

No. 613,349.

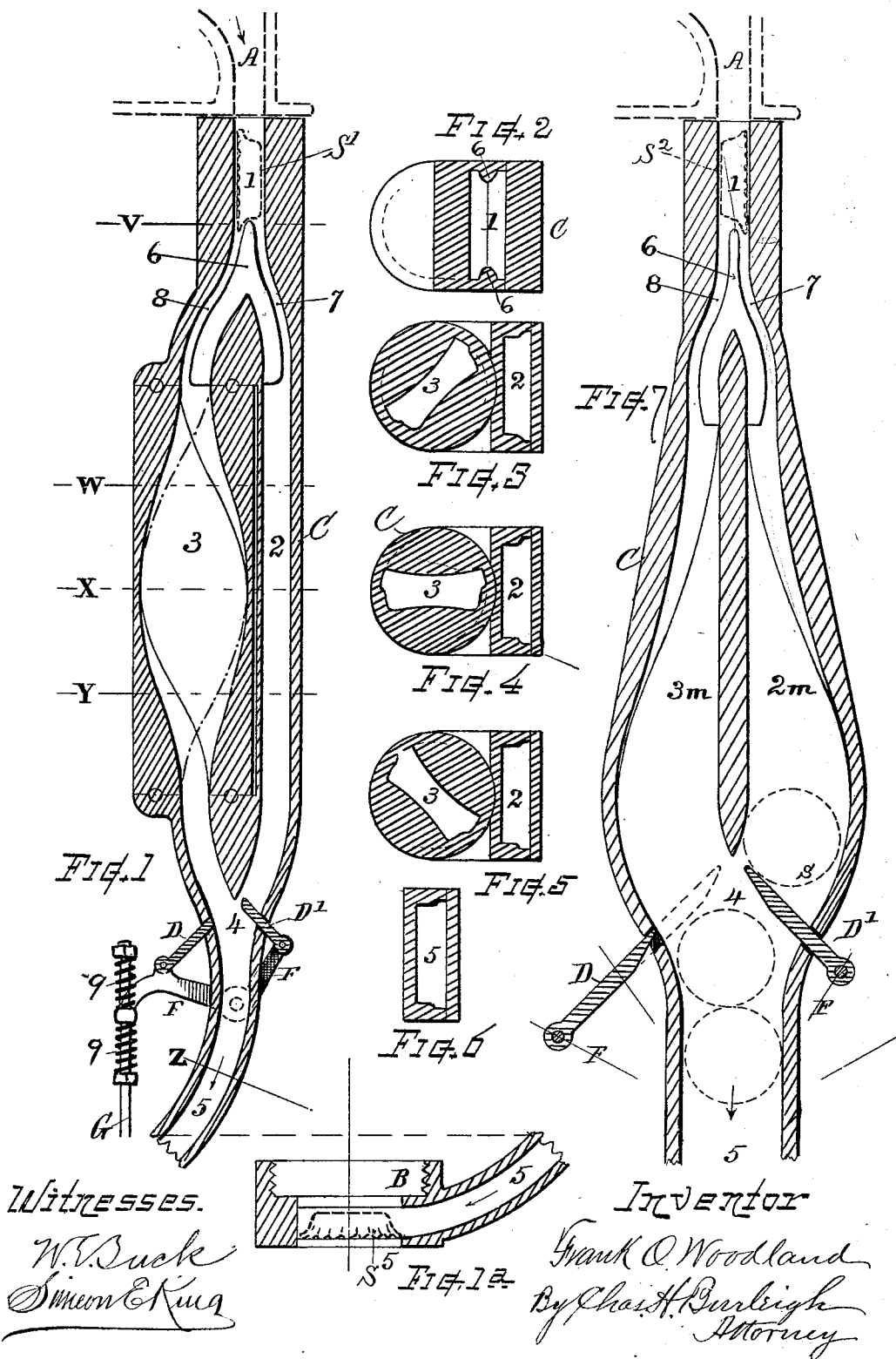
Patented Nov. 1, 1898.

F. O. WOODLAND.

FEED CHUTE FOR CROWN BOTTLE STOPPERS.

