May 2, 1939. T. PETERSEN 2,156,700

CONTAINER CAPPING MECHANISM

Filed Nov. 21, 1936 4 Sheets-Sheet 1

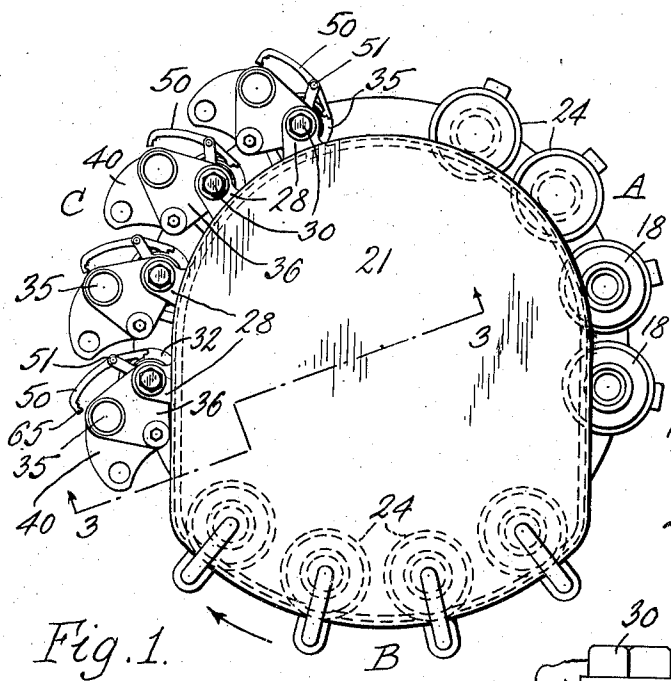


Fig. 1.

Fig. 2.

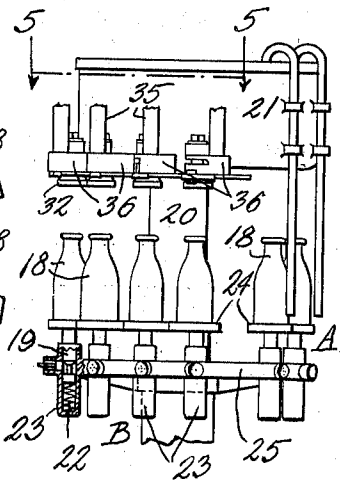
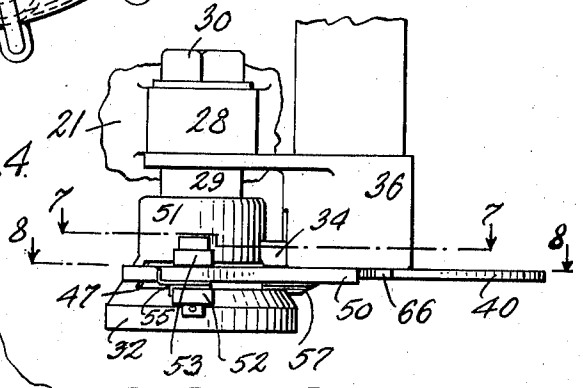


Fig. 4.



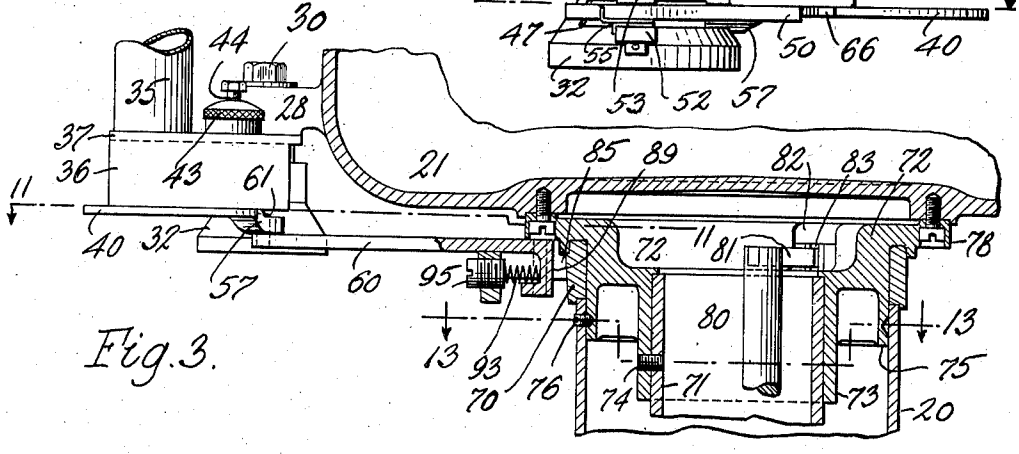


Fig. 3.

