E. ALBERTI & N. J. MIANO.

AUTOMATIC APPARATUS FOR FEEDING CAPS OR CROWNS.

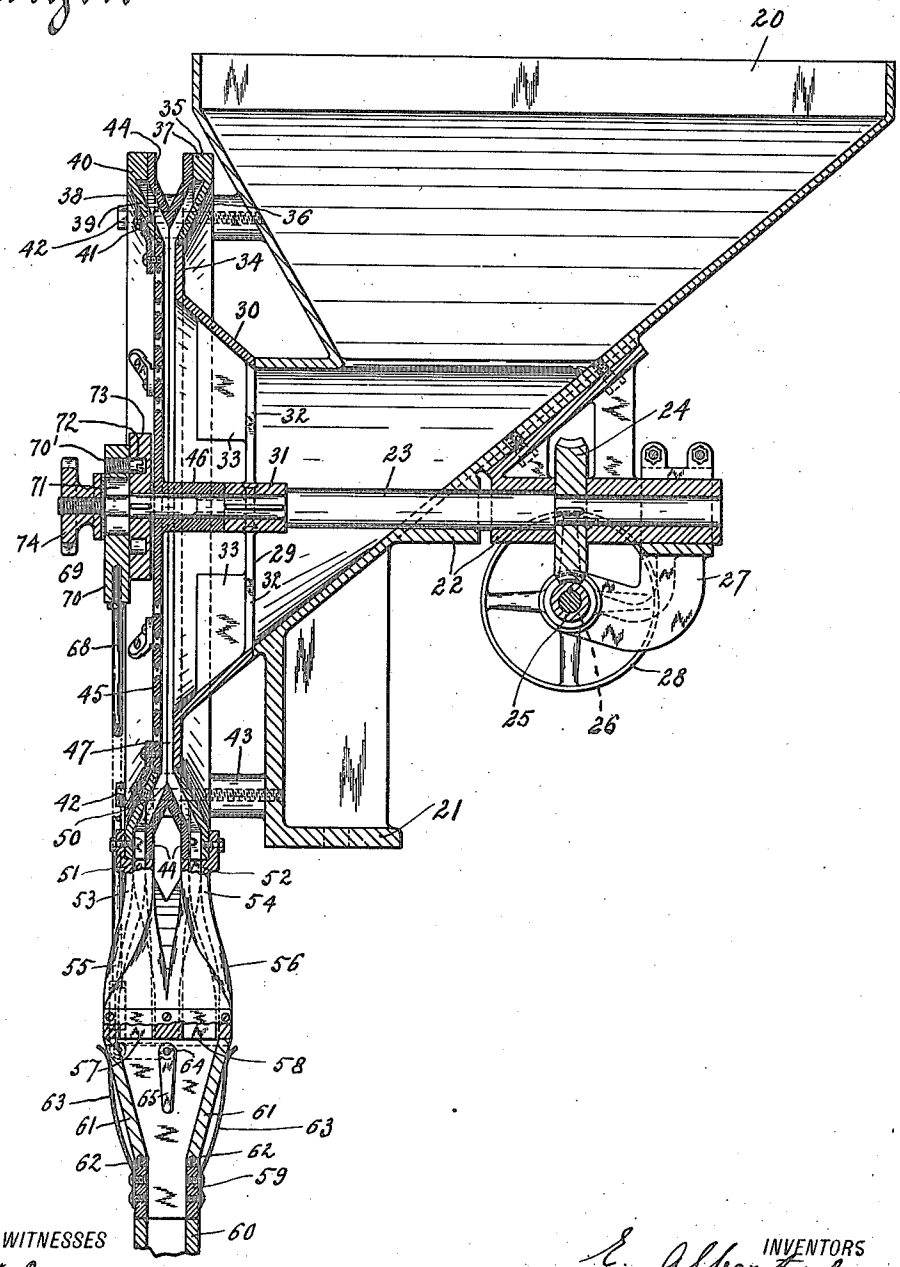
APPLICATION FILED JAN. 2, 1915.

1,161,577.

Patented Nov. 23, 1915.

