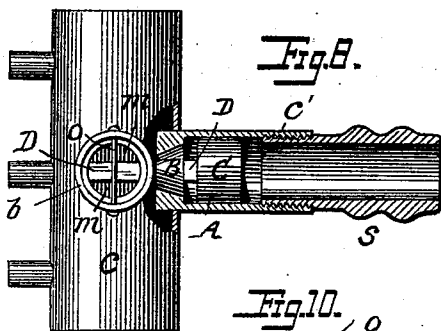


Fig. 9.

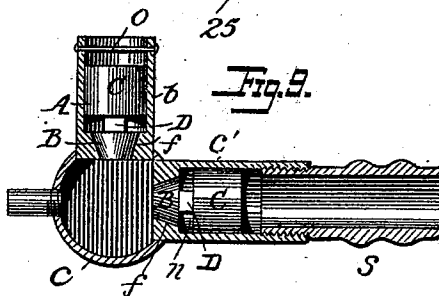


Fig. 10.

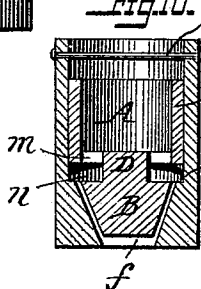


Fig. 12.

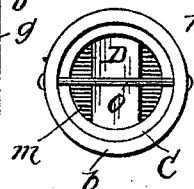
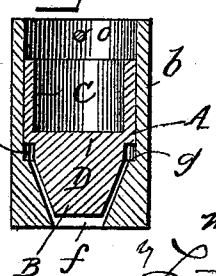


Fig. 11.



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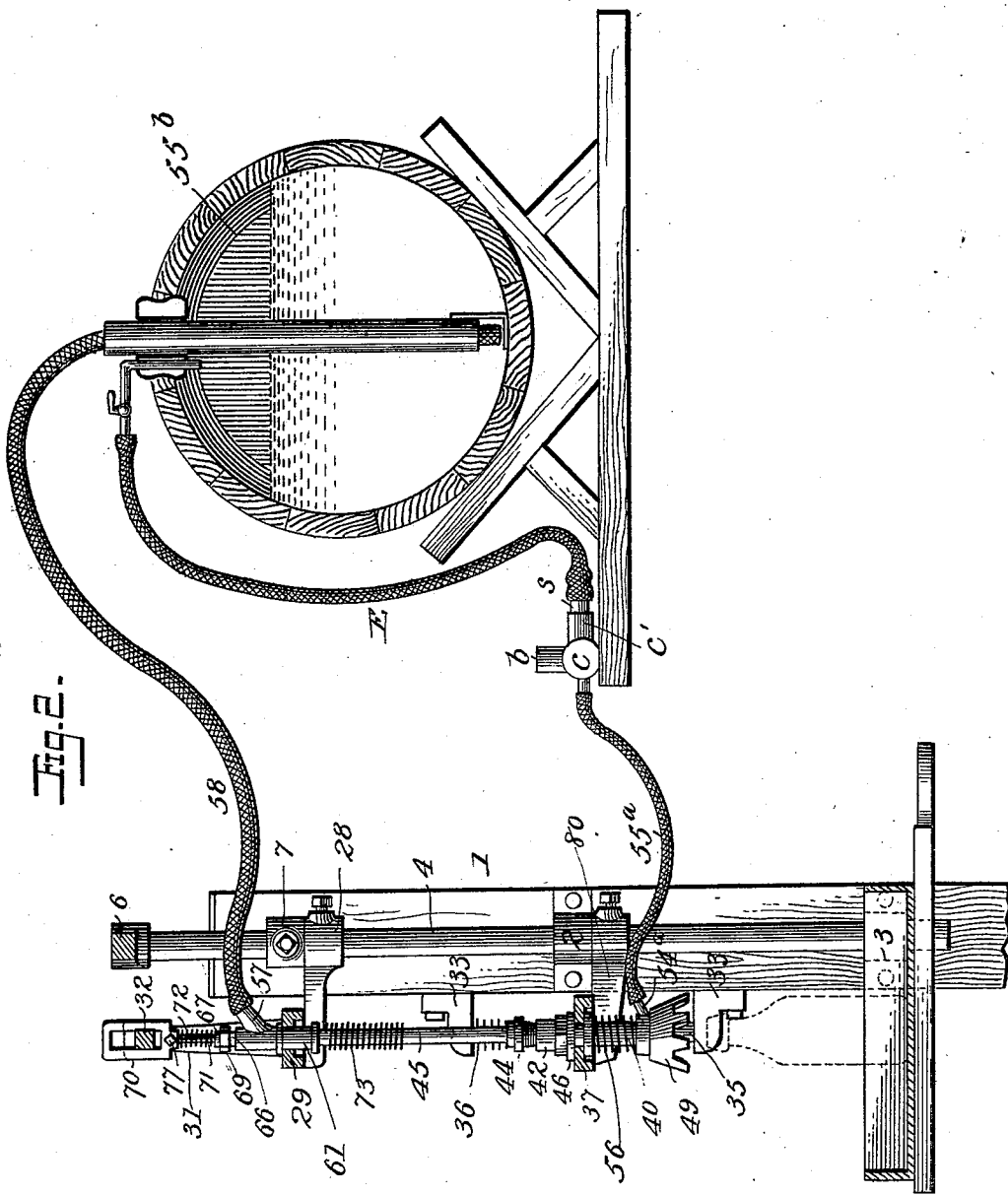
(No Model.)