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CONTAINER CAPPING MECHANISM

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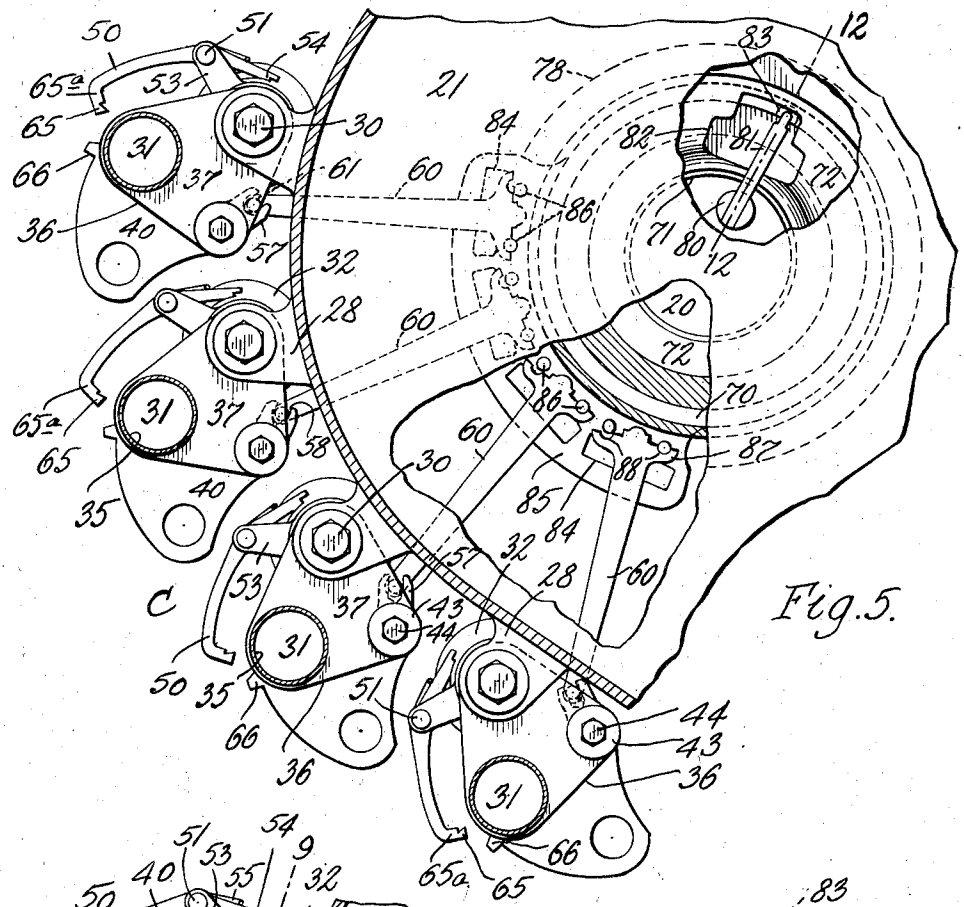


Fig. 5.

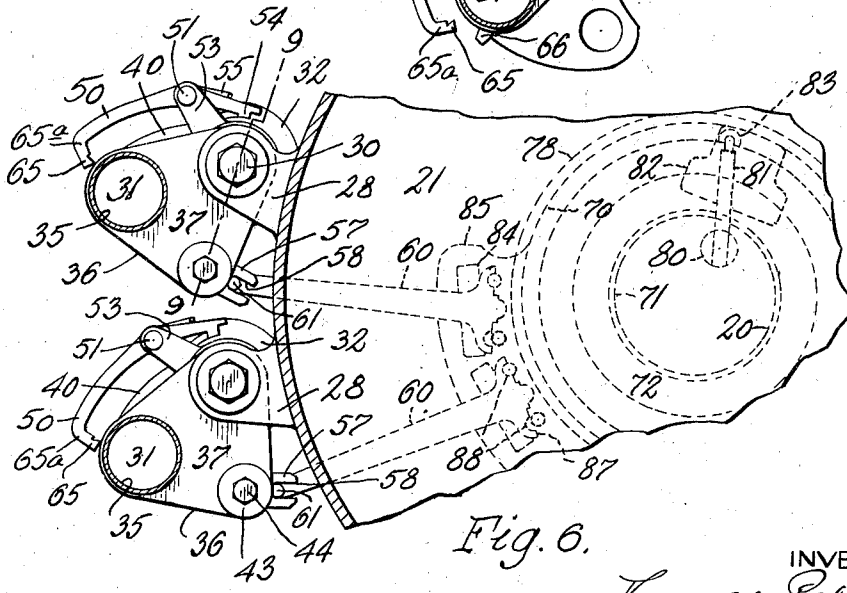


Fig. 6.

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CONTAINER CAPPING MECHANISM

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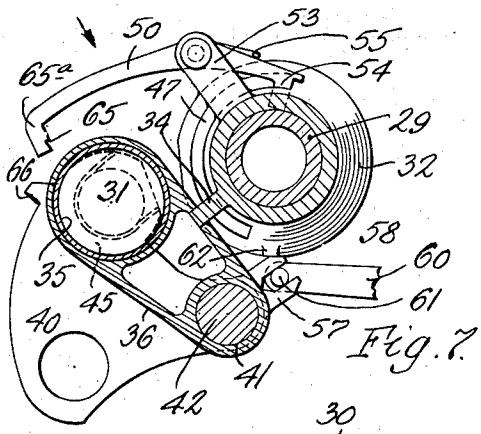


Fig. 7.

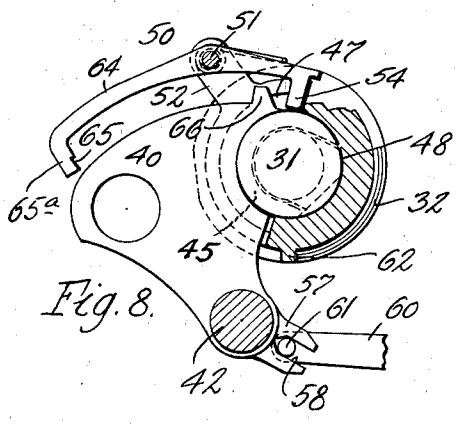


Fig. 8.