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

F. Rane.

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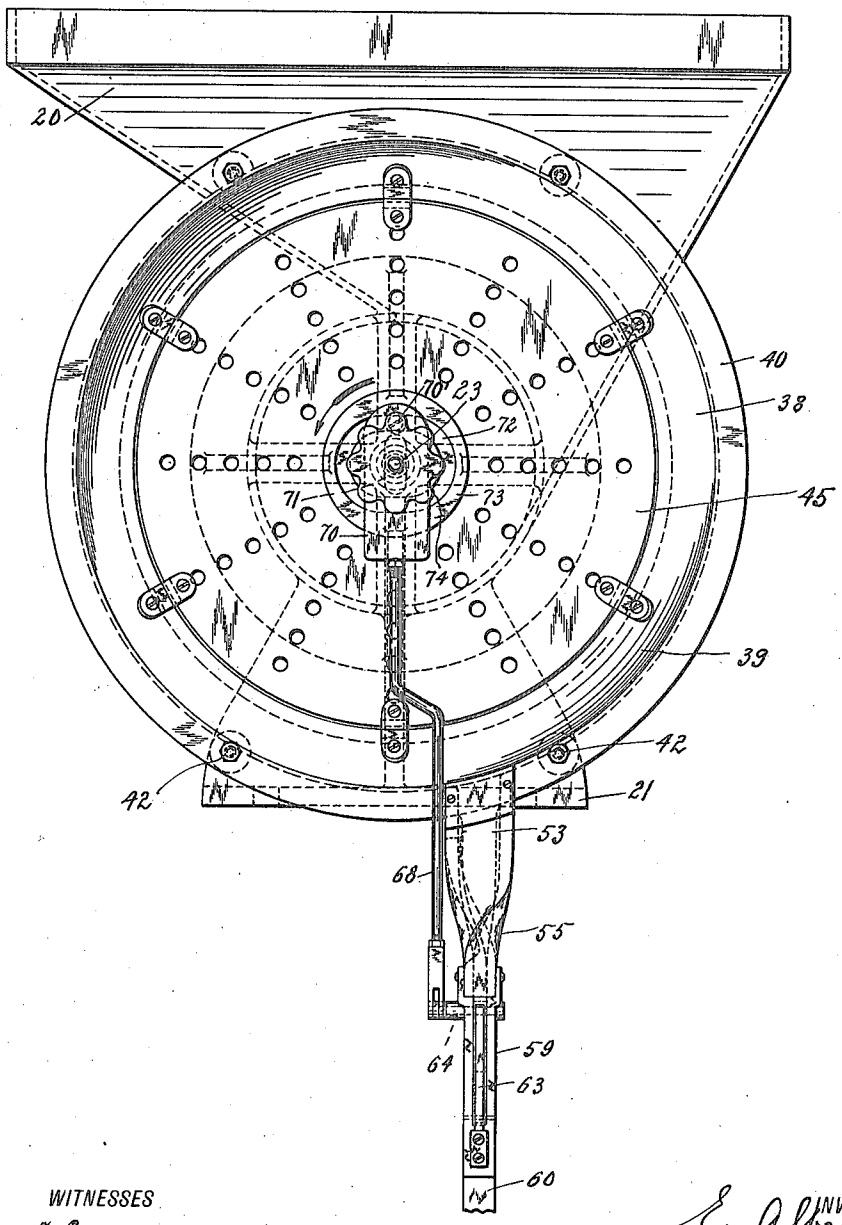
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