3 Sheets—Sheet 2.

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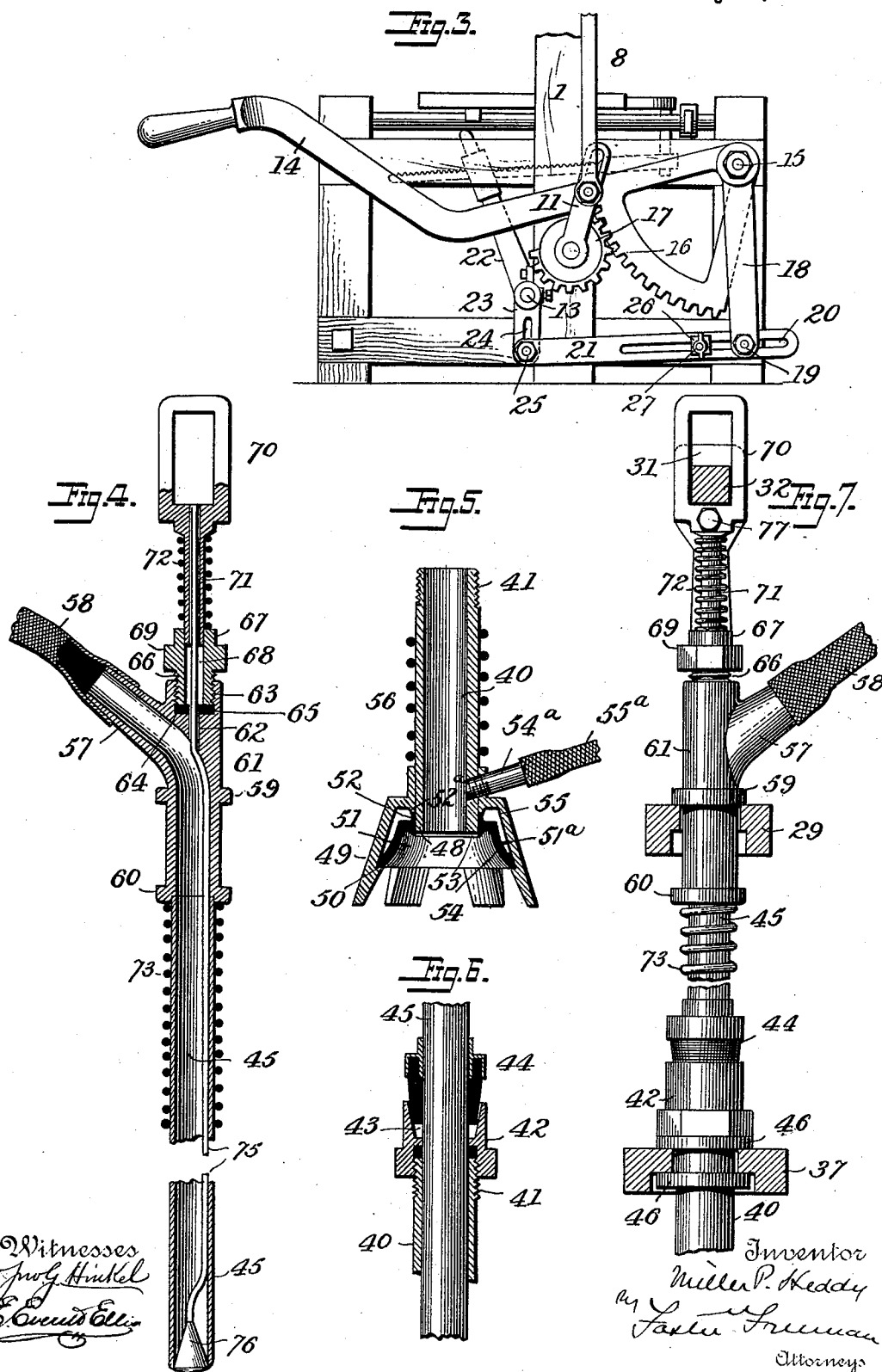
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UNITED STATES PATENT OFFICE.