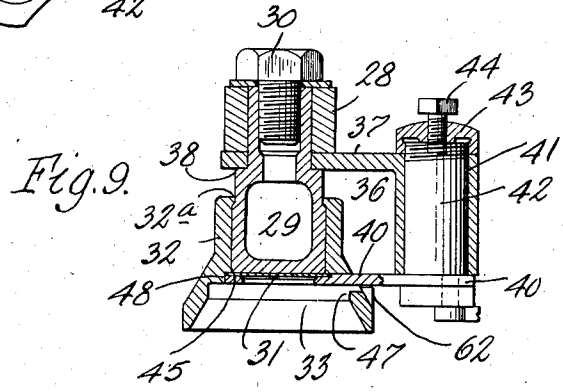


Fig. 9.

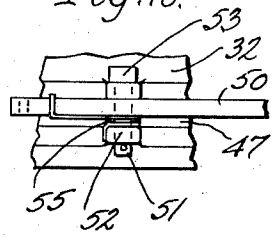


Fig. 10.

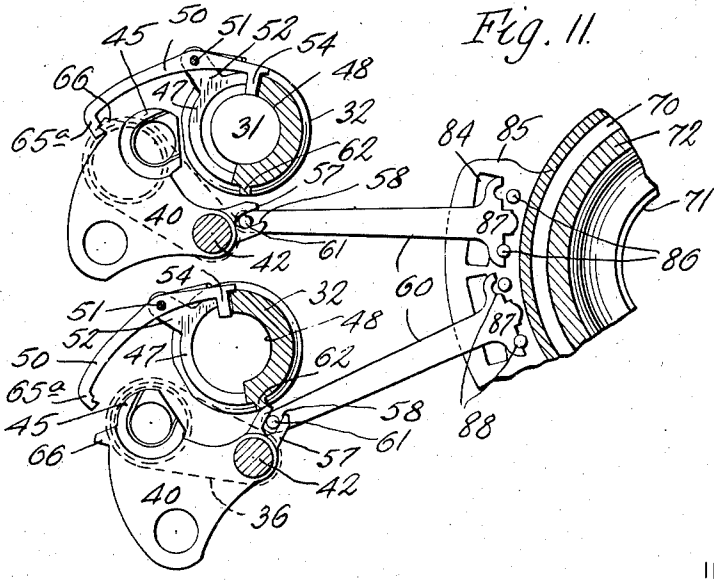


Fig. 11.

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May 2, 1939. T. PETERSEN 2,156,700

CONTAINER CAPPING MECHANISM

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Fig. 12.

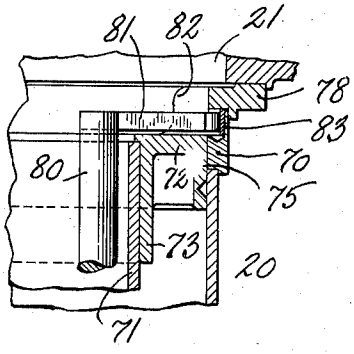


Fig. 13.

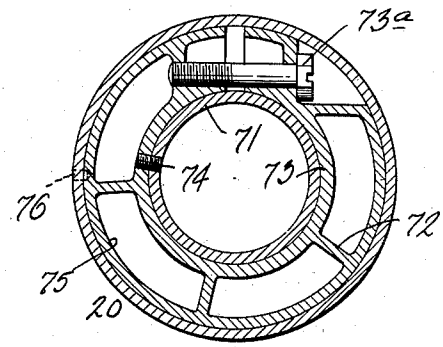


Fig. 14.

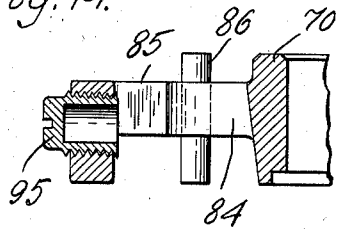


Fig. 15.

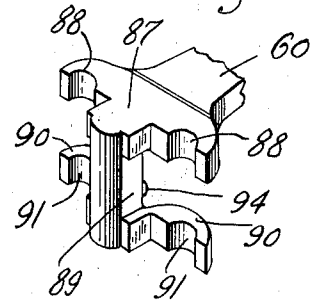


Fig. 16.

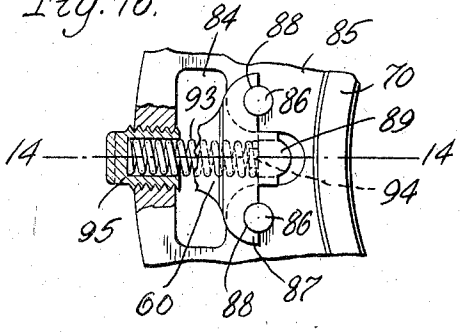
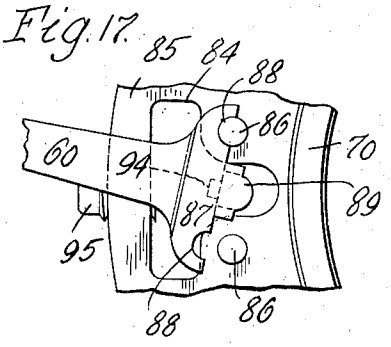


Fig. 17.



