No. 651,050. Patented June 5, 1900.

N. MUSLAR.

AUTOMATIC FEED DEVICE FOR BOTTLE STOPPERING MACHINES.

(Application filed Feb. 16, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

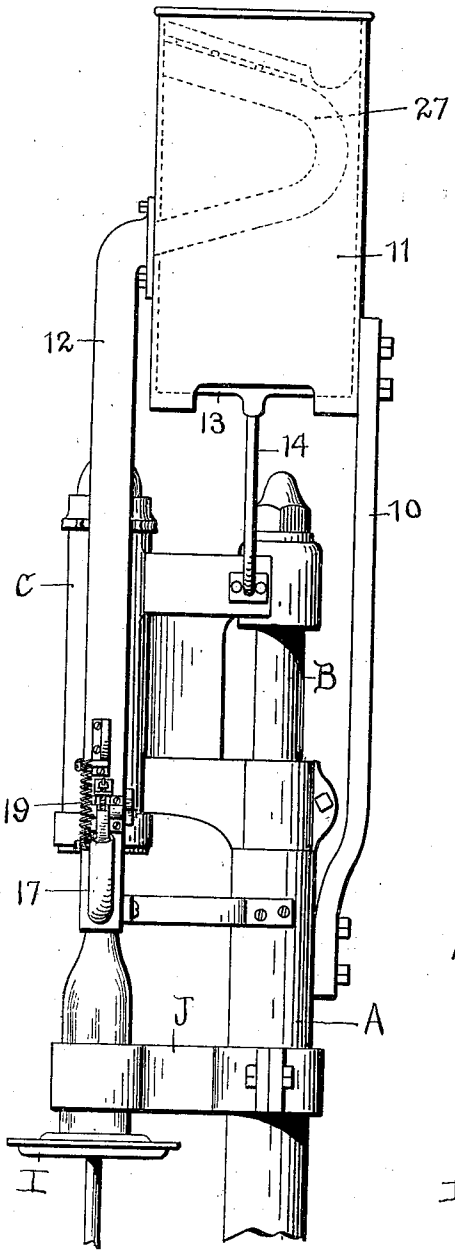
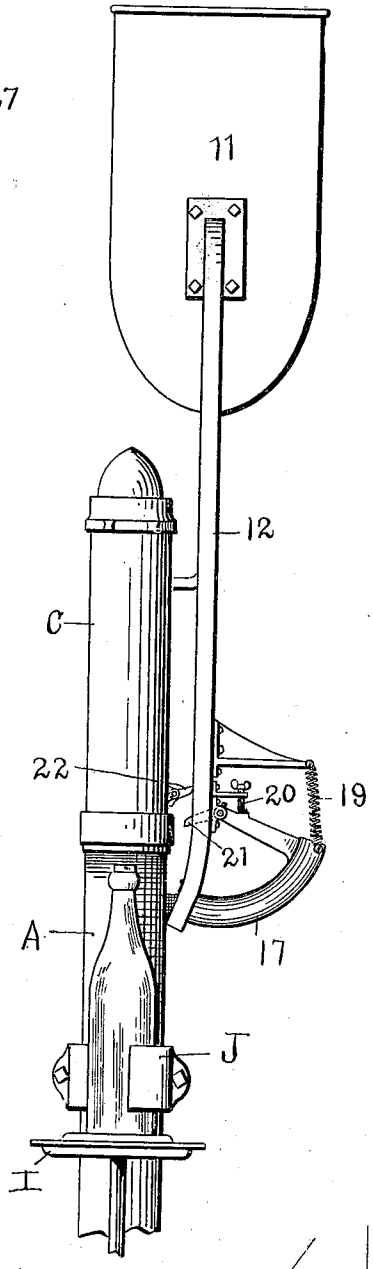


