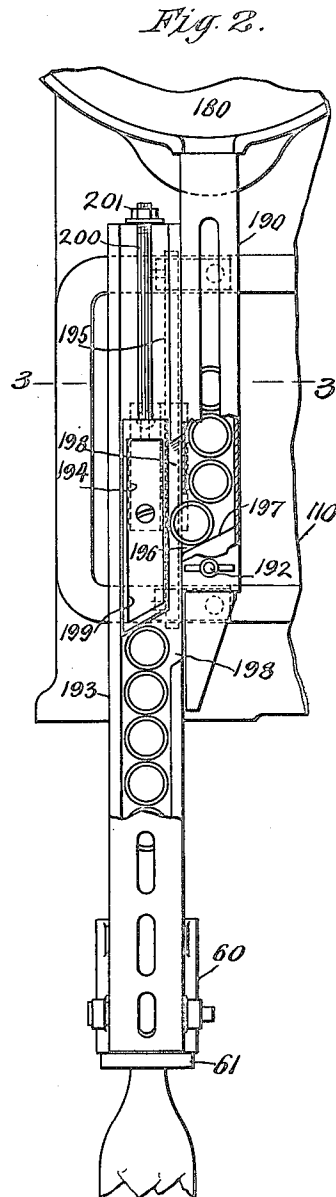
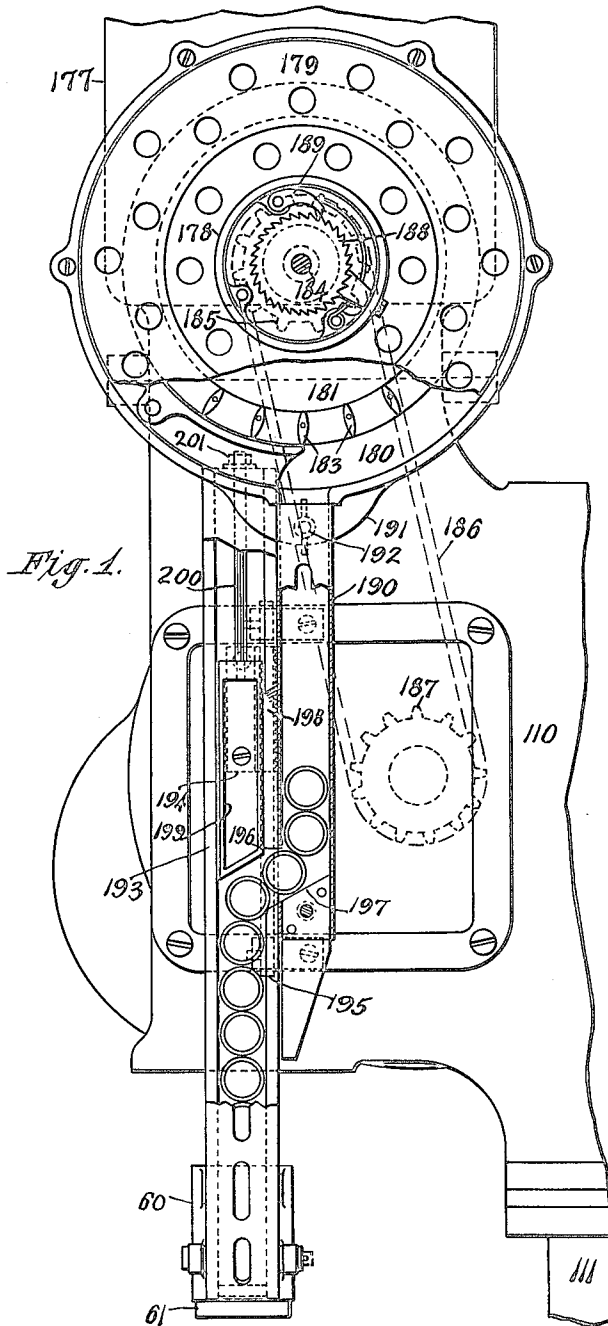


E. P. DORMAN.
PACKAGING MACHINE.
APPLICATION FILED JUNE 14, 1920.

1,434,376.

Patented Nov. 7, 1922.

2 SHEETS—SHEET 1.



Inventor
Edgar P. Dorman
By his Attorneys
Philippe Auguste P. Dorman

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2 SHEETS—SHEET 2.

Fig. 4.