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Patented May 2, 1939 2,156,700

UNITED STATES PATENT OFFICE

2,156,700

CONTAINER CAPPING MECHANISM

Thorvald Petersen, Erie, Pa., assignor to R. G. Wright & Co., Buffalo, N. Y.

Application November 21, 1936, Serial No. 112,106

13 Claims. (Cl. 226—92)

This invention relates to improvements in mechanisms for applying caps to bottles or other containers, and particularly to mechanisms of this kind which may be used on machines for automatically applying the caps to the containers.

One of the objects of this invention is to provide a container capping mechanism of improved and simplified construction, which is positive and accurate in operation.

Another object of this invention is to provide a mechanism of this kind having improved means for feeding caps from a stack of caps into position to be applied to the containers. Another object of the invention is to provide means of this kind which are rendered inoperative when a cap is already in position to be applied to a container.

Another object of this invention is to provide mechanism of this kind with yielding actuating means for the feed mechanism for the caps so that if movement of the feed mechanism is interrupted during an operating cycle of the machine, no damage will be done to the capping device.

Other objects of this invention will appear from the following description and claims.

In the accompanying drawings:

Fig. 1 is a top plan view of a container filling and capping machine showing capping mechanisms embodying this invention mounted on the machine.

Fig. 2 is a fragmentary side elevation thereof, on a reduced scale.

Fig. 3 is a fragmentary sectional elevation thereof, on line 3—3, Fig. 1, on an enlarged scale.

Fig. 4 is a side elevation of one of the capping devices, viewed in the direction of the arrow in Fig. 7.

Fig. 5 is a fragmentary sectional plan view thereof, on line 5—5, Fig. 2.

Fig. 6 is a fragmentary sectional plan view thereof showing the parts of the mechanism in different positions.

Figs. 7, and 8 are sectional plan views on lines 7—7 and 8—8 respectively, Fig. 4, the cap feed plate being shown in a different position in Fig. 8.

Fig. 9 is a sectional elevation of one of the capping devices on line 9—9, Fig. 6.

Fig. 10 is a fragmentary side elevation on a larger scale of a part of a bell of one of the capping devices.

Fig. 11 is a fragmentary sectional plan view, on line 11—11, Fig. 3.

Fig. 12 is a fragmentary sectional elevation, on line 12—12, Fig. 5.

Fig. 13 is a section on line 13—13, Fig. 3.

Fig. 14 is a fragmentary sectional elevation on line 14—14, Fig. 16, with the swinging arm omitted.

Fig. 15 is a perspective view of the inner end of a swinging arm for actuating the cap feeding means.

Fig. 16 is a fragmentary top plan view, partly in section, of the mounting for the swinging arm for actuating the cap feeding means.

Fig. 17 is a similar plan view showing the arm in a different position.

In the accompanying drawings, I have illustrated my improved container capping mechanism as applied to a milk bottle filling and capping machine, but it will, of course, be understood that my capping mechanisms may be used in connection with any other type of machine or device and also that the mechanism is not limited for use in connection with the capping of milk bottles or containers.

In the milk bottle filling and capping machine illustrated, 20 represents a standard or column, the lower end of which may be mounted on any suitable base (not shown), and at the upper end of this column is mounted a tank 21 for the milk or other liquid with which the containers are to be filled. 18 represents the containers which are mounted on bottle supports 24. These supports are carried by a rotary and vertically movable table 25 in such a manner that the supports may move vertically to a limited extent relatively to the table, each support being for this purpose provided with a stem 19, the lower end of which rests upon a coil spring 22 arranged in a socket 23, Fig. 2. The table is rotatably mounted and is moved intermittently through an arc of a circle while in the lower position shown in Fig. 2, for the purpose of placing the containers into vertical registration with the bottle filling and capping devices of the machine, and when in such registration, the table is moved upwardly to place the necks of the bottles into operative relation to the filling and capping devices of the machine, the bottle filling mechanisms being only partly shown. In the particular machine illustrated, four bottles may be operated upon at one time and the table supports twelve bottles separated into three groups. In any position of the table, one group of bottle holders 24 will be at the portion of the table indicated as A, Fig. 1, and at this station any filled and capped bottles on any of the supports at station A may

be removed from the holders and replaced by empty bottles. During the next cycle of operation of the machine, these holders with the empty bottles thereon are advanced to station B, the table 25 turning in the direction indicated by the arrow in Fig. 1. At station B, the bottles are filled by means of any suitable filling mechanism, for example, such as shown in my United States Patent No. 2,057,538 of October 13, 1936. During the next cycle of operation of the table 25, the bottles which have been filled are advanced to station C where caps are applied to the bottles by means of capping mechanisms embodying this invention. When the machine is operating at full capacity, it will, of course, be understood that while some bottles are being filled, others are being capped and still others are at station A where the filled bottles are removed and replaced by empty bottles.