(Application filed Aug. 16, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

FRANK O. WOODLAND, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO HORATIO GATES, OF SAME PLACE.

FEED-CHUTE FOR CROWN BOTTLE-STOPPERS.

SPECIFICATION forming part of Letters Patent No. 613,349, dated November 1, 1898.

Application filed August 16, 1898. Serial No. 688,688. (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 new and useful Improvements in Feed-Chutes for Crown Bottle-Stoppers, &c., 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.

This invention relates to improvements in the construction of that class of conducting chutes or conduits more especially designed for use in feeding what are known as "crown bottle-stoppers" to bottle-stopping machines or means for the automatic manipulation of similar-formed articles for their presentation in regular order at a position of delivery.

The object of my present invention is to provide a conducting means or chute organized for receiving the articles or crowns in differently-faced relation as they may enter thereinto without regard to their order and adapted for effecting within the chute the separation and reversal of a portion of said crowns or the partial rotation or turning of the crowns in a manner to bring them all into uniformly-facing relation and regular order at the position of delivery, as more fully hereinafter explained.

Another object is to provide, in a chute of the character described having dual passages, a finger or gate device at the convergent part of the passages to control the action of the crowns and avoid their clogging the passage at the junction thereof.

I attain these objects by mechanism the nature of which is explained in the following detailed description and illustrated in the drawings, wherein—

Figure 1 is a vertical section of a feed-chute embodying my invention, Fig. 1^a being the lower end of Fig. 1 continued. Fig. 2 is a transverse section at line V; Fig. 3, a section at line W; Fig. 4, a section at line X; Fig. 5, a section at line Y; Fig. 6, a section at line Z, and Fig. 7 shows a modification wherein each of the intermediary passages

forms a partial twist instead of the entire twist being formed in one of the passages.

The prime feature of my invention consists in a chute or conductor having a throatway for receiving oppositely-facing crowns and a single delivery-run united therewith by a plurality of intermediate passages, one or more of which are twisted for rotating the oppositely-facing crowns into a common plane.

Referring to parts as shown in the drawings, A denotes the exit portion of a hopper of any suitable or well-known construction for containing the supply of crowns or articles which are deposited therein *en masse* and from which they fall into the throatway of the chute as they are brought into corresponding relation therewith by agitation of the hopper contents, as heretofore practiced.

B indicates the stoppering-machine collar or point of delivery, which may also be of any suitable or well-known construction, it being sufficient for an understanding of my present invention to simply show the positions at which the articles or bottle-crowns are received and delivered by my improved chute mechanism.

The body C of my improved chute can be of such dimensions and length as may be required for the particular machine whereon it is in any instance to be employed. Said body comprises a single receiving orifice or throatway 1, adapted for entrance thereinto of the crowns when facing either in right or left positions and irrespective of order, except the edgewise introduction of the crown. This throatway 1 divides into separate passages 2 and 3, one of which, 3, as shown in Fig. 1 and Figs. 3 to 5, has a twisted section or form of conduit, while the other, 2, passes direct. At their lower portions these passages 2 and 3 come together and merge into a single delivery way or run 5, which leads to the place of exit, as the collar-opening. At the dividing part of the throatway I provide deflectors or guides 6, with grooves 7 and 8 at either side which receive the flanges of the crowns and cause all such as are facing in one direction to go down the passage 2 and all such as are facing in the opposite direction to go down the passage 3, wherein, by the twisted form

of such intermediate passage, the crown is reversed in position of facing and runs into the delivery-way 5 in regular order, facing in the same direction as those that come down by the passage 2 and right side up for delivery at the exit B ready to be placed on a bottle by well-known action.

D D' indicate fingers or gates arranged for moving into and from the passages 2 and 3 at or near the junction of said passages with the single run 5 and serving for alternately arresting the descending crowns in one of the passages while releasing those in the other passage, and vice versa, thus preventing liability of two crowns meeting or coming together within the convergent space at 4, and thereby clogging the chute when in use.