MILLER P. HEDDY, OF HILLBURN, NEW YORK.

BOTTLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,060, dated May 1, 1894.

Application filed January 31, 1894. Serial No. 498,645. (No model.)

To all whom it may concern:

Be it known that I, MILLER P. HEDDY, a citizen of the United States, residing at Hillburn, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Bottling-Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in liquid bottling machines; and it consists substantially in such features of construction, arrangement, and combinations of parts as will hereinafter be more fully described.

The invention has reference more particularly to the class of liquid bottling machines such as is shown and described in the Letters Patent No. 490,020, which were granted to me on the 17th day of January, 1893, although it is applicable to bottling machines of other construction and arrangement in which the same general principles of operation are embodied.

The general object of the present invention is to overcome many difficulties and disadvantages existing with former machines of this character, but principally to dispense with the valves or cut-offs of my former invention, together with their appurtenances, and to substitute therefor simpler devices which greatly facilitate the operation of bottling.

A further object of the present invention is to change the point of cut-off of the liquid within the filling tube from a point above to a point more directly adjacent to the mouths of the bottles as will hereinafter more fully appear.

A further object of the invention is to obviate the passage or entrance of any part of the flexible body of the filling tubes into the bottles; and to provide for the simple and automatic action of the liquid cut-off devices.

A still further object of the present invention is to dispense with some of the parts of the operating mechanism which actuate the vertically operating frame of my former invention, and to so arrange and reconstruct such mechanism that the desired movements and adjustments of the frame and the horizontally movable table are effected and regulated to a nicety and with greater ease.

The invention has for its object still further to provide for the more perfect liquid air-

tight sealing between the mutilated caps of the stopper tubes and the bottles; as well also to provide a more perfect air-tight connection between the stopper tubes and the filling tubes as the latter are caused to descend into the bottles on the table beneath.

Finally, the invention has such other objects in view as will hereinafter more fully appear when taken in connection with the accompanying drawings, wherein—

Figure 1 is a front elevation of a liquid bottling machine embodying my present improvements; and Fig. 2 is a vertical sectional elevation of the parts thereof above the horizontal movable table which supports the bottles. Fig. 3 is a side view enlarged of the movable table and the operating mechanism by which the construction and arrangement of the latter will be more fully understood. Fig. 4 is a vertical sectional view enlarged, showing the construction and arrangement of the filling tube and its appurtenances as employed in the present invention. Fig. 5 is a vertical sectional view enlarged, showing the construction of the air sealing stopper together with its tube, and the mutilated cap. Fig. 6 is an enlarged sectional view of the sealing connection between the upper end of the stopper tube and the filling tube. Fig. 7 is an enlarged detached view representing in vertical section the supports for the parts upon the main frames, and also showing the transverse actuating bar or rod which passes through the upper ends of the cut-off adjuncts. Fig. 8 is a top view in part section of the check valve casing and its valves. Fig. 9 is a vertical sectional elevation thereof; and Figs. 10, 11, and 12 are detail sectional views of said check valves.

In the practice of my present invention I employ the same general arrangement of main supporting frame united by cross-pieces and braces of any preferred construction; and I also employ the same or substantially the same vertically operating frame as described and shown in my former Letters Patent referred to. I furthermore resort to the use of substantially the same form of horizontally movable table slightly altered perhaps to conform to certain changes adopted in the form of actuating or main operating devices employed, but yet serving the same capacity.