In the particular construction illustrated, the devices for applying the caps to the bottles are mounted upon the stationary tank 21, and in the construction illustrated, the tank is provided for this purpose with lugs or projections 28 formed integral with the tank and the caps are applied to the bottles by means of stationary heads or plungers 29 mounted on the lugs 28 in any suitable manner, for example, by means of screws or bolts 30. 31 represents the caps which may be of any suitable form, and which are fed into operative relation to the lower ends of the heads 29 and releasably held in this position until they are pressed into the necks of the bottles. On the lower end of each head 29 is mounted, a bell or bottle guide 32 which is slidable vertically on the head 29, and which normally drops by gravity into the positions shown in Figs. 4 and 9, in which position an inwardly extending shoulder 32a of the bell engages an annular outwardly extending shoulder on the head 29. The bell is raised by the neck of a bottle and moved upwardly by the table 25 and the bottle supports 24 yieldingly mounted thereon, the flexibility of the springs 22 compensating for variations in the height of the bottles. It will be noted that each bell is provided on its lower portion with an annular recess 33 adapted to fit the upper end of the neck of the bottle to properly center the bottle with relation to the cap 31, see Fig. 9, and each bell is also prevented from rotating by any suitable means, such for example as a lug or key 34, which cooperates with the capper housing as will hereinafter be described. It will be noted that in the construction described, the caps are forced into the necks of the bottles by moving the bottles upwardly against the stationary head 29. A bell or bottle guide of other construction may, of course, be provided.

Each capping device includes a magazine 35 for a stack of caps in which the caps move downwardly by gravity and from the lower end of which the caps are fed one at a time to the cap applying position beneath the head 29. These cap magazines 35 may be in the form of the usual cardboard tubes in which the caps are supplied by the manufacturer or, if desired, a specially constructed tube may be provided into which the caps may be placed, and the lower end of the tube fits into a cylindrical socket formed in a frame member or housing 36 of the capping device. This frame member has an upright wall of substantially oval shape, as clearly seen in Fig. 7. One end of the housing has an upright opening extending from the top to the bottom thereof for receiving the cap magazine 35 and discharging caps from the bottom of the housing. The housing also has a top wall or web 37 preferably formed integrally therewith. This housing is secured in fixed relation to the machine in any suitable manner, and in the construction shown, this is accomplished by extending the top wall or web 37 laterally beyond one side of the housing and providing the same with an aperture through which a reduced stem or shank 38 of the head 29 extends. The web 37 is, consequently, clamped by means of the screw or bolt 30 between a lug 28 of the tank and a shoulder formed between the head 29 and its shank 38, and is thus rigidly secured on the machine and in correct relation to the capping head 29. It will also be noted that the side of the housing 36 has a vertical slot into which the lug or key 34 of the bell extends to hold the bell against turning about the head 29.

The caps are fed one at a time from the bottom of the cap magazine into a position below the head 29, as shown in Fig. 9, and any suitable means may be employed for feeding the caps in this manner. In the particular construction illustrated, I provide a segmental oscillatory feed member or plate 40, which is suitably mounted to slide on the bottom face of the housing or frame member 36 of the capping device. In order to provide for the oscillatory motion of the feed member 40, the frame or housing 36 of the capping device is provided with another upright cylindrical chamber or aperture 41 in which a pivot member or post 42 is journalled, to the lower end of which the oscillatory feed member or plate 40 is rigidly secured in any suitable manner. The upper end of the post extends slightly above the top plate or member 37 of the housing and the post 42 may be held from dropping downwardly out of its cylindrical aperture 41 in any suitable manner, for example, by means of a nut 43 secured by means of screw threads to the upper end of the post 42, the lower face of the nut bearing against the upper face of the top plate 37 of the housing. 44 represents a locking screw for locking the nut 43 in any adjusted position. Any other means for pivoting or movably mounting the cap feeding plate 40 on the capping device may, of course, be provided, if desired.

From the foregoing description, it will be obvious that the cap feed plate 40 may swing along the lower face of the housing 36 from a cap receiving position shown in Fig. 7 to a cap discharge position shown in Fig. 8. The cap feed plate 40 is provided at an edge thereof with a projection which is depressed slightly below the upper face of this plate to form a seat 45 for a cap, the depression of the seat below the top face of the plate 40 being not more than the thickness of a cap. When the cap feed plate is in the cap receiving position, the cap seat 45 will be positioned directly under the cap magazine so that the lowermost cap of the stack drops upon the seat. Consequently, when the cap feed plate 40 is swung from the position shown in Fig. 7 to that shown in Fig. 8, the lowermost cap will be carried on the seat 45 into a position directly underneath the capping head 29, and during this movement of the feed plate 40, other flat portions of the feed plate will support the stack of caps. I provide means for releasably holding the cap underneath the capping head 29 on the bell 32, and for this purpose, the bell is provided in a side thereof with a slot or opening 47 through which the cap seat 45 and adjacent portions of

the cap feed member 40 may pass. The bell is also provided with a shouldered portion 48, in which the cap may be held beneath the head 29 until positioned in a container.