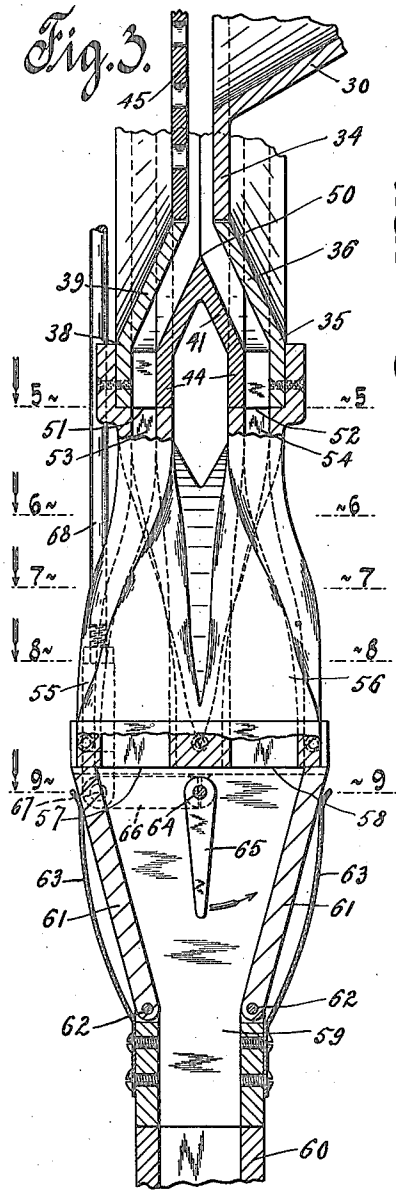


Fig. 4.

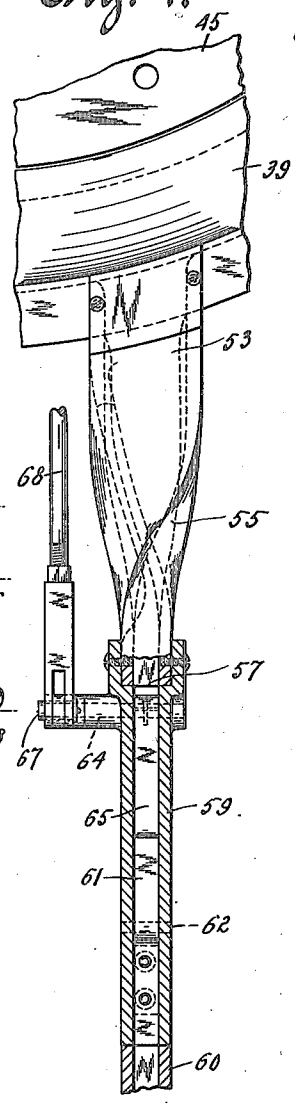


Fig. 5.

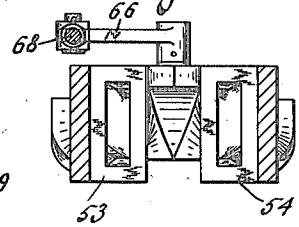


Fig. 6.

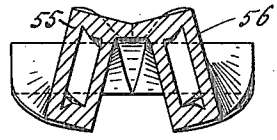


Fig. 7.

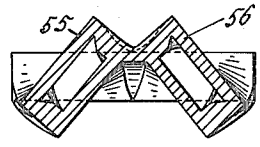


Fig. 8.

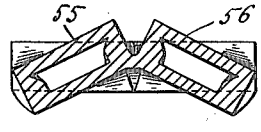
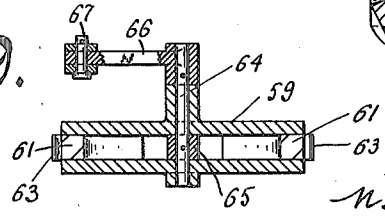


Fig. 9.



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1,161,577. Patented Nov. 23, 1915.

4 SHEETS—SHEET 4.

Fig. 12.

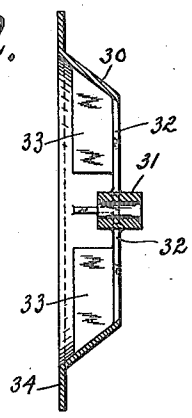


Fig. 13.

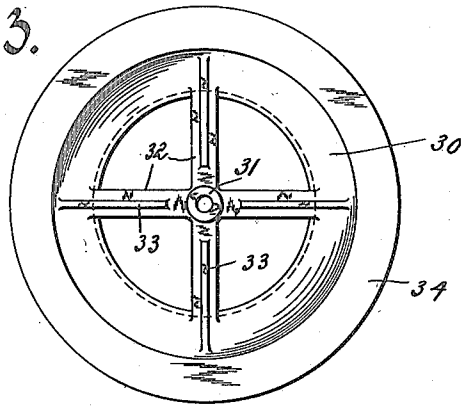


Fig. 10.

