Jan. 15, 1929. 1,699,062

M. GOLDBERGER

FILLING AND CAPPING MACHINE

Filed Aug. 24, 1925 5 Sheets-Sheet 1

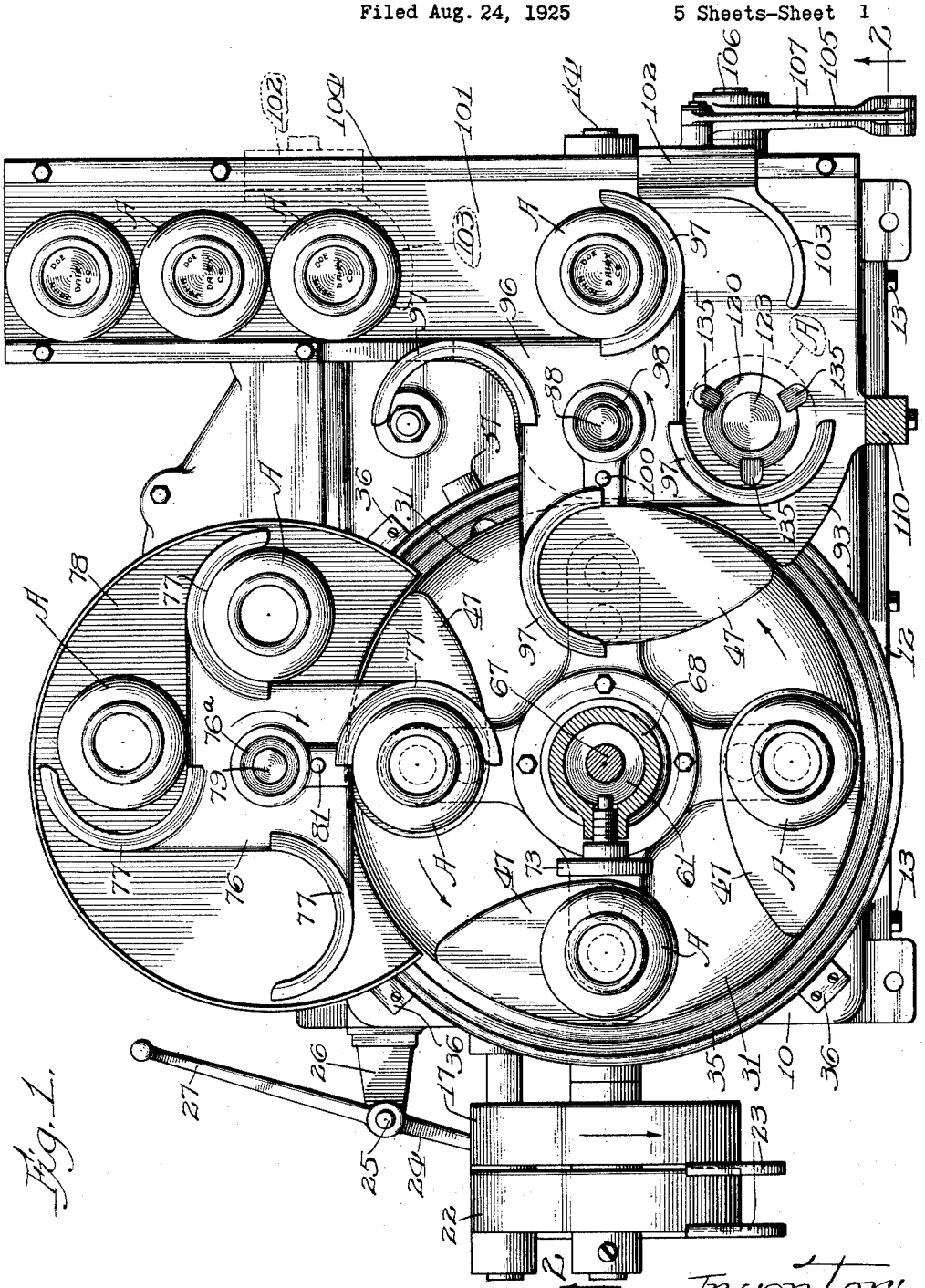


Fig. 1.