Suitable means are provided for yieldingly holding a cap in the shouldered portion or recess 48 of the bell, and in the construction shown for this purpose, I provide a lever 50 pivoted at 51 between two lugs or projections 52, 53, Fig. 10 extending outwardly from the bottle guide or bell 32, and one end of this lever is provided with a cap holding finger 54 which is arranged to extend through the slot or opening 47 of the bell 32. A spring 55 yieldingly urges the lever into a direction in which the finger 54 will engage a cap in the bell 32. Consequently, when the cap feed plate 40 is swung into the position shown in Fig. 8, it will be noted that the edge of the cap engages the inner end of the finger 54, and thus moves this finger outwardly to a limited extent. As the cap feed plate 40 is moved back from the position shown in Fig. 8 to that shown in Fig. 7, the finger 54 will hold the cap, pressing the same against the shouldered portion 48 of the bell. Subsequently, when the capping device and bottle are moved relatively to each other for positioning the cap in the neck of the bottle, for example, due to the upward movement of the table 25 of the capping machine, the bottle will engage in the annular recess 33 of the bell and press the bell upwardly on the capping head 29, so that this head moves the cap downwardly out of engagement with the finger 54 and the shouldered portion 48 of the bell and into the upper end of the neck of the bottle or container. Further upward movement of the bottle will cause the head 29 to press the cap into its seat in the neck of the bottle. As soon as the cap is moved out of engagement with the finger 54, this finger will move inwardly against the capping head 29, thus producing a swinging movement of the lever 50 from the position shown in Fig. 8 to that shown in Fig. 7.

The movement of the cap feed plate 40 may, of course, be effected in any suitable or desired manner in correct relation to the positioning of the caps on the bottles, and in the construction shown, I have provided the cap feed plate 40 with an outwardly extending projection or arm 57 which is provided with an open ended slot 58, and oscillatory motion may be applied to the cap feed plate 40 by means of an arm 60 having a pin 61 extending into the slot of the arm 57. These arms are moved by any suitable means in such a manner as to impart motion to the feed plates 40 alternately in opposite directions. The movement of the feed plate 40 into cap receiving position may be limited in any suitable manner, for example, by means of an outwardly extending stop lug 62 formed on the bell 32 and with which the lug 57 engages. Movement in the other direction will, of course, be stopped when the cap engages the shouldered portion 48 of the bell.

In the operation of a bottle filling and capping machine, it frequently happens that there may be no bottles on one or more of the bottle supports 24 while in the capping station C of the machine. It is, consequently, very desirable that means be provided for interrupting the feed of caps from the cap magazine when a cap is already positioned under the capping head 29. For this purpose, I provide the cap holding lever 50 with an arm 65a having a finger or detent 65 at the end thereof. I also provide on the cap feed plate 40 a finger or lug 66. The detent or finger 65 and lug 66 are so positioned relatively to each other that when the finger 54 of the lever 50 is in engagement with an edge of a cap as shown in Fig. 8, then the lever 50 will be swung about its pivot and against the action of the spring 55 into a position in which the detent 65 will be in the path of movement of the lug 66, so that the feed plate 40 cannot move entirely back into its cap receiving position. Obviously, unless the cap seat 45 of the plate 40 is completely underneath the cap magazine, no cap will drop into the seat. Consequently, if the cap under the head 29 is not removed from engagement with the finger 54, no additional cap will be fed to the feed plate 40, and when the feed plate is again actuated by its arm 60, no feeding of a cap will take place. If, however, a bottle is moved into capping position so that the cap is inserted into the neck of the bottle, the finger 54 will be released and will move inwardly, thus permitting the detent finger 65 to move out of engagement with the lug 66, which in turn will permit the feed plate 40 to be advanced from the position shown in the upper part of Fig. 11, to the cap receiving position shown in the lower part of Fig. 11.

In order to provide either for a complete return motion of the cap feed plate 40 to its cap receiving position or a partial return movement, the arms 60 are yieldingly mounted so as to produce a yielding pressure against the slotted arm 57. The arms 60 may be actuated in any suitable manner, and in the construction illustrated, movement is imparted to the arms 60 by suitable positively actuated mechanism, and the arms 60 are yieldingly mounted with reference to such mechanism, so that they can move the cap feed plates 40 either partly or entirely into their cap receiving positions. In the particular construction shown for the purpose, the arms 60 are yieldingly mounted upon an oscillatory part or ring 70 suitably arranged upon the stationary column of the machine. This column includes, in addition to an outer tubular member 20, an inner substantially concentric tubular member 71, and these two tubular members are connected by means of an annular column head 72 having a downwardly extending flange 73 suitably secured to the inner tubular member 71 of the column. As shown in Fig. 13, this head is split and may be clamped about the inner tubular member 71 by means of a clamping screw or bolt 73a. In addition, the head 72 may be fastened to the inner tubular member 71 by means of a screw 74. The head also has a downwardly extending flange 75 fitting within the outer tubular shell 20 of the column and held in place relatively to the same by means of one or more set screws 76. The head 72 has an outwardly extending flange or part 78 to which the tank 21 of the machine may be secured and the outer surface of the head 72 also provides a bearing for the oscillatory ring 70, the lower edge of which may, if desired, bear against the upper edge of the outer tubular member 20 of the column.

Oscillatory motion may be imparted to the arm supporting ring 70 in any suitable manner, and in the particular construction shown, this is accomplished by means of an oscillatory upright shaft or rod 80 arranged within the column, the lower end of which may be actuated by any suitable mechanism operating in properly timed relation to the mechanisms for raising and lowering and turning the table 25, which mechanisms are not shown. The upper end of the rod 80 is provided with an arm or projection 81 which extends through a recess or cut-out portion 82 formed in

the head 72. The outer end of this arm is suitably connected with the ring 70 to impart oscillatory motion thereto. For example, the outer end of the arm 81 may extend into a recess formed in the inner face of the ring 70, and any suitable bearing member or part 83, Figs. 5 and 12, may be arranged in the recess and interposed between the outer end of the arm 81 and the ring 70. Consequently, oscillatory motion of the rod or shaft 80 is imparted through the arm 81 to the ring 70.