As herein illustrated, the passages are disposed so that the crowns are separated by deflecting them in a direction flatwise of their disks; but it will be understood that the passages can, if desired, be arranged to separate and bring the crowns together by an edgewise deflection, the turning of one set of crowns or the partial turning in opposite direction of all the crowns for bringing them to uniform relation being effected by the twist of the intermediate passages, as set forth.

In Fig. 7 I have shown an instance in which both intermediate passages 2^m and 3^m are twisted in sufficient degree to turn the crowns which enter the throatway in oppositely-faced condition to a common plane and then merge at their junction 4 by edgewise convergence into the delivery-runway 5. The dotted lines S indicate crowns as stopped in the passage by the gate D'. The movement of the gates D D' can be effected by any convenient mechanism, as a lever F or levers and connection G, actuated from a moving part of the bottle-stopping machine. (Not shown.) Springs 9 afford a yielding contact in case the gate is caught against the side of a crown.

The passages 2 and 3 may be formed rectangular in cross-section or of such other form as will allow the crowns to pass smoothly therethrough. In the present drawings they are shown as having a cross-sectional shape somewhat resembling that of the crown, the better to indicate the facing direction of the crowns as they pass the line or position corresponding to the several cross-sectional views, Figs. 2 to 6.

In the operation a crown entering the throatway 1 faced toward the left, as per dotted line at S', Fig. 1, passes down the passage 3 and is rotated by the twist of the passage so that it enters the delivery-run and is delivered right side up, as per dotted line S⁵, Fig. 1^a; but if the crown is faced toward the right in the throatway 1 (see dotted line S², Fig. 2) then such crown passes down the passage 2 and is likewise delivered right side up at the same position as shown by dotted lines S⁵.

By making the chute so as to receive the

crowns in oppositely-facing positions the probability of a given number of crowns entering the chute from the hopper in any period of time is greatly increased, and by this, in connection with the dual and twisted passages, the feeding efficiency of the apparatus is much enhanced.

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

1. A chute or conductor for crown bottle-stoppers or similar articles, comprising a throatway adapted for receiving the crowns in oppositely-facing positions, a single-channel delivery-run connected with said throatway by a plurality of intermediate passages, one or more of which are of twisted form, and guiding devices at the throatway adapted for deflecting the crowns into the respective passages, for the purpose set forth.

2. A chute or conductor for crown or cap bottle-stoppers, having an entrance-throatway adapted for receiving crowns in oppositely-facing positions, a plurality of passages branching therefrom, and means for diverting the crowns into the respective passages, accordingly as they are faced when in the throatway, for the purpose as set forth.

3. A feed-chute for crown bottle-stoppers or similar articles, having a single entrance-throatway, a single exit or delivery-way, and two intermediate passages merging therewith, said passages comprising a straight section or conduit adapted for direct conduct of crowns to the exit, and a twisted section or conduit adapted for turning crowns that are oppositely disposed and passing them to said delivery-way for exit in uniform order.

4. In a mechanism for supplying crown-caps or bottle-stoppers to bottle-stopping machines, the combination with a supply-hopper, and the placing-collar on said machine; of a feed-chute having therein a plurality of passages adapted to receive crowns entering therein in differently-disposed relation, said passages being relatively formed as described and convergently united in a common exit adapted for delivery of the crowns in uniformly-disposed order at said collar, substantially as set forth.

5. The combination, with the feed-chute having the dual converging and twisted passages joining the single delivery-runway for bringing oppositely-facing crowns into uniformly-faced relation; of movable fingers or gate devices near the junction of the passages, and means for operating said gates for alternately detaining the crowns in one or the other of the said passages, for the purpose set forth.

6. The combination, in a feed mechanism for crown-cap bottle-stopper machines, of a supply-hopper, a conductor having a throatway formed to receive crowns facing in both directions, two passage-ways dividing from said throatway, means for diverting the crowns according to their position of facing into one or the other of the passages, said pas-

sages arranged to bring the crowns into uniformly-facing order, a single delivery-run into which both of said passages converge, and the movable fingers or gates acting at or
5 near the uniting junction of said passages, substantially as and for the purposes set forth.

Witness my hand this 13th day of August, 1898.

FRANK O. WOODLAND.

Witnesses:

CHAS. H. BURLEIGH,
ELLA P. BLENUS.