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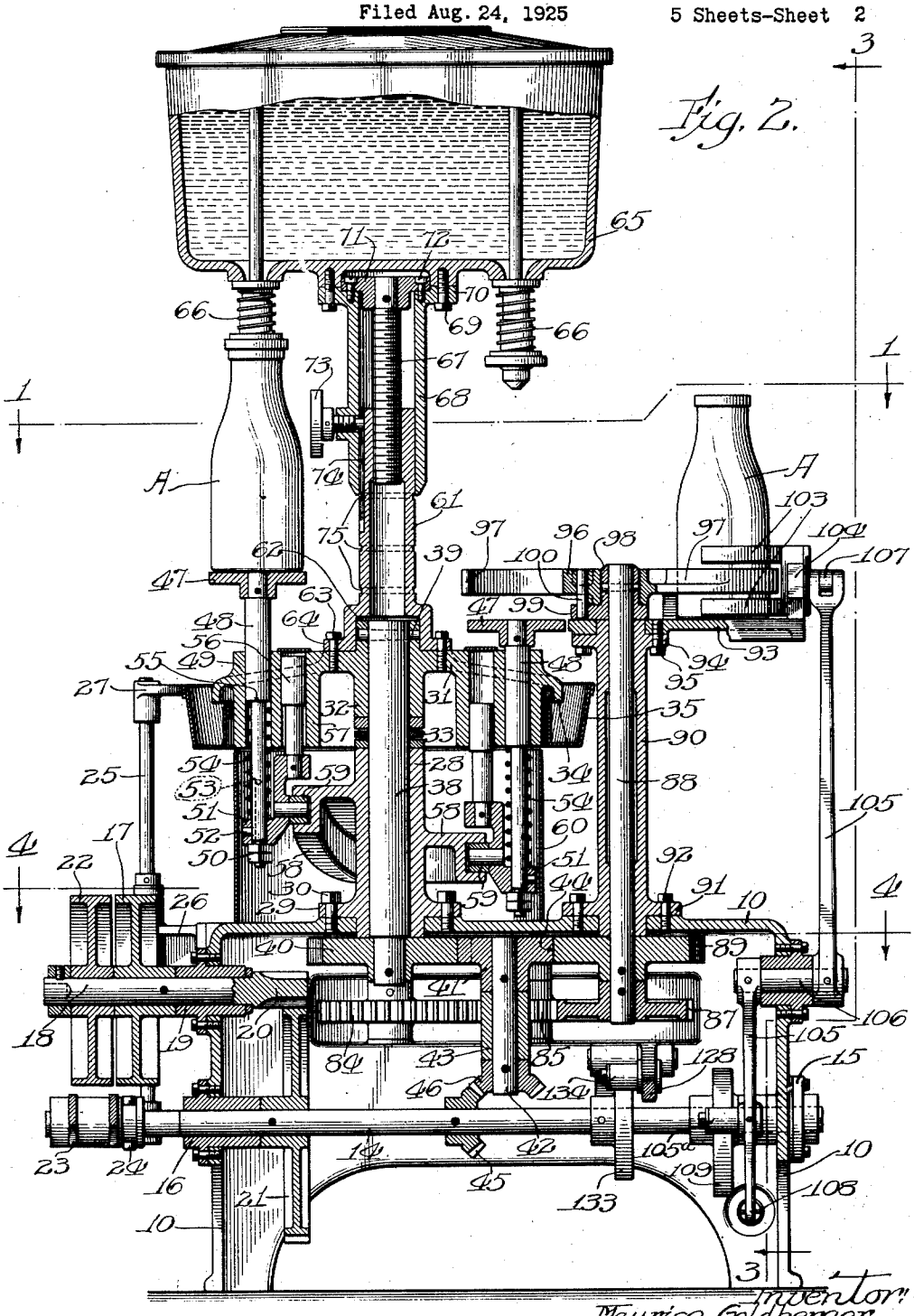
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M. GOLDBERGER

FILLING AND CAPPING MACHINE

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Fig. 2.



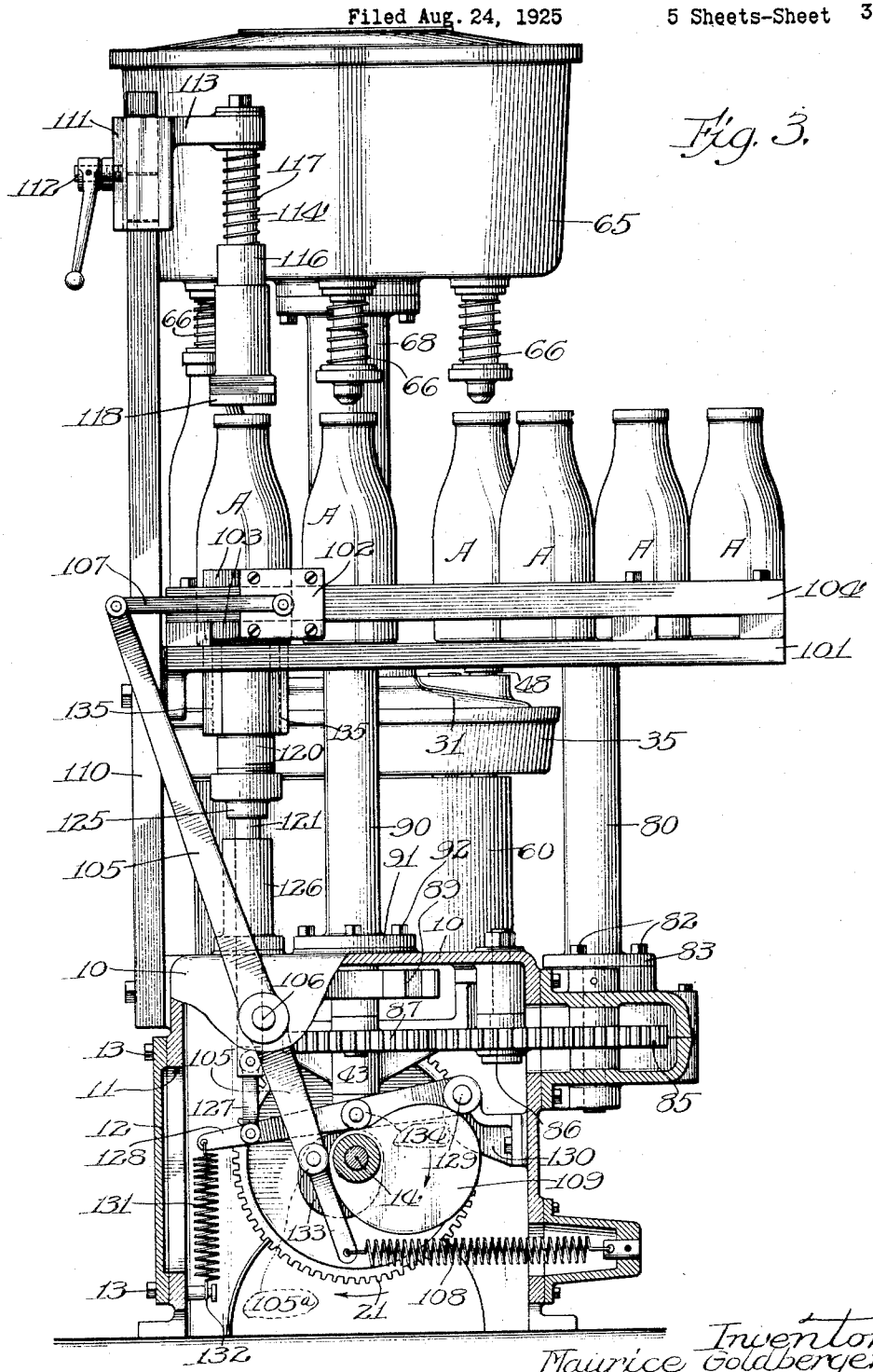
Jan. 15, 1929. 1,699,062

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FILLING AND CAPPING MACHINE

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Fig. 3.