The arms 60 may be yieldingly mounted on the oscillatory ring 70 in any suitable or desired manner, and in the construction illustrated, the ring 70 is provided at a portion of its periphery with a flange or bracket 85 which is provided with a series of upright pins 86, two being provided for each arm 60, the pins preferably extending above and below the bracket 85 of the ring 70 and at opposite sides of approximately T-shaped holes or openings 84 of the flange. The inner ends of the arms 60 are formed to cooperate with the pins 86, and are, consequently, provided with flaring ends 87 having a pair of substantially semi-cylindrical sockets 88 adapted to engage the upper ends of a pair of pins 86. Each arm 60 is also provided with a downwardly projecting arm or part 89, which extends through a hole or opening 84 of the flange and to the lower end of which is secured a pair of outwardly extending projections 90, which are also provided with similar substantially semi-cylindrical recesses 91 adapted to engage the lower ends of the pins 86. Each arm 60 is yieldingly urged into a position in which the recesses 88 and 91 will be in engagement with both the upper and lower ends of a pair of pins 86, and for this purpose, a spring 93 is provided, one end of which engages the arm 89, and the other end of which bears against a portion of the flange or bracket 85 of the ring 70. Each spring 93 may be located in a hole or opening 84 and may be held in correct relation to the arm 89 by means of a lug or projection 94 adapted to enter into an end of the coil spring 93 and the other end of this spring may extend into a socket formed in a threaded member or screw 95 secured in a part of the flange 85 of the ring 70. The hollow screw 95 has a screw-threaded engagement on its outer surface with the flange 85 so that the pressure of the spring 95 can readily be adjusted as may be desired.

By means of the construction described, the arms 60 will be normally urged by their springs 95 into a position in which the recesses 88 and 91 engage a pair of pins 86 as shown in Fig. 16. The oscillatory motion of the ring 70 is preferably slightly more than required to move the cap feed plates 40 through their entire path of movement, and this excess movement is, consequently, taken up by the swinging of the arms on one or another of the pins 86. Consequently, when the ring 70 is turned into a position to enable the cap feed plates 40 to receive caps from the magazines, the arms will swing about one of their pins 86, as shown in Fig. 5. In the event that one or more of the cap feed plates is held from moving into its cap receiving position by means of the detent finger 65, as shown in the upper part of Fig. 11, the arm 60 will swing to a greater extent about one of its pins 86, and while in this position, the spring 93 of this arm, of course, urges the arm toward a position in which it would engage both of the pins 86. Consequently, if the cap is removed so that the lever 50 swings the detent 65 out of engagement with the lug 66, the action of the spring 93 will cause the cap feed plate 40 to move rapidly into cap receiving position underneath its cap magazine 35, as shown in the lower part of Fig. 11. When the arms are in positions to urge the cap feed plates into cap receiving positions, as shown in Fig. 5, each arm will, consequently, bear upon only one of its pins 86, and when the arms are swung into positions to move the cap feed plates into positions to deposit a cap under each capping head 29, the arms will be in engagement with their other pins 86, as shown in Fig. 6. By means of this construction, great accuracy in the extent of movement of the ring 70 is not necessary, and furthermore, if for any reason any part of one or more capping devices becomes inoperative or jammed, the springs 93 will merely become compressed to a greater degree by a greater swinging of one or more arms 60 about one or another of its pins 86, and no breaking or damage to any part of the capping mechanism will result.

The construction described has the further advantage that the larger parts of the capping devices, such as the heads 29 and the frame 36 together with the cap magazines supported thereon, are stationary, which results in a more positive and reliable operation of the same.

Another advantage of the capping mechanism described is that if the machine to which the capping mechanism is applied is operated without having any containers supported on the container supports 24, or if some of the supports have bottles thereon while others have none, no harm or loss of caps results, since the levers 50 will prevent the feeding of caps in any capping device having a cap positioned under the capping head 29.

I claim as my invention:

1. In a container capping mechanism, the combination of a magazine for a stack of caps, means for pressing a cap into operative relation to a container, a movable feed member having a predetermined alternating stroke for removing caps one at a time from said magazine and positioning the same in operative relation to said cap pressing means, and means operative when a cap is in an operative position with relation to said pressing means for arresting said feed member in its movement to its position to receive a cap from said magazine before said feed member reaches that position whereby reception of another cap for delivery to capping position is avoided.

2. In a container capping mechanism, the combination of a magazine for a stack of caps, means for pressing a cap into operative relation to a container, a movable feed member for removing caps one at a time from said magazine, means for yieldingly holding a cap in operative relation to said pressing means, and cooperating parts on said feed member and said cap holding means which, when said cap holding means is in engagement with a cap, acts to prevent completion of movement of said feed member into cap receiving and removing relation to said magazine.

3. A container capping mechanism, including a stationary cap applying head, means for moving containers toward and from said head for applying caps thereto, a magazine for a stack of caps also arranged in fixed position with relation to said capping mechanism, a movable feed member for supplying caps, one at a time, from

said magazine to said head, and a member which yieldingly holds a cap in operative relation to said head, said member when in cap holding position also interrupting the operation of said feed member.