The principal changes herein adopted are such as have been found expedient in the use of the machine, and while in most respects the present construction and arrangement of devices possess superior advantages over the former invention it will of course be understood that the present invention is not intended to supersede the first.

The present invention by having the liquid cut-off arranged at the lower end of the filling tube prevents any liquid waste when the tube is withdrawn from the bottle, and generally speaking the entire machine is rendered more complete and effective.

In the accompanying drawings, 1, 1, represent the side pieces of the vertical main frame, which as shown extend upwardly to a suitable height from the base of the machine. The said side pieces are provided on their inner sides with upper rings or brackets 2, 2, and lower rings or brackets 3, 3, which receive the vertical portions 4, 4, of the vertically operating frame 5, of which 6 constitutes the top or upper cross-piece, the lower ends being free.

The upper ends of the side pieces 1, 1 are notched downwardly for a suitable distance to receive the outwardly projecting arms 7, 7, of the frame 5, the same as in my former patent, and pendent from the arms 7, 7, on outer sides of the main frame are the connecting rods 8, 8, the lower ends of which are connected to crank pins 9, 9, which are bolted in the slots 10, 10, of cranks 11, 11, carried at the ends of the main shaft 12, all of these being also substantially the same as before.

In addition to the above, I also employ the reciprocating horizontal table or support for the bottles, and likewise substantially the same rock-shaft and pawl and ratchet devices for feeding the table forward intermittently during the bottling operation. The feed devices need not be more specifically herein referred to, but the rock shaft is designated at 13.

The operating mechanism resorted to herein for reciprocating the vertically movable frame as well as operating the feeding of the table is somewhat different however as will now appear. The operating hand lever 14 of the present invention is pivoted at 15, and is formed or provided with a segmental gear 16, meshing with a mutilated pinion 17 as before, but instead of being slotted at its middle and being in movable connection with a slotted vertical lever, the said hand lever is provided with or connected to a pendent arm 18, at its pivotal point, which arm is provided at its lower end with a stud 19, moving or working in a slot 20, of a horizontally arranged connecting rod 21. A lever 22 is mounted upon the rock shaft 13, and carries the actuating devices for the table, while a link 23, having a slot 24, depends from the outer end of said rock shaft, and is connected with the inner end of the connecting rod 21, by a stud 25, as shown. Fitting within slot 20, of said

connecting rod 21, is a block 26, which is adjustable by means of a screw 27, and which is for the purpose of being set at different positions to regulate the forward stroke or feed of the table.

By the above construction and arrangement of main operating devices it will be seen that the same is simplified and rendered more effective with no upward obstructing portions to the proper working and operation of the table. It will be seen that by raising the operating lever, the segmental gear operates the mutilated pinion to cause the main shaft and connections described to lower the vertically moving frame, while at the same time the rock shaft will be turned and the table feed devices set in readiness to operate said table, the degree of movement of the latter being limited by the block 26.

Having thus described the main operating mechanism and vertically moving frame, together with their minor adjuncts, I will now describe the several more important improvements upon the filling devices proper, and their cut-offs and main auxiliaries.

I dispense with the cut-offs of my former invention together with their automatic operating devices, and in the description following where reference is only made to a single filling tube, cut-off, and stopper device it will of course be understood that the same are intended to be used in series as is clearly shown, so as to enable a number of bottles to be filled at one and the same time.

Carried by the vertical portions 4, 4, of the frame 5, are the brackets 28, 28 which extend forwardly of the machine, and these brackets support in horizontal position across the front of the machine, a slotted plate or cross-bar 29, upon which are supported the posts 30 (preferably one at each side and one about centrally of the machine) the upper ends of which are formed or provided with corresponding eyes or openings 31 in alignment or parallelism, and through which eyes is passed or inserted a rod 32 for operating the valves or cut-offs, as hereinafter described.

Supported in bearings 33 and 34, fastened on the edges of the side pieces of the main frame are the rods 35, 35, each bearing or carrying a spring 36. Said rods also pass through openings in the ends of a lower movable independent cross frame 37, and which cross frame 37 serves to support the stopping devices hereinafter referred to. It will thus be seen in what relation the several parts are arranged, and it will also be seen that the same is more simplified than before.