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FILLING AND CAPPING MACHINE

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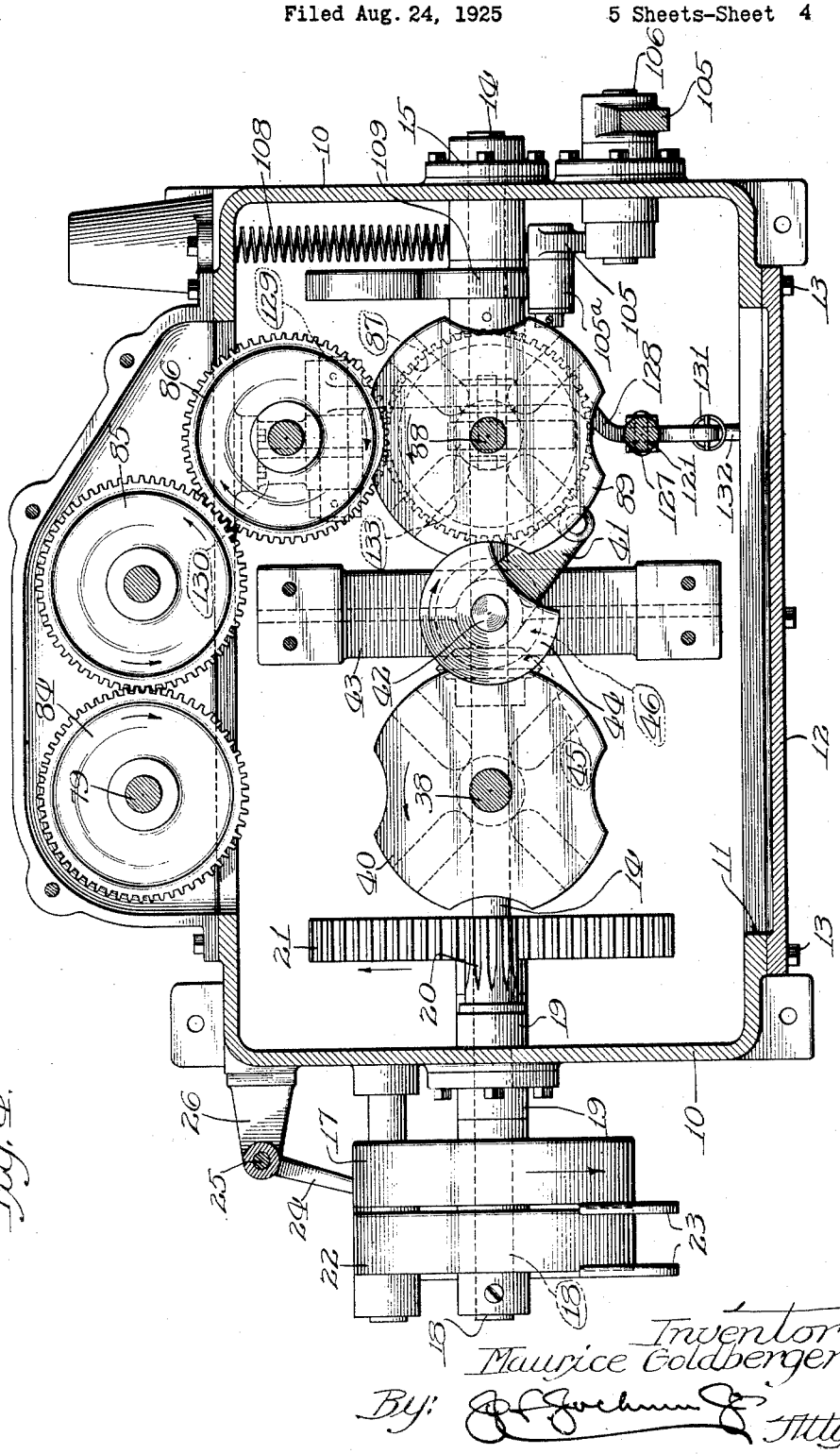


Fig. 4.

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Jan. 15, 1929. 1,699,062

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FILLING AND CAPPING MACHINE

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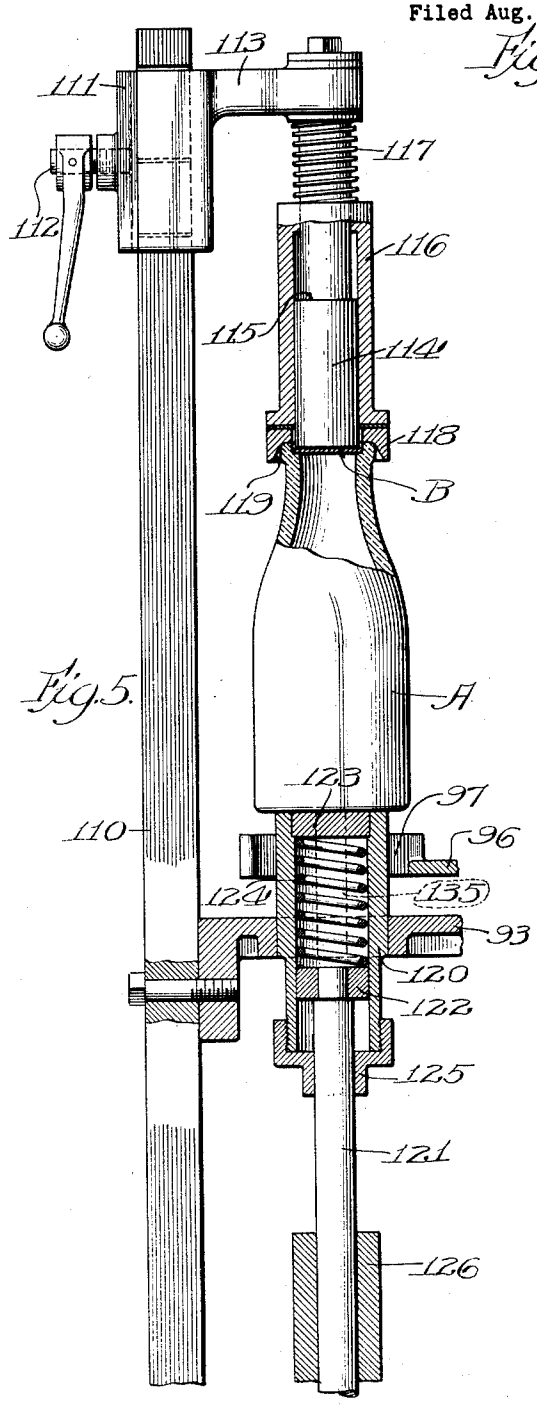


Fig. 5.