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

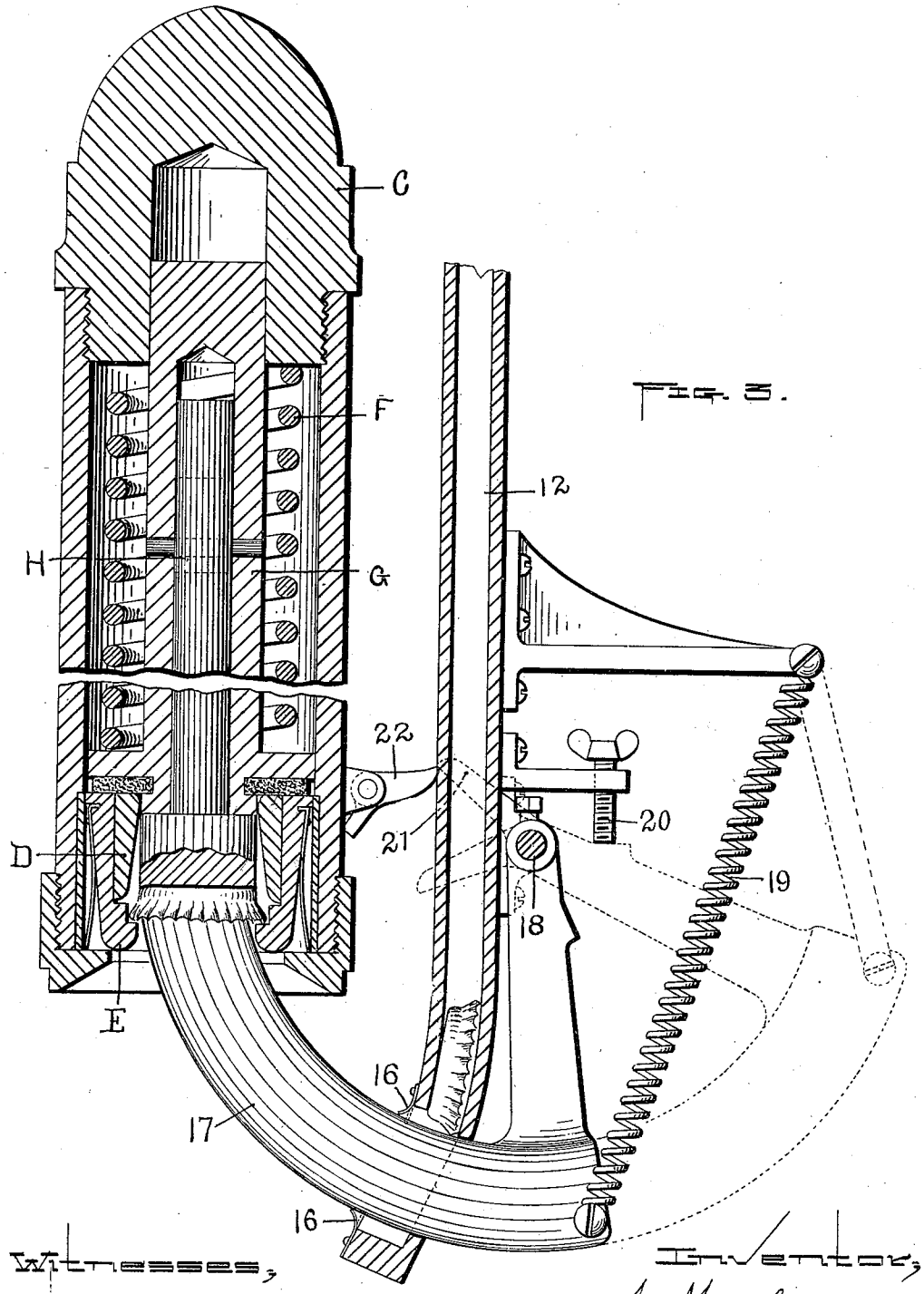


FIG. 5.

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AUTOMATIC FEED DEVICE FOR BOTTLE STOPPERING MACHINES.

(Application filed Feb. 16, 1899.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 4.