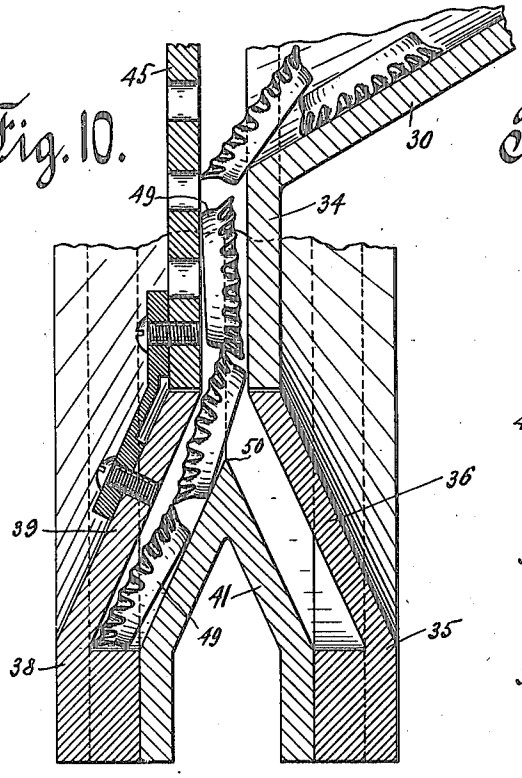
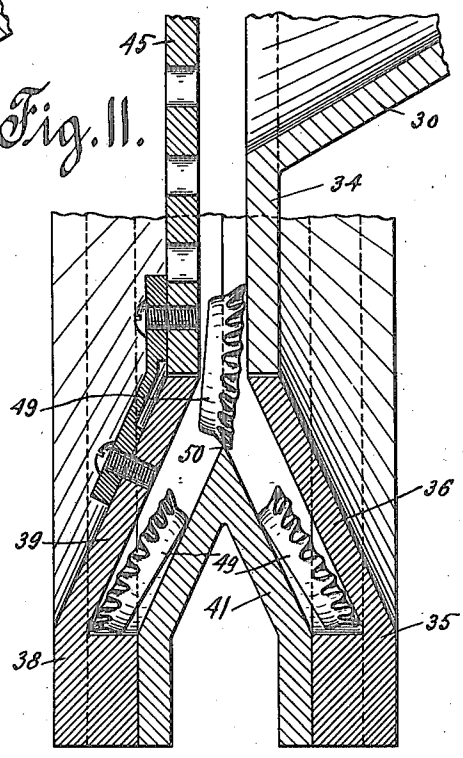


Fig. 11.



WITNESSES

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UNITED STATES PATENT OFFICE.

EMILIO ALBERTI AND NICHOLAS J. MIANO, OF NEW YORK, N. Y., ASSIGNORS TO INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

AUTOMATIC APPARATUS FOR FEEDING CAPS OR CROWNS.

1,161,577. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed January 2, 1915. Serial No. 184.

To all whom it may concern:

Be it known that we, EMILIO ALBERTI, a citizen of the United States, and NICHOLAS J. MIANO, a subject of the King of Italy, and residents of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Automatic Apparatus for Feeding Caps or Crowns, of which the following is a specification.

The present invention relates to improvements in apparatus for automatically feeding the metallic caps of bottle closures of the crown cork type to the machines for making such closures, although suited, as will hereinafter appear, for other uses also.

One of the objects of the invention is to provide a simple and efficient feeding device for automatically presenting successive caps in proper position to the carrier or transporting means of crown cork assembling and uniting machines.