To enable the construction of the valves or cut-offs to be more fully understood I will describe one of them, by referring to the enlarged Figs. 4 to 7 inclusive. In these figures, 40 represents a tube corresponding to the tube "63" of my former patent, and which is screw-threaded around its upper end at 41 to receive an enlarged packing-nut 42 formed with an upper conical chamber or recess 43

to receive therein the correspondingly shaped plug or cushion 44, of rubber or other elastic material and which surrounds the filling tube 45, hereinafter described. Beneath the packing nut 42 are two loose collars 46, one resting beneath the cross frame 37, and the other being on top of said frame, the two washers serving to maintain the position of the tube 40 within said frame when the packing nut 42 is screwed down sufficiently tight. Said tube 40, it will be observed is of diameter sufficiently greater than the filling tube hereinafter referred to, so as not to interfere with the proper operation of a vent tube also hereinafter to be referred to. Secured to the lower end of tube 40 by means of a solder or otherwise, and so as to leave a small inwardly projecting portion 48, is a conical mutilated cap 49 which fits down over the mouth or neck of the bottle during the filling operation. This cap 49 is formed on its inner surface with suitable shoulders or seats 50, at a suitable distance from its lower edges, as shown, upon which rests the lower edge of an inverted cup-shaped cap or lining 51, of rubber or other elastic material, which is formed with an annular vertical flange 52 which surrounds the central opening 53 through which the filling tube 45 passes, said flange 52 resting against the additional seat 52^a therefor which is constituted by the upper part or top 53 of the mutilated cap 49. The said inverted rubber cap or lining 51 is also formed around its central opening with an annular depending flange 54, which together with the flange 52, serves to bind tightly around the inner projecting portion 48 of tube 40. It will thus be seen that above the top of cap 51, a cavity or space 55 is formed which also extends down and between both the said caps as at 51^a and enables the rubber cap to collapse to an extent when brought down upon the mouth of a bottle, and thereby effect a perfect air-tight union or connection with the top of a bottle. Entering the side of the flange or collar 53 of the mutilated cap, preferably to the rear, and communicating with the interior of the stopper tube 40, is a small air vent tube 54^a, to which is fitted the lower end of the flexible vent tube 55^a which passes directly back to vent valve casing and leads to the filling cask 55^b, substantially as shown. Surrounding the tube 40, and bearing between the flange or collar 53, and the lower collar 46 is a spring 56 which serves to impart a yielding action to the mutilated cap and its adjuncts when brought down upon the top of a bottle.

The filling tube 45 is formed or provided in any suitable manner with a short curved spout 57 at its upper end, to which the flexible tube 58 leading from the cask is fitted air-tight. Said tube 45 is also formed or provided with collars or flanges 59 and 60, and a vertical tubular bearing 61, which is coincident with the length of said tube. The said bearing has a passage 62 leading to the interior of the tube 45, and is bored or hollowed out at 63 to

form an internal annular base or seat 64, upon which rests a cushion or packing 65 of any elastic material; and the said bearing is internally screw-threaded to receive the screw-threaded shank 66, of an adjusting packing nut 67. This nut is formed with a central vertical passage or opening 68, and has a head 69 for enabling the said nut to be conveniently manipulated.

70 represents an eye or loop provided with a shank or stem 71, which is received by and works up and down in the vertical opening 68 of the nut 67, and interiorly this shank or stem is hollow and exteriorly is surrounded by a spiral spring 72 which has its upper bearing beneath the eye or loop 70, and its lower bearing upon the top of the said nut 67 substantially as shown. Normally the said spring maintains the shank or stem in an elevated position with its lower end just entering the opening 68 at the upper extremity thereof.

Surrounding the filling tube at its upper portion and attached or secured by its upper end to the collar or flange 60, is a spiral spring 73 of greater strength than the spring 72, and when the filling tube is lowered into the bottle to be filled said spring is compressed and exerts a yielding pressure upon the cushion 44, causing the latter to be more tightly jammed or pressed into the conical chamber 43 of the packing nut 42; and then when the operating hand lever has been depressed to elevate frame 5 said spring 73 serves by its reaction to elevate or raise the filling tube from the bottle.