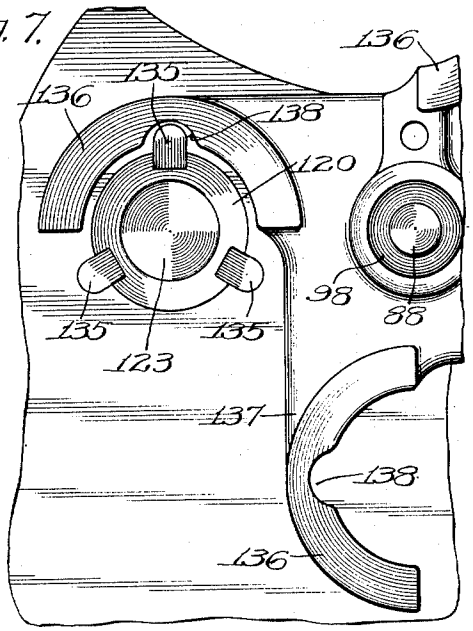


Fig. 7.

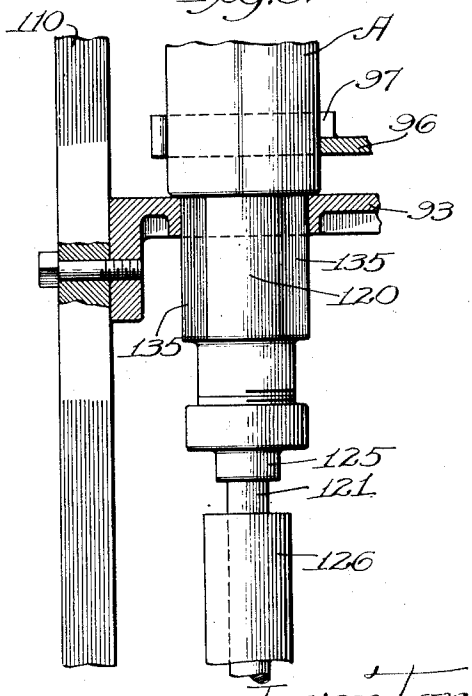


Fig. 6.

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Patented Jan. 15, 1929. 1,699,062

UNITED STATES PATENT OFFICE.

MAURICE GOLDBERGER, OF CHICAGO, ILLINOIS.

FILLING AND CAPPING MACHINE.

Application filed August 24, 1925. Serial No. 51,905.

This invention relates to filling and capping machines particularly adapted, though not necessarily limited in its use for filling and capping milk bottles and one of the objects of the invention is to provide an improved machine of this character which will be automatic in action and will be of a small capacity, thereby adapting the same for use in small dairies rendering it possible to dispense with the present cumbersome hand operated machines usually employed in such small dairies, and from which machine the bottles may be freely removed in the event of damage.

A further object is to provide an improved machine of this character having a discharge chute for the filled and capped bottles arranged in close proximity to the bottle infeed, thereby rendering it possible for one man to control and operate the machine and at the same time also render it possible for the operator to not only inspect the filled and capped bottles as they travel through the machine and to and through the discharge chute, but enables the operator to remove an improperly filled and capped bottle and if desired he may without changing his position at the machine, return the bottle to the infeeding mechanism.

A further object is to provide an improved machine of this character embodying infeeding and delivery elements or members for handling the bottles, a delivery chute, and controlling mechanism for the operation of the machine all located in close proximity to each other so that one person without changing his position at the machine may successfully operate and control the machine.

A further object is to provide an improved machine of this character in which all of the operating parts are compactly arranged and housed within the base of the machine to be protected thereby and to prevent any water or milk from coming into contact with the driving gears or cams and which base is provided with a large opening to facilitate access to the enclosed parts and which opening is provided with a removable closure.

A further object is to provide an improved machine of this character which will be of a comparatively simple, durable, and compact arrangement and which will be effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful results as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and as shown in the accompanying drawings illustrating the invention and in which drawings,

Figure 1, is a horizontal view partly in top plan and partly in section and as taken on line 1—1 Figure 2.

Figure 2, is a vertical sectional view as taken on line 2—2 Figure 1.

Figure 3, is a view taken on line 3—3 Figure 2.

Figure 4, is a horizontal sectional view taken on line 4—4 Figure 2.

Figure 5, is a view partly in side elevation, partly broken away and partly in vertical section of a portion of the capping mechanism.

Figure 6, is another view partly in side elevation, partly in section and partly broken away of a portion of the capping mechanism.

Figure 7 is a detail top plan view of one form of bottle handling element or member.

Referring more particularly to the drawings the numeral 10 designates a supporting base of any suitable size and configuration and within which base all of the operating mechanism is housed, the base being provided with a comparatively large opening 11, (see Figures 3 and 4) in one wall thereof to permit access thereinto and which opening is closed by a suitable closure 12 preferably removably secured in position by means of fastening bolts 13.

Extending through the base is a horizontal shaft 14 which is journaled in suitable bearings 15, 16, that are preferably removably supported by opposite walls of the base. The shaft 14 is the main driving shaft and is driven from any suitable source of power preferably through the medium of a pulley 17 fixed to a shaft 18, and which shaft is journaled in a suitable bearing 19.