Another object of the invention is to produce a device of this type comprising mainly a hopper and a chute, in combination with stationary selecting means, which latter causes the caps to pass from the hopper into the chute in predetermined positions.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a central vertical section taken through an apparatus constructed in accordance with the present invention; Fig. 2 is a front elevation thereof; Fig. 3 is a side elevation, partly in section, on a larger scale, of the chute and part of the selecting mechanism; Fig. 4 is a front elevation, partly in section, of the detail shown in Fig. 3; Fig. 5 is a section taken on line 5—5 of Fig. 3; Fig. 6 is a section taken on line 6—6 of Fig. 3; Fig. 7 is a section taken on line 7—7 of Fig. 3; Fig. 8 is a section taken on line 8—8 of Fig. 3; Fig. 9 is a section taken on line 9—9 of Fig. 3; Figs. 10 and 11 are vertical sections taken through a portion of the selecting means, showing the method of its operation; Fig. 12 is a vertical section taken through the agitating means of the hopper; and Fig. 13 is a front elevation of the detail shown in Fig. 12.

In the drawings, the numeral 20 indicates a hopper, having, as usual in constructions of this type, slanting side walls and a slanting bottom. Upon the bottom of the hopper is formed a downwardly extending bracket-like structure 21, that is adapted to be attached to a column, or other suitable means, for supporting the apparatus. To the bottom of the hopper are fastened bearings 22, in which is rotatably mounted a driving shaft 23, to which motion may be imparted, for instance by mounting thereon a worm gear 24, in mesh with a worm 25, the shaft of which is journaled in a bearing 26, which is carried by a bracket 27. This bracket is attached in any suitable manner to the bearings 22. To the shaft of the worm 25 is keyed a pulley 28, rotation being imparted to the latter by a belt which is actuated by any suitable source of power. With the circular outlet 29 of the hopper communicates a hollow conical body 30, which is connected with a hub 31 by spokes or spider-like arms 32, the hub 31 being keyed, or otherwise fixedly attached, to the shaft 23. With the conical body 30 are, preferably, made integral a plurality of agitating ribs 33, for a purpose hereinafter to be described. The conical body 30 forms a continuation of the hopper, and constitutes a flaring outlet, that is provided with a vertically extending flange 34. A continuation of this flange is formed by a ring 35, having a slanting portion 36 and a vertical portion 37. Juxtaposed to the ring 35 is a ring 38, also comprising a slanting portion 39 and a vertical portion 40. The slanting portions 36 and 39 of the rings 35 and 38, respectively, are inclined toward each other and have interposed an annular member 41, that is substantially V-shaped in cross section,

said annular member spacing apart the rings 35 and 38, so that between the said rings and the annular member is formed a channel, hereinafter to be described. The two rings and the annular member are secured together, and attached to the hopper in any suitable manner, for instance there may be passed through the said rings and annular member screws 42, that are screwed into bosses 43, the latter being, preferably, cast integral with the hopper. The screws pass through the vertical portions 37 and 40 of the rings 35 and 38, respectively, and also through vertical flanges 44 of the annular member 41, the flanges of the latter abutting against the said vertical portions of the two rings. A cover 45 is attached to the ring 38, said cover extending in parallel relation to the flange 34 of the conical body 30, and being provided with a hub 46, in which the shaft 23 is journaled. This cover and the flange 34 are spaced apart, as clearly shown in Fig. 1 of the drawings, thereby forming an annular channel 47, that merges into two inclined annular passages between the slanting portions of the rings and the annular member 41, so that an annular space is formed, that is substantially Y-shaped in cross section, or in other words, the annular channel 47 branches into two diverging passages.