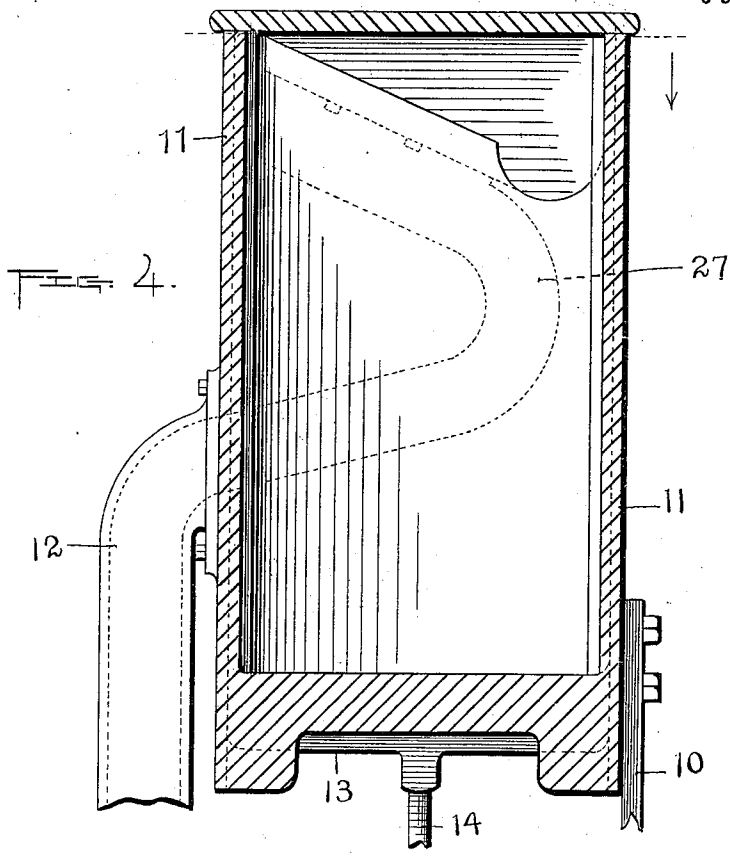


Fig. 5.

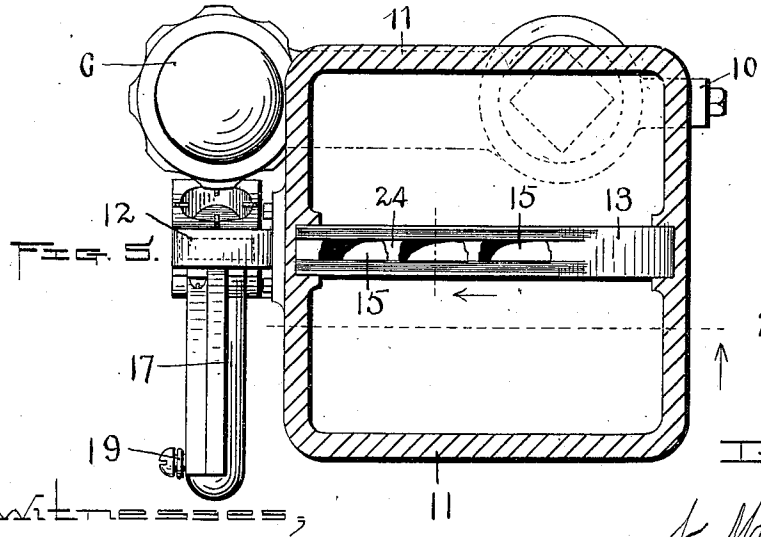
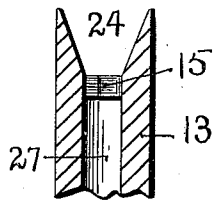


Fig. 6.



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UNITED STATES PATENT OFFICE.

NELSON MUSLAR, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AUTOMATIC BOTTLE STOPPER FEED COMPANY, OF PORTLAND, MAINE.

AUTOMATIC FEED DEVICE FOR BOTTLE-STOPPERING MACHINES.

SPECIFICATION forming part of Letters Patent No. 651,050, dated June 5, 1900.

Application filed February 16, 1899. Serial No. 705,635. (No model.)

To all whom it may concern:

Be it known that I, NELSON MUSLAR, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Automatic Feed Device for Bottle-Stoppering Machines, of which the following is a specification.

The object of my present invention is to provide a simple, efficient, and inexpensive apparatus for selecting and feeding crown-stoppers automatically to a machine employed for locking such crown-stoppers onto bottle-heads.