4. A container capping mechanism, including a stationary cap applying head, means for moving containers toward and from said head for applying caps thereto, a housing secured in fixed relation to said head, means on said housing for supporting a stack of caps, a feed member movably mounted on said housing for supplying caps, one at a time, from said stack to said head, and a lever pivotally mounted on said housing for yieldingly holding a cap in operative relation to said head, said lever also stopping movement of said feed member when a cap is held by said lever.

5. A container capping mechanism for use on a machine having a vertically movable container support, said mechanism including a capping head and a cap magazine, a cap feeding member movable between said magazine and said head for supplying caps one at a time from said magazine to said head, said machine having an oscillatory part, an abutment on said part, an arm bearing aginst said abutment and having a part engaging said feeding member, and yielding means between said arm and said part to hold said arm against said abutment and yieldingly transmit oscillatory motion of said part to said arm and to said feeding member.

6. A container capping mechanism for use on a machine having a vertically movable and yieldable container support, said mechanism including a capping head secured on a fixed part of said machine, a bell slidable vertically on said head and adapted to receive and center the bottle with relation to said head, said bell having means for releasably holding a cap in position beneath said head, a magazine for a stack of caps mounted in fixed relation to said head, a cap feeding device for feeding caps one at a time from said magazine to said bell, a movable part on said machine from which movement is imparted to said cap feeding device, and a yieldable connection between said movable part and said device.

7. A container capping mechanism for use on a machine having a container support, said mechanism including a capping head, a cap magazine, a movable cap feeding member for supplying caps, one at a time, from said magazine to said head, said machine having a movable part and an arm flexibly mounted on said movable part and engaging said cap feeding member, said arm and said movable part being connected by means of a pair of pivot members arranged side by side with their axes extending approximately parallel to each other, and yielding means for urging said arm into engagement with both of said pivot members, whereby said arm may swing about either of said pivot members against the action of said yielding means.

8. A container capping mechanism for use on a machine having a container support, said mechanism including a capping head, a cap magazine, a movable cap feeding member for supplying caps, one at a time, from said magazine to said head, said machine having a movable part provided with a pair of pivot pins arranged side by side, an arm having at one end thereof a pair of sockets arranged to engage said pivot pins, and resilient means for urging said arm into contact with both of said pivot pins, the other end of said arm engaging said cap feeding member.

9. In a container capping mechanism, the combination of a rotary container support, a standard on which said container support is mounted, an oscillatory member mounted on said standard and movable thereon independently of said container support, means for pressing a cap into engagement with a container, means for providing relative movement of said container support and cap pressing means for causing said pressing means to press a cap into engagement with a container, a magazine for a stack of caps, means for feeding the caps one at a time from said magazine into operative relation to said pressing means, an arm extending between said oscillatory member and said feeding means, a part on said member against which said arm abuts, opposed projections on said member and said arm, yielding means arranged under compression between said projections for yieldingly retaining said arm against said part, and which, should the movement of said feeding means be interrupted, yields to enable said oscillatory member to complete its movement without damage to said arm and said feeding means.

10. In a container capping mechanism, the combination of a container support movable about an upright axis and also movable vertically in a direction substantially parallel to said upright axis, means for pressing a cap into engagement with a container when said container support moves upwardly, a magazine for a stack of caps, means for feeding the caps one at a time from said magazine into operative relation to said pressing means, a standard on which said container support is mounted, an oscillatory member rotatably mounted on said standard and movable alternately in opposite directions independently of said container support, and a yielding connection between said cap feeding means and said oscillatory member for imparting oscillatory motion of said member to said cap feeding means.

11. In a container capping mechanism, the combination of a magazine for a stack of caps, means for pressing a cap into operative relation to a container, a movable feed member for removing caps one at a time from said magazine, a cap holding lever, yielding means engaging said lever to urge one arm thereof yieldingly into engagement with a cap when positioned in operative relation to said pressing means for yieldingly holding said cap in position to be applied to a container, the other arm of said lever being arranged to extend into the path of movement of a part of said feed member when said lever is in said cap holding position and which, when the cap is removed from engagement with said cap holding lever, is automatically moved out of the path of movement of said feed member by said yielding means.

12. In a container capping mechanism, the combination of a magazine for a stack of caps, means for pressing a cap into operative relation to a container, a movable feed member for removing caps one at a time from said magazine, a pivoted means for lever, yieldingly urging said lever to swing about its pivot into a position in which one arm thereof engages a cap for holding the cap in position to be applied to a container, and cooperating stop parts on said feed member and said lever for arresting said feed member before completion of its movement into cap receiving relation to said magazine as long as said lever is supporting a cap in operative relation to said cap pressing means.

13. In a container capping mechanism, the combination of a member for pressing a cap on a container, a magazine for caps, a cap feed member for feeding caps from said magazine into operative relation to said pressing member, a cap holding member having a part which extends into a position to engage a cap for supporting the same in operative relation to said pressing member, and means for yieldingly urging said cap holding member into said position to hold said cap, said cap holding member having a part which swings into the path of movement of said feed member when said cap holding member is in cap holding position to stop the operation of said feed member before the same moves to a position in which it can receive another cap and which releases said feed member when said cap is removed from operative relation to said pressing member to enable said feed member to complete its movement to cap receiving position.

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