Passing down through the hollow shank 71 of the eye or loop 70, as well as through the central opening or passage 68 of the adjusting nut 67, and down through passage 62 to the bottom of the filling tube 45, is a strong wire 75, having attached or secured to its lower end the inverted conical stopper or valve 76. The said wire is secured at its upper end by means of a set screw 77 entering the upper part of the hollow shank or stem 71 at the side as shown. The length of the wire 75 is about equal to the distance between the top of stem 71 and the lower end of the filling tube, so that normally the stopper 76 closes the lower end of the filling tube by the action of spring 72. Thus it will be seen that it is only necessary to compress such spring in order to push the stopper out or open the lower end of said filling tube.

It is well known that if any obstruction be offered in the filling tube while bottling gaseous liquids, such liquids will foam badly and greatly impede the bottling operation. Therefore in order to obviate this and furnish as open and unobstructed a passage as possible I so insert the wire 75, that it will rest against the inner side of the wall of the filling tube instead of passing down centrally through the tube, this being clearly indicated in the drawings. The said wire is slightly sprung throughout its length in order to effect this,

or it may be set or fastened at its upper end sufficiently to one side of the center of the said filling tube to effect the desired purpose. In thus describing my preferred embodiment of devices, it will of course be understood that I am not limited to the precise details of construction and arrangement of parts shown owing to the various slight changes which are clearly within the scope of my invention. Practical tests have demonstrated the superiority of the present arrangements however, and therefore they are preferably employed in most instances.

In the construction of the machine, it will of course be understood that as many filling tubes and adjuncts are employed at one time as may be deemed desirable, and it will be seen that the same are all operated simultaneously. The eyes 70 of the stems or shanks 71 of the several filling tubes are all in parallelism or alignment with the similar or corresponding eyes or openings 31 at the tops of the posts 30, and the actuating rod 32 passes through all of said eyes, as shown, its ends being secured in any suitable manner to prevent endwise displacement thereof.

When the operating hand lever 14 is raised the vertically movable frame 5 will descend in the manner and by the means hereinbefore described, whereupon the weaker springs 72 will be compressed and the valves or stoppers 76 will be pushed outward or opened. As the mutilated caps descend upon the tops of the rows of bottles on the supporting table the springs around the tubes 40 permit a yielding action thereof, while at the same time the internal elastic cups of said caps are collapsed in the manner explained around the mouths of the bottles. The said tubes 40 are normally held downward by their surrounding springs, but they are elevated at intervals by means of a projection 80 on the frame 5, coming in contact with the independently operating cross frame 37, substantially as in my former patent. On descent of the frame 5, immediately succeeding the opening of the valves or stoppers 76, the metallic filling tubes pass down into the bottles, and then when the latter have become filled the hand lever 14 is depressed and the tubes are again elevated immediately succeeding the automatic closing of the valves or stoppers.

It will be observed that the loops or eyes 70 of the stems 71 are of a greater vertical height than the corresponding eyes 31, at the tops of the posts 30, which permits the vertically movable frame to descend slightly in advance of the movement of the actuating rod 32, and thus is the closure of the bottles insured before the stoppers or valves are opened.

Owing to the great pressure of gaseous liquids, especially when disturbed or shaken, it is essential to a successful bottling thereof that a perfect regulation of the vents be had. This I accomplish in the following manner, to wit: As shown in Fig. 1, three filling tubes

and appurtenances are employed herein, although it is evident that as many may be used as is desired, and in order to explain the construction and arrangement of vent valves to be described, I will refer only to a single filling tube and its adjuncts. The short flexible tube 55^a, (see Fig. 5,) leading from the vent 54^a, extends back and is connected at its other end with a valve casing *c*, having projecting from its upper side a chamber *b*, and from its rear side a similar chamber *c'*. The said valve chambers *b* and *c'* are each open at their outer ends, as at *d*, and they are also each formed or provided at their inner ends with a conical opening or port *f*, leading to and communicating with the casing *c*, the said ports each being surrounded at their inner ends by an interior, annular ledge or flange *g*, constructed with or forming a part of the inclosing chamber. Working in each chamber is a valve *A*, constructed of a solid, conical portion *B*, which fits the conical port *f* when the valve is closed, and thus prevents access of air to the interior of the casing in the one instance, that is to say, the valve at the forward part of the casing *c*; while in the other instance, that is, the valve in the chamber *c'*, serves to shut off back pressure of air or gas to the bottles from the filling cask, as will appear hereinafter. In addition to the solid conical portion, the said valve *A* is also formed or provided with an upper hollow portion *C*, which closely fits its chamber, and which is integral with or connected to the conical portion *B*, by a connecting portion *D*, which extends transversely in one direction, and is of limited width, so as to leave on each side thereof a passage *m*. As will appear from the drawings, the tubular portion of the valve does not extend quite to the solid conical portion, which construction leaves a channel or passage *n* between the annular ledge or flange *g* and the conical portion of the valve, when the said valve is closed.