To this end my invention consists of the features of construction and combinations of parts, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying three sheets of drawings, Figure 1 is a partial side view of a machine for applying crown-stoppers provided with automatic selecting and feeding devices constructed according to my invention. Fig. 2 is a front view of the same. Fig. 3 is an enlarged sectional view illustrating the tapering throat and the means I preferably employ for inserting crown-stoppers up into the mouth thereof. Fig. 4 is an enlarged sectional view of the means I preferably employ for selecting and feeding the crown-stoppers from the hopper. Fig. 5 is a sectional plan view of the same, and Fig. 6 is a fragmentary sectional view of the selecting-plate.

Machines for applying crown-stoppers to bottles now ordinarily comprise a vertically-movable head having a tapering throat for forcing the corrugations of crown-stoppers into locking engagement with a shoulder on the bottle-head. In the use of these machines it is now ordinarily the practice to insert the crown-stoppers one at a time up into the mouth of a tapering throat by hand.

The speed of a hand-fed machine for applying crown-stoppers to bottles is necessarily limited by the skill of the operator, and when such machines are run by power the operators are in constant danger of having their fingers crushed between the top of the bottles and the vertically-movable head.

I have heretofore devised and applied to bottle-stoppering machines of the class to which my invention relates a number of automatic selecting and feeding devices, as shown, for example, in United States Patents No. 531,001, granted to me December 18, 1894; No. 607,262, granted to me July 12, 1898, and No. 612,865, granted to me October 25, 1898.

In my prior feeding devices the crown-stoppers have been inserted laterally into position, and this has necessitated the use of an opening at one side of the mouth of the tapering throat.

One especial object of my present invention is to provide means for automatically inserting the crown-stoppers up into the mouth of the tapering throat, so that the mouth of the tapering throat will not have to be cut away or left open on one side.

A further object of my present invention is to construct an automatic selecting and feeding mechanism which can be applied to bottle-stoppering machines now in use without alteration or change in the parts of such machines.

To accomplish these objects, I preferably employ a swinging normally-retracted plunger or carrier for inserting the crown-stoppers up into the mouth of the tapering throat of the machine, and I preferably provide connections for operating the swinging plunger from the up-and-down movement of the vertically-movable head of the machine, the swinging plunger being actuated to insert a crown-stopper during the upstroke of the head and then moving back out of the way, so as to leave an uninterrupted downstroke.

A still further object of my invention is to provide simple and efficient selecting devices for selecting and feeding crown-stoppers into position to be engaged by the swinging plunger. These selecting and feeding devices are also preferably actuated by the up-and-down movement of the head, and in their preferred construction they comprise a hopper having an inclined or rounding bottom and a vertically-movable selecting-plate having a channel or passage in which the crown-stoppers are first properly positioned and are then delivered to the passage or chute, when the

channel in the selecting-plate registers with the mouth of the chute.

Referring to the drawings and in detail, A designates the column or upright of a bottle-stoppering machine. Mounted in the column A is the vertically-movable shaft B, which carries the head C. Detachably secured in the head C, as most clearly illustrated in Fig. 3, is a tapering throat D. Mounted in the tapering throat D are a plurality of throat-dogs E. Coöperating with the tapering throat is a plunger G, which is normally forced down by a spring F. Loosely mounted inside of the plunger G is a small drop-plunger H for coöperating with the throat-dogs E to hold a crown-stopper in place in the mouth of the tapering throat. A table I is adjusted in position to coöperate with the vertically-movable head, and extending from the column of the machine over the table I is a bottle-guide J. These parts may be of the ordinary or approved construction and need not be herein described at length.

In applying an automatic feeding device constructed according to my invention to a machine of this class I preferably employ an upright or support 10 for carrying a hopper 11, which hopper 11 preferably has a rounding or tapered base, as shown most clearly in Fig. 2. Extending down from the hopper 11 is a passage or chute 12. Operating transversely with respect to the lower end of the passage or chute 12 is a swinging plunger 17, which is journaled on a rock-shaft 18. The swinging plunger 17 is normally retracted by a spring 19, as shown in Fig. 2, its rearward motion being preferably limited by a stop or screw, as 20. Extending from the rock-shaft 18 is an arm or tailpiece 21, and coöperating with the arm or tailpiece 21 is an operating pawl or dog 22, journaled on the vertically-movable head. The transverse opening at the lower end of the passage or chute 12 may be provided with small spring-fingers 16, as shown in Fig. 3, for preventing the crowns from dropping out when the plunger is retracted.