The operation of the device so far described is as follows: The caps are placed indiscriminately into the hopper, and rotation is imparted to the shaft 23. The ribs 33 upon the conical body 30 agitate the mass of caps, which gravitate through said conical body and fall into the annular channel between the flange 34 and the cover 45. Caps, in the annular channel 47 the heads 49 of which face the cover 45, are deflected by the sharp edge 50 of the annular member 41 into that slanting branch of the Y-shaped channel which is disposed between the said annular member and the slanting portion 36 of the ring 35 (Fig. 11), and caps, in the annular channel 47 the heads of which face the flange 34 of the conical body 30, are deflected by the sharp edge 50 of the annular member 41 into that slanting branch of the Y-shaped channel that is formed between the annular member 41 and the slanting portion 39 of the ring 38 (Fig. 10). The conical body 30 is rotated in the direction of the arrow shown in Fig. 2 of the drawings, moving thus the caps in the slanting branches of the Y-shaped channel toward outlets 51 and 52 thereof. The outlet 51 communicates with a chute 53, and the outlet 52 with a chute 54. These chutes are offset from the vertical center line of the cover 45, as clearly shown in Fig. 2 of the drawings, and are each of a cross section which accommodates the caps in vertical positions, that is to say edgewise. It is to be observed that the caps, when entering the chutes 53 and 54, face each other with their heads 49. The chutes 53 and 54 are given a spiral turn of 90° in opposite directions, the said spiral sections being designated by the numerals 55 and 56, respectively. The two chutes discharge the caps thus in a plane at right angles to the plane of the cover 45 with their heads 49 pointing the same way. The outlets 57 and 58 of the chutes 53 and 54, respectively, communicate with a funnel-shaped body 59, that is of a cross section to prevent the caps from tilting, so that they are led therethrough in vertical positions to a chute 60, which delivers them to the assembling and uniting machine. The lower end of the latter chute is curved to bring the caps in their inverted positions to the assembling and uniting machine, whereon they receive the disks or packings of cork, or like material, that is united with the said caps by a suitable adhesive, or otherwise. The sides 61 of the funnel-shaped body 59 are pivoted at 62 thereto, and kept by means of springs 63 in their normal closing positions. In the upper end of the funnel-shaped body is oscillatably journaled a horizontally disposed spindle 64. To this spindle is keyed or otherwise attached a normally vertically arranged finger or gate 65, that is located within the said funnel-shaped body. Outside of the funnel-shaped body is rigidly attached to the spindle 64 an arm 66, which is pivoted at 67 to the rod 68 of an eccentric 69. This eccentric may be of any suitable construction; in the case illustrated it comprises a plate member 70, having a vertical slot 71, in which the outer reduced end of the shaft 23 is seated, said plate member being provided with a pin 70′, that is seated in a cam groove 72 in a disk 73, the latter being keyed to the shaft 23. To prevent a disengagement of the plate member 70 from the shaft 23, a nut 74 is provided in mesh with threads on the said shaft. By means of this arrangement, an oscillating motion is imparted to the finger or gate 65. As this gate moves in the direction of the arrow shown in Fig. 3 of the drawings, caps which are received from the chute 53 will be allowed to pass toward the chute 60, and caps which are received from the chute 54 are forced by the said gate toward the side 61 on the left of the funnel-shaped body (Fig. 3), said side swinging outward against the action of the spring coacting therewith. When the gate moves in the opposite direction, the left-side of the funnel-shaped member moves back to its closing position and the caps which have been forced previously outward are permitted to pass toward and into the chute 60. The gate 65 provides thus a distributer for the caps, which causes the same to move in substantially equal proportions from the two chutes 53 and 54 to the

chute 60. In this manner obviously the outlets 51 and 52 of the inclined portions of the Y-shaped channel will never be clogged.

It is obvious that, while herein a mechanism has been described for causing the caps to pass from the two inclined portions of the Y-shaped channel to a single chute, the caps could be caused to move from the said channel to two separate machines through two independent chutes, in which case, obviously, the lower ends of these two chutes would have to be curved in opposite directions to present the caps in their inverted positions to the two machines.

Attention is called to the fact that the device herein described could be made use of in connection with an apparatus for feeding crown corks to bottle sealing machines. In these machines the caps are brought to the sealing heads in their upright positions. To bring them in such positions, obviously the lower end of the chute 60 must be curved in the proper manner.

It will be noted that, while the device has been described as particularly useful for feeding caps or crown corks, the same can be used wherever such bodies are to be fed to a machine, the cross sections of which are somewhere reduced in size.

What we claim is:—

1. In an apparatus for automatically feeding caps of crown corks or similar articles, the combination with a hopper, of a selecting mechanism comprising a member having an annular channel branching into two diverging passages, means interposed between said hopper and said channel for causing the caps or similar articles to pass to said channel, and a chute leading from each of said passages, the sharp edge formed at the junction of the two branches of said channel constituting means for directing the caps or similar articles through the respective passages into said chutes accordingly as they are faced when in said channel.