Carried by the shaft 18 and within the base is a pinion gear 20 which meshes with a gear 21 secured to the shaft 14 and also located within the base.

A pulley 22 is loosely mounted upon the shaft 18 exterior of the base and the pulleys 22—17 are adapted to receive a driving belt (not shown) which latter is shiftable from one of the pulleys to the other preferably by

means of a suitable belt shifting device 23 which latter includes an actuating lever 24 pivotally supported as at 25 by a bracket 26 and which lever includes an actuating handle 27 arranged in a convenient position for the operator and to be hereinafter more fully described.

Supported by the top of the base 10 and at any suitable point with respect thereto is an upright standard or bearing member 28 one end of which projects into a suitable opening in the base and is provided with a supporting flange 29 which rests upon the base, the standard being preferably secured in position by means of fastening bolts 30 passing through the flange and being threaded into the base 10. The upper end of the standard 28 forms a support for a table like member 31 having a hub 32 the end of which hub is disposed in close proximity to the end of the standard and if desired a ball or roller bearing 33 may be interposed between the end of the standard and the adjacent end of the hub 32.

The table 31 preferably inclines downwardly from the hub to the periphery thereof and the periphery of the table is preferably deflected downwardly to form a depending flange 34 which overhangs an annular trough or receptacle 35 which latter is supported by means of suitable supports 36, the receptacle serving to catch and retain any fluid that may fall upon the table during the operation of the machine and it may if desired be provided with a suitably controlled discharge outlet 37.

The table 31 is rotated preferably by means of a vertical shaft 38 to which it is secured in any suitable manner such as a fastening device 39 and which shaft is journaled in the upright or standard 28 and projects therebeyond.

The other end of the shaft 38 projects into the base 10 and has secured thereto and within the base a Geneva element 40 and which latter is given an intermittent rotation by means of a lever or element 41 (see Figure 4) secured to a shaft 42 journaled in a suitable bearing 43 within and extending across the base 10, a locking disc or element 44 being also carried by the element 41 which co-operates with the element 40 to lock the latter.

The shaft 42 is actuated from the shaft 14 through the medium of a gear 45 secured to the shaft 14 and which gear meshes with another gear 46 secured to the shaft 42, both of the gears 45 and 46 being housed within the base 10.

Carried by the table 31 are a plurality of bottle receiving platforms 47 supported by means of uprights 48 which pass through suitable guideways or bearings 49 in the table and extend for a considerable distance below the table.

Any number of these platforms may be provided according to the capacity of the machine desired, four being herein shown, and as their construction and operation is the same the specific description of one will apply equally to them all.

Adjustably carried by the end of the upright 48 are nuts or collars 50, and a bracket 51 is loosely sleeved upon the upright and rests upon the nuts or collars 50. A screw or pin 52 may be provided in the bracket and projects into a longitudinal groove or slot 53 in the upright to move therein so as not to interfere with the movement of the upright 48 longitudinally of the upright and at the same time will hold the upright 48 and platform 47 against axial rotation. A spring 54 preferably encompasses the upright 48, one end of the spring resting against the bracket 51 and the other end against a shoulder 55 on the upright and forms a cushion for the bottle while the latter is being presented to the filling mechanism. A guide 56 may be secured to the bracket 51 and is adapted to move in a suitable bearing 57 upon the table 31.

The upright or standard 28 is of such a length that the table 31 will be supported at a suitable distance above the base 10 so as to permit of the arrangement of a channel shaped cam track 58 and an extra long bearing for the shaft 38, therebetween.

This cam track may be supported in any suitable manner but is preferably formed as a part of the upright or standard 28 and is adapted to receive a roller 59 suitably supported by the bracket 51 and a stationary cam track operates to positively raise and lower the platforms 47 at the proper points in the cycle of operation of the table 31.

Thus it will be seen that the table 31 will be given an intermittent rotation through the medium of the Geneva element 40 and as it is rotated the cam track 58 will successively cause the platforms 47 to be positively raised and lowered.

A shield or apron 60 preferably of sectional construction may be provided between the bottom of the table 31 and the base 10 to house and protect the cam track 58 and the brackets 51 with the attached parts.

Mounted upon the table 31 is an upright tubular member 61 which is held in position by means of a projecting extremity 62 of the hub 32 and which projection extends into one end of the member, and the member is fastened in position by means of suitable fastening bolts 63 passing through a flange 64 on the member 61 and into the table 31, the flange 64 resting against the table. With this construction it will be manifest that in assembling these parts the tubular member 61 will not only be properly positioned or centralized with respect to the table 31, but great rigidity will be imparted to the super structure.

A container 65 is supported above the table

31 and platforms 47 for a distance suitable to support filling nozzles 66 which project therebelow, in position to be projected into the bottles to fill them and to permit of the raising and lowering of the bottles by raising and lowering movements of the platforms 47.

The container is supported by means of the tubular member 61 preferably through the medium of a screw 67 which is secured by one extremity to the bottom of the container in a manner to be presently described, the other end of the screw being threaded through the end of the tubular member 61 so that by rotating the container with respect to the member 61 the container may be raised and lowered with respect to the table 31 to compensate bottles of different heights. A tubular member 68 telescopes with the member 61 and is secured to the bottom of the container by fastening screws 69 passing through a flange 70 and into the bottom of the container.

A member 71 is secured to one end of the screw 67 for supporting it and is housed between the end of the tubular member 68 and the bottom of the container 65. This member 71 also serves to centralize the container 65 and the bearing member is secured to the container for axial rotation therewith, through the medium of fastening bolts 72 engaging the members 71 and 68. A screw 73 may be provided to pass through the member 68 and engage in a slot or groove 74 in the member 61 to maintain the container 65 in its adjusted position with respect to the table 31.

As the platforms 47 are raised the nozzles 66 will be inserted into the bottles to fill them and as the platforms 47 are lowered the bottles will move away from the nozzles and the latter will be closed. If desired indication marks 75 may be provided on the member 61 with which the end of the member 68 co-operates to indicate the extent of adjustment necessary for the container 65 according to the size of the bottles to be filled.

