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F. O. WOODLAND.

FEEDER CONNECTING COLLAR MECHANISM FOR BOTTLE STOPPERING MACHINES.

APPLICATION FILED APR. 15, 1901.

NO MODEL.

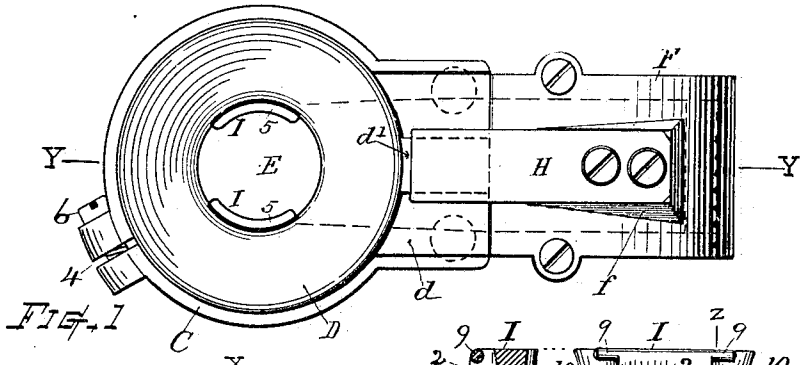


FIG. 1

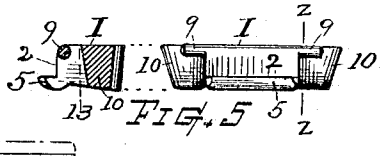


FIG. 5

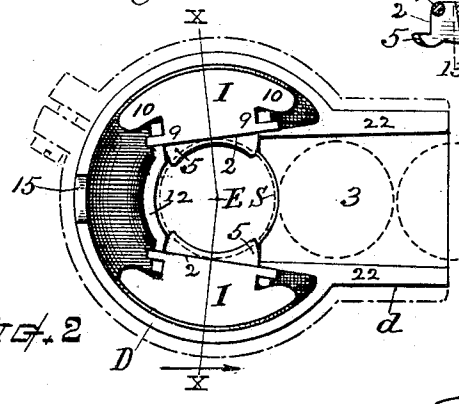


FIG. 2

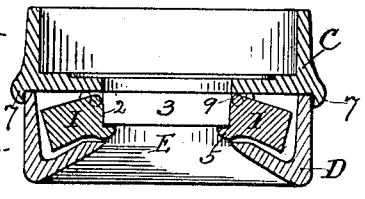


FIG. 3

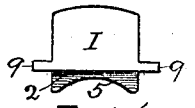


FIG. 6

FIG. 4

FIG. 7

FIG. 8

Witnesses.
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No. 766,090. Patented July 26, 1904.

UNITED STATES PATENT OFFICE.

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FEEDER CONNECTING COLLAR MECHANISM FOR BOTTLE-STOPPERING MACHINES.

SPECIFICATION forming part of Letters Patent No. 766,090, dated July 26, 1904.

Application filed April 15, 1901. Serial No. 55,828. (No model.)

To all whom it may concern:

Be it known that I, FRANK O. WOODLAND, a subject of the King of Sweden and Norway, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Feeder Connecting Collar Mechanism for Bottle-Stoppering Machines, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

My present invention relates to the improved construction and manner of arranging within the bottle-centering collar of the jaws or devices for supporting the stoppers, crowns, or sealing-caps within the collar at position for receiving the bottles in the capping operation, also to the construction of the collar members and means for connecting the same, the objects being to provide a collar mechanism of simple, durable, and efficient construction and adapted for affording ready access to the interior of the feedway and to the crown-supporting jaws.