It will be understood that a valve of the foregoing construction is arranged in each of the chambers *b* and *c'*, and they constitute check valves, the operation of which will be explained hereinafter.

In order to limit the upward movement of the valves, each chamber is provided with a pin or rod *o*, passing through the walls thereof in one direction at near the outer end thereof, which pins or rods limit the upward movement of the valve so as not to have the same become displaced to too great an extent during its operation. Instead, however, of providing the chamber *c'*, with a pin or rod for the purpose described, I may insert in the outer end of such chamber a nipple *s*, either screwing into the chamber, or otherwise adjustable therein, and which nipple may serve as a stop for limiting the opening of the valve contained in such chamber. This is a preferable construction with regard to this particular chamber, because of the fact that the

nipple permits of adjustment of the valve, as well as facilitating the connection therewith of the single flexible vent tube E, which leads to the filling cask, substantially as shown in Fig. 2 of the drawings. For the purpose of securely holding the end of the flexible vent tube E, the said nipple s, is preferably corrugated, and as is evident, this construction will cause a perfect air-tight connection between the two.

From the foregoing construction and arrangement of check valves, it will be seen that when air under pressure is forced into the filling cask to start the flow of liquid, the valve in chamber c' is checked or closed, while the corresponding valve in the chamber b is forced open by the air-pressure from the bottles, just as the liquid begins to flow. Immediately after the liquid begins to flow, the back pressure is taken from the valve first named, and the gas from the bottles is thus conducted back into the cask, while the opposite valve is closed in an obvious manner. In this way, there is an absolutely perfect control of the air vents from all of the filling tubes at the same time; and in this way also, instead of having separate vent tubes leading from the filling tubes, back into the filling cask, I simply have all of the vents of the filling tubes in direct communication with the check valve casing c, and then from such casing I simply lead a single flexible vent tube. I am thus enabled to dispense with a great many long tubes, while at the same time, from the construction and operation of the valves as hereinbefore explained, I obtain much more perfect results. It is obvious that the particular construction of these valves is subject to immaterial changes, but the form shown is that which I prefer in practice.

When the valve is closed, the solid conical portion thereof fits closely into the conical port f, and its upward movement is limited in the manner described. The passages on each side of the transverse connecting portion, between the solid and hollow portions of the valve permit of the ready passage of air and gas, as will be understood without further description.

It will be seen from the foregoing that the parts are all simple and act automatically, and that there is no liability to waste. The valve or stopper wires by their arrangement within the filling tubes prevent foaming of the liquids, and the machine is thus relieved of all objectionable features.

Without limiting myself to the precise construction and arrangement of parts, I claim—

1. In a bottling machine, a filling tube operated to descend into a bottle, a valve closing the lower end of said tube, a stopper-tube, a frame operating said tubes, means for operating the valve on the descent of the frame, and means for operating the stopper-tube in advance of said valve, substantially as shown and for the purpose described.

2. In a bottling machine, a filling tube pro-

vided with a valve at its lower end, an operating-rod for said valve provided at its upper end with an elongated eye or slot, a stopper-tube, an operating frame for said tubes provided with a slot or eye corresponding to that of the valve-rod, but less in height, and a valve-actuating rod passing through the two eyes, substantially as shown and for the purpose set forth.

3. In a bottling machine, a vertically movable frame, a filling tube operated by said frame to descend into a bottle, a rod or wire extending through the tube and provided at its lower end with a valve or stopper, an eye or loop provided with a stem to which the upper end of the rod or wire is fastened, a spring surrounding the stem and maintaining the valve normally closed, and an actuating rod passing through the eye or loop, substantially as described.

4. In a bottling machine, the filling tube provided at its lower end with a valve or stopper, a wire or rod attached or secured centrally to the valve and sprung to one side so as to rest or bear against the inner side of the tube for its entire length, and means for operating said valve or rod at its upper end, substantially as shown and described.