The means I preferably employ for selecting and feeding the crown-stoppers to the chute 12 are most clearly illustrated in the third sheet of drawings. As shown in Figs. 4 to 6 thereon, I preferably employ a vertically-movable selecting-plate 13, which may be actuated from the vertically-movable head of the machine by a rod 14. The selecting-plate 13 has an inclined channel or passage 27, and the upper end of the selecting-plate is provided with an inclined V-groove 24. The inclined groove only extends part way down the upper end of the plate 13, as shown in Fig. 4, so that the crowns which face oppositely relatively to holes 15 can roll down said groove and drop off. The V-groove 24 and the passage or channel 27 of the selecting-plate are connected by a plurality of openings, as 15, which are shaped to allow only such crown-stoppers as face in one direction to pass down into the channel or chute 12.

The operation of a feeding mechanism as thus constructed is as follows: To start the machine into operation, it is simply necessary to put a quantity of crown-stoppers into the hopper 11, and as the head of the machine is moved up and down the selecting-plate 13 will move up and down through the crown-stoppers and will select and feed the crown-stoppers to the chute 12 as fast as the same are required, such crown-stoppers being introduced into the chute in uniform position. As the head of the machine moves down the catch 22 thereon will ratchet or move idly past the operating arm or tailpiece 21. On the upstroke of the head the catch 22 will first turn the swinging plunger 17 against the tension of the spring 19 to insert a crown-stopper up into the mouth of the tapering throat, as illustrated in Fig. 3, and when the catch 22 is moved up past the arm or tailpiece 21 the swinging plunger will be left free to snap back out of the way, leaving an unobstructed downstroke for the head, during which downstroke the tapering throat will act to lock the crown-stopper onto the head of the bottle which has been properly positioned below the same.

To throw the feeding device out of action, it is simply necessary to turn the catch 22 up out of position to engage the arm or tailpiece 21, and when this has been done the machine may be fed by hand in the ordinary manner.

The invention may be used to place other forms of stoppers or seals besides crown-seals in the capping or sealing head.

I am aware that many changes may be made in the construction of my automatic feeding devices for bottle-stoppering machines by those who are skilled in the art without departing from the scope of my invention as expressed in the claims. I do not wish, therefore, to be limited to features of construction which I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a machine of the class described, the combination of the movable head for securing stoppers, and an automatically-operating means for successively inserting stoppers up into the movable head from below the same at a time when the movable head is not coöperating with a bottle, substantially as described.

2. In a machine of the clsss described, the combination of the movable head for securing stoppers, a plunger or carrier for successively inserting stoppers up into the movable head from below the same, and means for automatically operating said plunger or carrier, substantially as described.

3. In a machine of the class described, the combination of a tapering throat, means coöperating therewith for locking crown-stop-

pers onto bottles, and means for successively inserting crown-stoppers up into the mouth of said throat from below at a time when the tapering throat is not coöperating with a bottle, substantially as described.

4. In a machine of the class described, the combination of a tapering throat, means cooperating therewith for locking crown-stoppers onto bottles, a plunger or carrier for successively inserting crown-stoppers up into the mouth of said throat, and means for automatically operating said plunger, substantially as described.

5. In a machine of the class described, the combination of a tapering throat, means cooperating therewith for locking crown-stoppers onto bottles, a hopper, a passage or chute leading therefrom, means for delivering crown-stoppers in uniform position to said chute, and means for successively taking said stoppers from said chute and inserting the same up into the mouth of the throat from below, substantially as described.

6. In a machine of the class described, the combination of a tapering throat, means cooperating therewith for locking crown-stoppers onto bottles, a hopper, a passage or chute leading therefrom, means for delivering crown-stoppers in uniform position to said chute, a plunger for successively inserting crown-stoppers up into the mouth of said throat, and means for automatically operating said plunger, substantially as described.

7. In a machine of the class described, the combination of a vertically-movable tapering throat, means coöperating therewith for locking crown-stoppers onto bottles, and means controlled by the vertical movement of said throat for successively inserting crown-stoppers up into the mouth thereof from below, substantially as described.