In the drawings, Figure 1 is an inverted plan view of the collar and attached feeder-chute. Fig. 2 is a top plan view of the lower half or member of the collar, the relation thereto of the upper half or member being indicated in outline by a dot-and-dash line. Fig. 3 is a transverse vertical section through the collar and movable jaws at the position of line $x\ x$ on Fig. 2 looking in the direction indicated by the arrow. Fig. 4 is a vertical section of the collar, the lower part of a feeder-chute, and a portion of a bottle-stoppering-machine head at the position of line $y\ y$ on Fig. 1, showing the parts as in position for use, also indicating by dotted lines the position of the top of a bottle for receiving the sealing-cap or crown stopper and illustrating the manner of detaching the lower member of the collar. Fig. 5 shows the inner face and a cross-section at $z\ z$ of one of the improved gravity-actuated jaws separate from other parts. Fig. 6 is a plan view showing the improved jaw as made without extended ends. Fig. 7 is a side view, on smaller scale, of the collar secured to the stoppering-machine head; and Fig. 8 is a plan view of the top of the collar, showing its slit and clamp device.

In my improved collar mechanism the collar-body is composed of two separable parts or members—an upper member C, adapted to be rigidly secured to the stoppering-machine head A, and a lower detachable member D, which serves as a mouthpiece or guide for centering the bottle B in relation to the cap-setting tool or die a and as a casing-shell for the feedway and gravity-actuated cap-holding jaws, hereinafter more fully described.

The upper half or member C of the collar consists of an annular plate, preferably transversely slitted at 4 and having a standing ring-flange for embracing the end of the machine-head A, and provided with ear-lugs and a clamp-screw 6 for firmly closing the flange thereon. It is also provided with a laterally-projecting seat c for attaching to the end of the feeder-chute F and with a downward lip 7 about its lower peripheral edge. The curved end of the chute F is formed with increased thickness, as at F′, affording a deep shoulder for abutting upon the projection of the centering-collar. The feed-chute is best united with the seat c by opposite countermatching-shoulders 8 and attaching-screws 18, as shown in Fig. 4, which combine to afford a rigid attachment that will sustain the lifting force for moving the chute and hopper without loosening or giving way at the junction.

The lower half or member D of the collar is according to my invention formed to match the under side of the upper member within the lip 7, which latter gives lateral support therefor with a close but not tight fitting joint. The member has a lateral extension d, corresponding, or approximately so, with the chute-attaching seat c. In its top there is formed the lateral feedway 3, leading into the central throatway or bottle-centering opening E. The under face is suitably concaved and rounded about said opening, and under-

neath the extension d there is formed an outwardly-inclined lug d', having an under seating-surface for receiving the end of a spring or springs H, the opposite end of which is secured by screws h to a seat or boss f, formed on the under side of the feeder-chute, substantially as shown in Figs. 1 and 4.

The collar member D is chambered internally, and at either side of the centering-opening within the member I arrange opposite pivotally-suspended gravity-actuated jaws I I for receiving and holding the crowns centrally poised. Said jaws are best formed as shown in Figs. 2, 3, and 5. The jaw I consists of a body portion or block of metal having a forwardly-projecting lip or ledge 5, an upright inner face 2, disposed in continuation of the walls 22 of the feedway 3, and is provided with endwise projecting trunnions or pivots 9 at its upper corners. Said pivots are supported in bearing-grooves formed in the top edges of the member D, as best shown in Figs. 2 and 3, the pivots being loosely confined in the bearings by the overlying member C when the two parts of the collar are placed together. The body of the jaw extends backward into the cavity between the inner and outer rim and is made of such form and dimensions as will conveniently and freely swing therein, while affording a preponderant bulk the gravity of which serves to actuate the jaw in its return movement and to normally maintain said jaw at the position indicated, with its lip 5 advanced into the throatway-opening and its upright face 2 at position for guiding the stopper, crown, or sealing-cap into central relation with the opening E. The end portions of the jaw-body may be extended, as at 10, beyond the positions of the trunnion-bearings 9 in order to give greater preponderant weight, as shown in Figs. 2 and 5. If in any instance desired, the extension 10 at the ends can be omitted or the jaw-body formed as in Fig. 6.