During the interval of rest of the table 31 and at predetermined points in the cycle of rotation of the plaforms 47, the bottles are inserted into the machine and fed onto and removed from the platforms 47 by inserting and removing elements.

The inserting or feeding element 76 is preferably of a spider like shape having arms 77 of a semi-circular shape to engage and advance the bottle and is arranged at a convenient position for the operator so that he may manually place the bottle upon a support 78 to be engaged by the arms 77 and moved thereby upon the adjacent platform 47. The platform 47 at the time the bottle is being fed thereto by the element 76 being in its lowermost position and with its upper surface substantially flush with the surface of the support 78 and at rest. After the bottle is placed by one of the arms 77 of the element 76 upon the platform 47 the movement of the element 76 is arrested and the table 31 and platforms 47 are given one step of advancing movement to move the bottle and platform away from the arm 77. When the movement of the table 31 and platform 47 is arrested there will be an empty platform 47 adjacent the element 76 and in position to receive another bottle, at which time the element 76 is again given one step of rotation to move an empty bottle upon the adjacent platform 47. It being understood that the operator has previously placed an empty bottle upon the support 78 and in position to be engaged by one of the arms 77 of the element 76.

A rotary movement is imparted to the element 76 in the following manner. An upright shaft 79 is journaled in a suitable bearing 80 and to one end of the shaft the element 76 is secured. The end of the shaft projects into a sleeve 76a in the hub of the element 76 and a pin 81 is carried by the sleeve and projects into a suitable opening in the element 76.

The bearing 80 is secured by one end to a suitable support through the medium of fastening screws 82 passing through a flange 83 and engaging the base 10 (Figure 3) and a gear 84 (Figure 4) is secured to the shaft 79 within the base 10.

The gear 84 meshes with an idle gear 85 which in turn meshes with an idle gear 86. The gear 86 meshes with a gear 87 which latter is secured to an upright shaft 88 to which is secured a Geneva element 89 and in a position that the lever 41 of the Geneva element 44 will co-operate therewith and in a position that when the element 40 is locked by the element 44 the element 41 will operate upon the element 89 to impart one step of rotation thereto.

All of the gears and the Geneva elements are housed within the base structure 10.

The shaft 88 is journaled in an upright bearing 90 (see Figure 2) one end of which projects into the base 10 and is provided with a flange 91 which rests upon the base and fastening bolts 92 pass through the flange and engage the base for securing the bearing 90 in position.

A support 93 is arranged adjacent the upper end of the shaft 88 and is held in position in any suitable manner such as by means of a flange 94 on the bearing 90 and through which flange fastening bolts 95 pass and engage the support.

A removing element 96 (see Figures 1 and 2) is provided for removing the filled and capped bottles and is of a spider like construction embodying arms 97 of a semi-circular shape to engage and remove the bottles from the adjacent platform 47 onto the support 93. This element is removably secured to the shaft 88 for rotation therewith in any suitable manner preferably in the same manner in which the element 76 is secured to the shaft 79.

Carried by the shaft 88 is a collar 98 having a radially projecting arm 99 and carried by the arm is an upright pin 100.

The collar 98 is inserted into the hub of the element 96 and the pin 100 enters an opening in the element 96. With this construction the elements 76 and 96 may be removed and interchanged with other similar elements adapted to handle different sizes of bottles and the radii between the center of the elements 76 and 96 and the respective pins 81 and 100 are different to insure that the elements 76 and 96 or those with which they are interchanged will be placed upon the proper respective shafts 79 and 88.

The shafts 38, 79, and 88 (see Figure 1) rotate in the direction of the respective arrows and the mechanism is so timed that as a single Geneva element 41 (see Figure 4) operates both of the shafts 38 and 88, the shaft 38 will be at rest when the shaft 88 is rotating and as the shaft 88 is connected with the shaft 79, the two shafts 88 and 79 will rotate in unison when the shaft 38 is at rest.

The element 96 operates to remove the filled bottle from the platform 47 and moves it to a position to be capped and after being capped the element 96 again moves the capped bottle from the machine to a position to be moved by other mechanism along the discharge chute 101.

It will be seen that the inserting element 76 and the removing element 96 are arranged in close proximity to each other and the handle 27 of the controlling lever 24 is also arranged in close proximity to these elements thereby enabling one man to attend the operation of the machine.

The discharge chute 101 is also disposed in close proximity to the elements 76 and 96 so that the same operator may inspect the filled and capped bottles as they are being discharged, thereby enabling him to remove any of the bottles moving along the discharge chute and replace them into the machine if desired, without necessitating his leaving or changing his position at the machine. That is, the machine is controlled and the bottles are fed into and delivered from the machine at points in close proximity to each other necessitating the services of only one man to attend the entire operation of the machine.

After the bottle has been capped and removed by the element 96 and placed in the delivery chute 101, the element 96 will assume a position of rest. At this time an ejector 102 having arms or a bifurcated portion 103 engages the bottle and moves it away from the arm 97 of the element 96, the arm 97 of the element 96 passing between the arms 103. This ejector is adapted to move forwardly at a comparatively slow speed to move the bottle down or along the chute 101 and is adapted to be given a quick or sudden return movement so as not to obstruct the advancing movement of the next capped bottle into the chute by the element 96.

The ejector 102 is adapted to slide along a guide 104 which may constitute one wall of the chute and is moved by means of a lever 105 pivoted as at 106 to a suitable support. One end of the lever is connected by means of a link 107 with the ejector 102 and connected to the other end of the lever is a spring 108 which tends normally to move the lever in a direction to retract the ejector 102.

A cam 109 is secured to the shaft 14 within the base 10 and engages an antifriction roller 105^a on the lever 105 to rock it against the stress of the spring 108 and thereby impart a forward movement to the ejector 102.

The cam 109 is so shaped that when the ejector has reached the limit of its forward movement the stress created in the spring 108 will cause a quick return of the ejector as the cam 109 further rotates.

It is thought that the operation of this portion of the machine will be clearly understood but briefly stated it is as follows.