2. In an apparatus for automatically feeding caps of crown corks or similar articles, the combination with a hopper, of a selecting mechanism comprising a member having an annular channel branching into two diverging passages, rotary means interposed between said hopper and said channel for causing the caps or similar articles to pass to said channel, and a chute leading from each of said passages, the sharp edge formed at the junction of the two branches of said channel constituting means for directing the caps or similar articles through the respective passages into said chutes accordingly as they are faced when in said channel.

3. In an apparatus for automatically feeding caps of crown corks or similar articles, the combination with a hopper, of a selecting mechanism comprising a member having a channel branching into two diverging passages, a hollow conical rotary body interposed between said hopper and said channel for causing the caps or similar articles to pass to said channel, and a chute leading from each of said passages, the sharp edge formed at the junction of the two branches of said channel constituting means for directing the caps or similar articles through the respective passages into said chutes accordingly as they are faced when in said channel.

4. In an apparatus for automatically feeding caps of crown corks or similar articles, the combination with a hopper, of a selecting mechanism comprising a member having a channel branching into two diverging passages, means interposed between said hopper and said channel for causing the caps or similar articles to pass to said channel, a chute leading from each of said passages, the sharp edge formed at the junction of the two branches of said channel constituting means for directing the caps or similar articles through the respective passages into said chutes accordingly as they are faced when in said channel, said chutes being spirally wound in opposite directions, a funnel-shaped body into which said chutes discharge their contents, a chute leading from said funnel-shaped body, and means within said funnel-shaped body for causing caps or similar articles to pass therethrough alternately from said first named chutes into said last named chute.

5. In an apparatus for automatically feeding caps of crown corks or similar articles, the combination with a hopper, of a selecting mechanism comprising a member having a channel branching into two diverging passages, means interposed between said hopper and said channel for causing the caps or similar articles to pass to said channel, a chute leading from each of said passages, the sharp edge formed at the junction of the two branches of said channel constituting means for directing the caps or similar articles through the respective passages into said chutes accordingly as they are faced when in said channel, said chutes being spirally wound in opposite directions, a funnel-shaped body into which said chutes discharge their contents, a chute leading from said funnel-shaped body, and a swinging gate within said funnel-shaped body for causing caps or similar articles to pass therethrough alternately from said first named chutes into said last named chute.

6. In an apparatus for automatically feeding caps of crown corks or similar articles, the combination with a funnel-shaped member of a cross section preventing caps or similar articles from tilting and having sides that are pivoted at their lower ends to the body thereof, of springs for keeping said sides normally closed, two chutes leading to

said funnel-shaped member, a single chute leading from said funnel-shaped member, and a swinging gate within said funnel-shaped member for alternately closing said first named chutes, the caps disposed between said gate and that side of the funnel-shaped member the adjacent chute of which is about to be closed forcing the corresponding side of said funnel-shaped member outward against the action of the spring cooperating therewith, substantially as and for the purpose specified.

7. In an apparatus for automatically feeding caps of crown corks or similar articles, the combination with a hopper, of a selecting mechanism comprising a member having a channel branching into two diverging passages, means interposed between said hopper and said channel for causing the caps or similar articles to pass to said channel, a chute leading from each of said passages, the sharp edge formed at the junction of the two branches of said channel constituting means for directing the caps or similar articles through the respective passages into said chutes accordingly as they are faced when in said channel, said chutes being spirally wound in opposite directions, a funnel-shaped member into which said chutes discharge their contents, said funnel-shaped member being of a cross section preventing caps or similar articles from tilting and having sides that are pivoted at their lower ends to the body thereof, springs for keeping said sides normally closed, a single chute leading from said funnel-shaped member, and a swinging gate within said funnel-shaped member for alternately closing said first named chutes, the caps disposed between said gate and that side of the funnel-shaped member the adjacent chute of which is about to be closed forcing the corresponding side of said funnel-shaped member outward against the action of the spring coöperating therewith, substantially as and for the purpose specified.

Signed at New York, in the county of Kings and State of New York, this 30th day of Dec., A. D. 1914.

EMILO ALBERTI.
NICHOLAS J. MIANO.

Witnesses:
SIGMUND HERZOG,
ADELINE A. RICHTER.