The collar has an inner wall 12, defining the throatway opposite the feedway 3 between the opposite jaws I. The ends of said wall turn outward for a short distance to form the bearing-support for the jaw-pivots 9, and beyond which the end of the wall terminates and serves as an arresting-stop for the downward swing of the jaw-body by the inner side of the end extension striking the end of the wall. The relation of the end of said wall to the jaw member is indicated by the dotted line 13 on the section, Fig. 5. The stopping of the jaw I can, if desired, be effected by the contact of some other portion of its body; but with the stop as above described there is but little liability of any glass chips or accumulation of matter interfering with the proper working of the jaws.

The two opposite jaws are preferably disposed with their inner faces 2 somewhat convergent or inclined relatively to each other, giving a decreasing width of space in continuation of the feedway, so that the entering crowns or bottle-sealing caps will lodge edgewise between the opposite jaw-faces with a slight holding resistance sufficient to keep the crown in position approximately central with the throatway. (See dotted lines 3 on Fig. 2.)

The jaws are free to drop out of the collar member when the latter is detached and inverted. Thus the removal, cleansing, and replacing of such parts can be readily and quickly performed. The detachment of the member D is effected by pressing down the edge opposite the feedway to release it from the lip 7 and then sliding its lug d' from the holding-spring H. (See dotted lines D', Fig. 4.) The member is readily attached to the upper portion C by slipping the projecting end between the spring H and upper part c and then snapping the top edge of the rim within the lip 7. The spring H pressing upward against the lug d' serves to hold the lower member D firmly up against the bottom surface of the upper member C of the collar. The rim of the lower member is best provided with a hole or recess 15, into which the end of a bottle-opener or other instrument can be inserted to aid in pressing down the edge of the collar member to free it from the lip 7 when its detachment is desired.

In practice the bottle-stopper crowns or sealing-caps are supplied to the chute F automatically by a hopper and arranging mechanism, (not shown,) which may be of any suitable construction or of the kind described in a separate application for Letters Patent.

In the operation the crowns or sealing-caps S slide down within the chute (see dotted lines, Fig. 4) and are carried by gravity around the curve to successively take position between the jaws I. When the capping-head, which is operated in usual manner, is moved downward, the cap or crown S, which is held by the jaws, is caught upon the top of the bottle B and beneath the plunger G, and the pressure of the bottle against the under beveled edge of the lips 5 overcomes the gravity of the jaws I, causing the same to yield by tilting on its trunnions 9, so that the lips swing back, giving way for the bottle while the cap-setting die a crimps the crown or cap upon the lips of the bottle and until the head A is again elevated, leaving the bottle properly stoppered. As the collar leaves the bottle the jaws I are returned by gravity to their normal position in time to receive and support the next crown or sealing-cap, which slides into place coincident with the throatway-opening as soon as the capped bottle passes out of the collar. The operation can then be repeated in like manner upon succeeding bottles.

As the lower collar member D and jaws are attached by interlocking means, the parts

can be instantly removed and replaced whenever access to the interior is desired. Defective stoppers can thus be released and the cleansing of the jaws effected with convenience and despatch.

I am aware that prior to my present invention differently-constructed spring-pressed pawls or jaws had been combined with a centering-collar in a bottle-stoppering machine for supporting a crown bottle-stopper preparatory to capping the stopper onto the bottle; but I do not herein claim any such pawl or jaw that depends upon or requires a spring for its action, since a prime object of my invention is to do away with the necessity of using springs and to afford an improved construction that is more convenient and efficient and comprising, essentially, a self-acting and readily-removable jaw and the same combined with its supporter or collar member in the peculiar manner hereinbefore described.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. A feeder connecting-collar for bottle-stoppering machines composed of two collar-sections as described; the upper collar-section consisting of an annular plate with a standing rim-flange transversely slitted and provided with ears and screw for clamping it to the stoppering-machine head, and having a chute-attaching seat at one side; and a detachable lower collar-section having the centering throat-opening and lateral feedway formed therein, and an upwardly-open chamber between its outer and inner walls with open bearing-grooves; in combination with a pair of rocking jaws loosely suspended within said chamber, and means for interlockingly sustaining said lower collar-section with upward pressure against the annular plate-surface of the upper section, substantially as set forth.