The operator manually places the empty bottles upon the support 78 and in position to be engaged and advanced by the arms 77, which have an intermittent movement, to position the bottles one upon each of the platforms 47 as the latter are positioned adjacent the path of movement of the arms. The arms are then arrested at which time the table 31 and platforms 47 are given one step of advancing movement during which time the cam 58 will raise the platform to cause the filling nozzle 66 to enter the bottle. The table 31 and platforms 47 are then arrested.

As the table 31 advances the next adjacent platform 47 will be positioned to receive another empty bottle. During the rotation of the table 31 the platform holding the filled bottle will be lowered so that by the time it reaches a position adjacent the element 96 the filled bottle will be removed by one of the arms of this element and will be positioned at the capping station.

Thus it will be seen that the parts are operated in timed relation so that the operation of one will not interfere with the operation of the other; it being understood that the platforms 47 which are adjacent the elements 76 and 96 are in their lowermost positions.

Any suitable capping mechanism which supplies and places a disc cap upon the bottle may be employed but preferably as shown more clearly in Figures 5 and 6 there is provided an upright 110 upon which a braket 111 is adjustably mounted and which may be held in its adjusted position by means of a suitable clamping device or screw 112. Carried by the bracket is an arm 113 secured to which is a fixed depending plunger 114 having a shoulder 115.

A sleeve 116 is loosely supported by the

plunger and is adapted to normally rest against the shoulder 115. A spring 117 encompasses the plunger and is interposed between the end of the sleeve 116 and arm 113 and tends normally to yieldingly hold the sleeve 116 against the shoulder 115. The lower end of the sleeve is provided with a circumferential flange 118 into which the mouth of the bottle is adapted to be inserted and the inner face of the flange is beveled as at 119 to guide the bottle and insure centralization thereof with respect to the plunger 114.

Obviously this entire structure may be raised and lowered upon the support 110 to compensate bottles of different heights.

Beneath the capping mechanism is arranged a bottle elevating device in the form of a support 120 preferably comprising an upright tubular member loosely supported upon the end of a bar or rod 121 and one end of which latter telescopes into the member 120 and carries a head 122 disposed within the member 120. A cap 123 forms a closure for the other end of the tubular member and interposed between the cap and the head 122 is a coiled spring 124 which yieldingly supports the tubular member 120 with respect to the rod 121. A bearing sleeve 125 through which the rod 121 loosely passes serves as a closure for the lower end of the member 120.

The stress of the spring 124 is such that it will support the weight of the bottle A and will operate to yieldingly seat the cap B, and also compensate bottles of varying heights.

The rod 121 passes through a suitable guide or bearing 126 supported by the base 10 and the lower end of the rod terminates within the base and is connected at its lower end preferably through the medium of a link 127 (see Figure 3) with an arm or lever 128 which is pivotally supported by one end as at 129 to a bracket 130, and a spring 131 is connected at one end with the arm and is anchored by its other end as at 132.

The support 120 is raised and lowered by means of a cam 133 within the base 10 and secured to the shaft 14 and which cam engages an anti-friction roller 134 on the arm 128, the latter being rocked in one direction against the stress of the spring 131 and which spring assists in returning the support 120 to permit the capped bottle A to be lowered.

The filled bottle is positioned upon the support by the arm 97 of the element 96 and the support 120 moves through this arm to raise the bottle to the capping mechanism. As the bottle is raised its mouth will pass into the recess at the lower end of the sleeve 116 and raise the latter against the stress of the spring 117 causing the sleeve to move back away from the end of the stationary plunger 114 and as the cap B (see Figure 5) contacts with the end of the plunger the cap will as the bottle rises, be forced into and be seated within the mouth of the bottle thereby sealing the latter. As the bottle is lowered the spring 117 will cause the sleeve 116 to follow until it is arrested by the shoulder 115 on the plunger 114.

As has been already stated, the element 96 is removable and interchangeable with another similar element having semicircular arms of different diameter to compensate different sizes of bottles. The end of the support 120 is constructed to also compensate bottles of different diameters and to that end lugs or extensions 135 are provided thereon and in order to permit the support 120 to move through the arms of the removing element for smaller bottles, the arms 136 of the element 137 (see Figure 7) for smaller bottles are each provided with a groove 138 through which the lugs or extensions 135 are adapted to pass. This element 137 is provided with an opening to receive the sleeve 98 on the end of the shaft 88 (see Figure 2) and also an opening to receive the pin 100.

From the capping mechanism the capped bottles are moved to a position to be engaged by the ejector arm 103 (see Figures 1 and 2) to be moved along the discharge chute 101.

The mechanism is so timed that during the time that the bottle A is being raised and lowered with respect to the capping mechanism, the ejector arm 103 will be moved forward by the cam 109 and will be returned with a quick movement by means of the spring 108 and the shape of the cam.

With this improved construction it will be manifest that there is provided a machine which is adapted to be operated and controlled by one person from a single station at the machine, as the infeeding and discharge and inspection of the bottles take place in close proximity to each other and the lever for controlling the operation of the machine is also in close proximity to the infeeding and discharge elements.

Furthermore the mechanism is compactly arranged and all of the operating parts are housed within the base of the machine and the main actuating gears 21 and 45 for the shaft 14 and for the feeding and removing elements and of the bottle supporting platforms 47, together with the cam 109 for actuating the ejector 103, and the cam 133 for raising the bottles to the capping mechanism are all mounted upon or secured to a single shaft which is the main driving shaft.

It will also be seen that there is provided a single Geneva element 41 (see Figure 4) which is common to and operates upon the two Geneva elements 40 and 89, thereby rendering it possible to produce a compact construction and materially reduce the cost of manufacture.

While the preferred form of the invention has been herein shown and described it is to be understood that various changes may be made in the details of construction and in

the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:

1. A machine of the character described including an intermittently rotative support, intermittently rotative means for delivering the bottle to the support, the said means having curved surfaces forming open pockets engaging and extending substantially half way about the bottle and constituting the sole means for positioning the bottle upon the said support, intermittently rotative means for removing the bottle from the support, and a discharge chute for receiving the bottle from the last recited means, the said chute leading from the machine at a point in close proximity to the first recited means.