5. In a bottling machine, a vertically movable frame, a filling tube carried by said frame to descend into a bottle, a wire or rod provided at its lower end with a valve or stopper and sprung for its length to rest or bear against the inner side of the tube, and means for normally maintaining the valve closed, substantially as described.

6. In a bottling machine, the filling tube provided at its upper end with a bearing bored out to constitute a base or seat, and provided with an internal screw-thread, a packing resting on such seat, and a centrally bored nut having a threaded shank screwing into the bearing, an "eye" having a hollow stem working in the nut, a spring surrounding the stem, a rod passing down through these devices, and provided with a valve or stopper, and an actuating rod passing through the eye, substantially as described.

7. In a bottling machine, the filling tube provided at its upper portion with a surrounding spring, the stopper-tube also surrounded by a spring and provided at its lower end with the mutilated cap, a nut fitting the upper end of said stopper-tube and having a conical recess, a conical packing ring or cushion loosely held upon the filling tube, and means for lowering said filling tube, whereby the surrounding spring thereof forces or jams the said conical packing or cushion into the recess of the nut, substantially as shown and for the purpose described.

8. In a bottling machine, the vertically movable frame provided with the brackets supporting the cross-pieces for the filling tubes, said cross-pieces being provided with the vertical posts having eyes or loops at their upper ends, in combination with valves, and

spring controlled connections provided with corresponding eyes at their upper ends, and an actuating rod passing through all of the eyes, substantially as described.

5 9. In a bottling machine, the stopper tube 40 and its operating adjuncts, and the mutilated cap formed interiorly with annular seats or shoulders and a collapsible cap or lining having its lower edge resting on said seats or
10 shoulders, substantially as described.

10. In a bottling machine, the stopper tube 40, the mutilated cap secured to the lower end of said tube leaving an inwardly projecting portion 48, and the internal collapsible
15 cap or lining provided with the flanges 52, and 54, and supported at its lower edge upon shoulders or seats of the mutilated cap, substantially as described.

11. In a bottling machine, the vertically
20 movable frame, and the horizontally movable table, together with their adjuncts, in combination with the pivoted operating hand lever and its pendent arm, the gearing, and the slotted horizontal rod or connection extending
25 between the rock shaft and receiving the end of said pendent arm substantially as described.

12. In a bottling machine, the combination
30 of the horizontal table, and the automatic feed therefor, of the pivoted operating hand lever, and its pendent arm provided with a stud, the slotted connection extending from the rock shaft and receiving the end of the pendent arm in its slot, and an adjustable block
35 situated in said slot, substantially as shown and for the purpose described.

13. In a bottling machine, the combination
40 with the filling tube and its adjuncts, of the valve casing provided with oppositely working check valves, and a vent tube leading to the filling cask, substantially as described.

14. In a bottling machine, the combination
45 with the filling tube and its adjuncts, of the valve casing having upwardly and outwardly projecting chambers each provided with a conical port or passage and an internal flange or shoulder, a valve in each chamber con-

structed of a solid portion fitting said port, and a hollow portion, and a flexible vent tube leading from said casing to the filling cask, 50 substantially as described.

15. In a bottling machine, the combination
55 with the filling tube and its adjuncts, of a valve casing provided with upwardly and outwardly projecting chambers each formed with an interior annular ledge or shoulder and a conical port or seat, valves working in said chambers and each provided with a solid conical portion fitting said ports or seats, and having a hollow portion connected to said
60 solid portion and having side passages, substantially as described.

16. In a bottling machine, the combination
65 with the filling tube and its adjuncts, of a valve casing having upwardly and outwardly projecting chambers provided with conical ports having internal annular ledges or flanges, valves working in said chambers each formed or provided with a solid portion fitting said ports, and a hollow portion fitting the
70 chamber, and an intermediate connecting portion with passages on each side thereof, a cross pin or stop for one valve, and an adjustable nipple or stop for the other valve, and a single flexible vent tube leading from said nipple to
75 the filling cask, substantially as described.

17. In a bottling machine, the valve casing
80 a provided with upwardly and outwardly projecting chambers, and valves working in said chambers each formed of a hollow portion fitting the chamber, and a solid conical portion fitting a corresponding port in the chamber, said hollow and conical portions being connected by a cross-piece having on each
85 side thereof a port or passage, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MILLER P. HEDDY. [L. S.]

Witnesses:

JOHN VANZILE,
JAMES F. COLE.