2. The combination with the bottle-stoppering-machine head, and a feeder-chute, of a collar composed of an upper member having means for its rigid connection to said head and chute, and provided with a downward lip or offset, a lower member having a feedway, a projection having a spring seating-surface on its under side, and a spring secured upon the chute and adapted for pressure against said seating-surface for the support of said lower member.

3. A collar for bottle-stoppering machines, comprising an attaching member and a detachable under face member provided with a feedway, and throatway-opening, in combination with pivotally-suspended gravity-actuated jaws disposed within said detachable member and each provided with an inwardly-projecting lip for sustaining the stoppers or sealing-caps at said opening.

4. A collar for bottle-stoppering machines, comprising a detachable collar member provided with a throatway-opening, and pivotally-suspended gravity-actuated jaws for sustaining the stoppers or sealing-caps at said opening.

5. A collar for bottle-stoppering machines, comprising a member provided with a feedway and throat-opening, and tilting gravity-actuated jaws provided with lips for sustaining the stoppers or sealing-caps at said opening.

6. In a bottle-stoppering machine, the combination with the throatway and the die or tool for securing the stoppers, crowns or sealing-caps to bottles; of a lateral feedway, and cap-supporting jaws having faces in continuation of said feedway, said jaws comprising preponderant body portions provided with pivoting-axes near the plane of the jaw-faces and adjacent to the top plane of the feedway; whereby said jaws are caused to assume normal position by the gravity of their body portions, substantially as set forth.

7. In a bottle-stoppering machine, in combination with the machine head and tool for securing stoppers, crowns or sealing-caps to bottles, and a feeder-chute; of a collar composed of two members an upper member having means for attaching it to said head, and a seat for attaching said feeder-chute, and a detachable lower member having a lateral feedway in continuation of the feeder-chute, and a pair of trunnions pivoted gravity-actuated jaws mounted wholly within said lower member and having inner faces and lips for embracing the crowns, substantially as set forth.

8. In combination with the chambered collar member, the gravity-actuated jaw having projecting trunnions at its ends adjacent to the face-line and a preponderant rear body the ends of which extend endwise beyond the position of the pivot-trunnions, substantially as set forth.

9. In mechanism for the purpose set forth, the combination, with the collar member having the inwardly-beveled face with the bottle-centering opening, and lateral feedway having side walls 22 for directing crowns or sealing-caps to the bottle-centering opening; of the receiving-jaws provided with inwardly-projecting lips and upright faces 2 in continuation of said side walls, said upright faces disposed slightly convergent in oppositely-inclined relation, and a stationary abutment 12 opposite the feedway, substantially as described.

10. In a feeder collar mechanism for the purpose specified, in combination, an upper collar member having means for its rigid attachment to the stoppering-machine head; a detachable lower collar member having a throatway-opening, a feedway, and an internal jaw-containing chamber with jaw-recesses, and bearing-grooves open at the upper side thereof, the movable jaws disposed in said recesses with pivoting trunnions engaging said grooves;

said jaws being retained within their recesses by the overlying face of the upper collar member, when assembled in working position, but free for removal and replacement by dropping them out or into the chamber of said lower collar member when said lower collar member is detached from the upper collar member; substantially as set forth.

11. In a mechanism for the purpose specified, the combination with the upper collar member having the downward peripheral lip, a feeder-chute attached to said upper member, a projecting spring attached to said chute, a lower collar member having a lug or seat for engagement with said spring and provided at its opposite side with a hole or recess for insertion of an instrument to aid in detaching said member.

Witness my hand this 12th day of April, 1901.

FRANK O. WOODLAND.

Witnesses:
CHAS. H. BURLEIGH,
ELLA P. BLENUS.