2. A machine of the character described including an intermittently rotative support, intermittently rotative infeed means for delivering bottles to the support, a discharge receiver leading from a point remote from the infeed means adjacent said support and back to a point in close proximity to the said infeed means, intermittently rotative means disposed between the receiver and the said support and between the intake end of the said receiver and said infeed means for receiving the articles from the support and delivering them to the discharge receiver, and means adjacent the said infeed means for controlling the operation of the machine.

3. A machine of the character described including an intermittently rotative support, intermittently rotative means constituting the sole means for delivering the bottle to the support, intermittently rotative means constituting the sole means for removing the bottle from the support, means located in proximity to the operator's station adjacent the infeeding means for controlling the operation of the machine, and means for receiving the bottle from the said removing means and for conveying the bottle to a point in close proximity to the said operator's station before delivering the bottle from the machine.

4. A machine of the character described including an intermittently rotative support, intermittently rotative means for delivering the bottle to the support, intermittently rotative means for removing the bottle from the support, means located adjacent the first recited means for controlling the operation of the machine, means for receiving the bottle from the said removing means and for conveying the bottle to a point in close proximity to the operator's station adjacent the first recited means before delivering the bottle from the machine, the fourth recited means including an ejector for engaging and advancing the bottle, and means for actuating the ejector.

5. A machine of the character described including an intermittently rotative support, intermittently rotative means for delivering the bottle to the support, intermittently rotative means for removing the bottle from the support, means located adjacent the first recited means for controlling the operation of the machine, means for receiving the bottle from the said removing means and for conveying the bottle to a point in close proximity to the operator's station adjacent the first recited means before delivering the bottle from the machine, the fourth recited means including an ejector for engaging and advancing the bottle, means for moving the ejector in one direction, and means for imparting a quick return movement to the ejector.

6. A machine of the character described including an intermittently rotative support, intermittently rotative means for delivering the bottle to the support, intermittently rotative means for removing the bottle from the support, means located adjacent the last recited means for controlling the operation of the machine, means for receiving the bottle from the said removing means and for conveying the bottle to a point in close proximity to the operator's station adjacent the first recited means, capping mechanism intermediate the said receiving and removing means, means embodying an ejector for engaging and moving the bottle along the said receiving means, a driving shaft, and means carried by the said shaft and housed within the base of the machine and individual to the said support, delivering and removing means, capping mechanism and ejector for respectively actuating them.

7. A machine of the character described including a movable support for the bottles, a receiving support, an intermittently rotative member for removing the bottles from the first to second recited support and including arms having curved faces to engage and advance the bottles, an ejector arm for engaging and advancing the bottle along the said receiving support, the said ejector arm and the arm of the said removing member operating in different horizontal planes and one above the other, means for advancing the ejector, and means for imparting a quick return movement to the ejector.

8. A machine of the character described including a rotatable support for the bottles, a rotatable element for delivering the bottles to the support, a rotatable element for removing the bottles from the support, a Geneva element connected with the said support, a Geneva element connected with the said removing element, a single Geneva actuating element common to both of the aforesaid Geneva elements for alternately actuating them, means for imparting motion to the said Geneva actuating element, and an operative

connection between the said delivery element and one of the first two recited Geneva elements.

9. A machine of the character described including a rotatable support for the bottles, a rotatable element for delivering the bottles to the support, a rotatable element for removing the bottles from the support, a Geneva element connected with the said support, a Geneva element connected with the said removing element, a single Geneva actuating element common to both of the aforesaid Geneva elements for alternately actuating them, means for imparting motion to the said Geneva actuating element, and an operative connection between the said delivery element and one of the first two recited Geneva elements, all of the said Geneva elements and the actuating means for the said parts being housed within the base of the machine.

10. A filling machine including a rotatable table, bottle supports movable therewith and with respect thereto, means for raising and lowering the bottles with respect to the said table, said table having a hub portion projecting thereabove, a tubular upright shaft resting upon the table and into one end of which tubular shaft the said hub telescopes, a container mounted upon the said tubular support for adjustment towards and away from the said table, and filling nozzles depending from the container and adapted to enter the bottles as the latter are raised with respect to the said table.

11. A machine of the character described including capping mechanism, a bottle supporting platform, a lateral extension projecting beyond the periphery of the platform, means for raising the platform, and a rotatable element movable across the platform when the latter is lowered, to move a bottle onto and off of the platform, said element including a semi-circular arm for receiving the bottle and through which arm the platform moves in a direction transverse to the axis of rotation of the arm, the wall of the semi-circular portion of the said arm being provided with a vertical recess opening through the lateral face thereof and through which recess the said lateral extension passes when the arm is in engagement with the bottle.

12. A machine of the character described including capping mechanism, a bottle supporting platform, means for raising and lowering the platform, and a rotatable element movable across the platform when the latter is lowered, to move a bottle on to and off of the platform, said element including a semi-circular portion for receiving the bottle and through which portion the said platform reciprocates in a direction transverse to the axis of rotation of the said element, a portion of the platform being of a greater diameter than the diameter of the said semi-circular portion of said element, the lateral face of the said portion of the element being provided with an open vertical recess to receive and compensate the said portion of the said platform.

13. A machine of the character described including capping mechanism, a vertically reciprocable bottle supporting platform, means for raising and lowering the platform, a plurality of circumferentially spaced projections extending beyond the periphery of the platform and flush with the top thereof, a rotatable element including semi-circular arms movable across the surface of the platform and through which arms the platform moves in directions transverse to the axis of rotation of the arms, and means for imparting motion to said parts, there being a recess extending across the arm and opening through the lateral face thereof and through which recess one of the said projections passes when the said arm is in engagement with the bottle.

In testimony whereof I have signed my name to this specification, on this 21st day of August, A. D. 1925.

MAURICE GOLDBERGER.