8. In a machine of the class described, the combination of a vertically-movable tapering throat, means coöperating therewith for locking crown-stoppers onto bottles, a swinging plunger, and connections controlled by the vertical movement of said throat for actuating said plunger to successively insert crown-stoppers up into the mouth thereof, substantially as described.

9. In a machine of the class described, the combination of a vertically-movable tapering throat, means coöperating therewith for locking crown-stoppers onto bottles, a hopper, a chute or passage, means for delivering crown-stoppers to said chute in uniform position, a normally-retracted swinging plunger, and connections controlled by the vertical movement of said throat for operating said swinging plunger to insert a crown-stopper up into the mouth of the throat during the upstroke thereof substantially as described.

10. In a machine of the class described, the combination of a vertically-movable tapering throat, means coöperating therewith for locking crown-stoppers onto bottles, a hopper, a chute or passage, means for delivering crown-stoppers to the chute or passage in uniform position a normally-retracted swinging plunger 17 arranged to move transversely across the end of the chute or passage, an operating-dog 22 carried by the vertically-movable head of the machine, in position to engage the arm or tailpiece 21 of the swinging plunger 17 during the upstroke of the head, to insert a crown-stopper up into the mouth of the tapering throat, said operating-dog 22 being free to ratchet past the arm 21 on the downstroke, substantially as described.

11. In an apparatus for feeding crown-stoppers, the combination of a taper-bottomed hopper, a chute leading therefrom, a vertically-movable selecting-plate, having a passage arranged to register with the mouth of the chute and deliver crown-stoppers thereto and an opening into said passage formed so that said stoppers can only pass into said passage facing in one direction, substantially as described.

12. In an apparatus for feeding crown-stoppers, the combination of a taper-bottomed hopper, a chute leading therefrom, and a vertically-movable selecting-plate having a passage for registering with the mouth of the chute, an inclined V-groove on its upper end, and a plurality of openings in the bottom of said V-groove permitting the crown-stoppers to enter the passage in the selecting-plate in one position only, substantially as described.

13. In a machine of the class described, the combination of a tapering throat, means cooperating therewith for locking crown-stoppers onto bottles, a taper-bottomed hopper, a chute leading therefrom, a vertically-movable selecting-plate having a passage registering with the chute to deliver crown-stoppers thereto, and means for successively inserting the crown-stoppers from said chute up into the mouth of the tapering throat from below, substantially as described.

14. In a machine of the class described, the combination of a vertically-movable head C, carrying a tapering throat, means coöperating therewith for locking crown-stoppers onto bottles, a taper-bottomed hopper 11, a chute 12 leading therefrom, a vertically-movable selecting-plate 13 having a passage 27 for registering with the mouth of the chute, an inclined V-groove on its upper edge, and a plurality of openings permitting crown-stoppers to pass from the V-groove to the passage 27 in one position only, a normally-retracted plunger 17, and connections controlled by the vertical movement of the head for successively inserting crown-stoppers from the chute up into the mouth of the tapering throat during the upstroke of the machine, substantially as described.

15. The combination with a bottle-stoppering mechanism, a feed-delivery chute for the stoppers, crowns or seals, and an automatically-actuated carrier adapted for receiving

the stoppers, crowns or seals from said chute, passing the same beneath the head, and elevating the same through the throatway to the capping-dies, and means for automatically actuating said carrier, substantially as described.

16. The combination in a machine of the class described, of a stationary frame, a movable head for securing the stoppers to the bottles, a hopper secured to the stationary frame, a chute extending therefrom, and an automatically-operating means for successively taking stoppers from said chute and inserting the same up into said movable head from beneath the same, substantially as described.

17. The combination in a machine of the class described, of a stationary frame, a movable head for securing stoppers to the bottles, a hopper secured to the stationary frame, a chute extending therefrom, a plunger or carrier for successively taking stoppers from said chute and inserting the same up into said movable head from beneath the same, and means for automatically operating said plunger or carrier, substantially as described.

18. The combination in a machine of the class described, of a movable head for securing the stoppers to bottles, a hopper, a chute extending therefrom, means for facing the stoppers in one direction, and an automatically-operating means for successively taking stoppers from said chute and inserting the same up into said movable head from beneath the same, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

NELSON MUSLAR.

Witnesses:
LOUIS W. SOUTHGATE,
PHILIP W. SOUTHGATE.