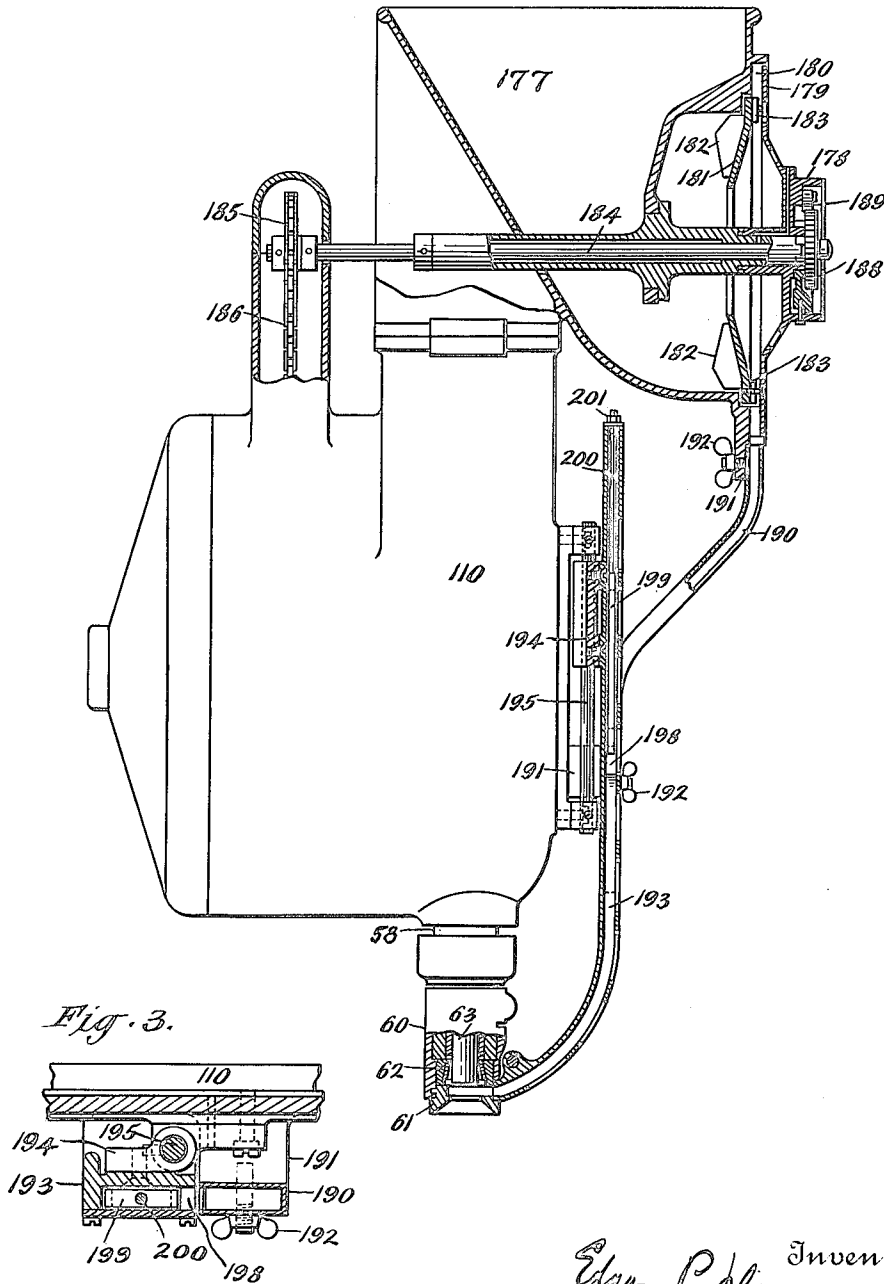


Fig. 3.

Inventor
Edgar P. Dorman
By his Attorneys
Philip S. Sawyer, Paul Kennedy

UNITED STATES PATENT OFFICE.

EDGAR P. DORMAN, OF TATSFIELD, ENGLAND, ASSIGNOR TO THE CROWN CORK AND SEAL COMPANY OF BALTIMORE, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

PACKAGING MACHINE.

Original application filed February 11, 1918, Serial No. 216,465. Divided and this application filed June 14, 1920. Serial No. 339,056.

To all whom it may concern:

Be it known that I, EDGAR P. DORMAN, a subject of the King of Great Britain, residing at Tatsfield, Surrey, England, have
 5 invented certain new and useful Improvements in Packaging Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to improvements in packaging machines and more particularly to cap feeding mechanism. The present application is a division of an application filed February 11, 1918, Serial No. 216,465.

15 It is the principal object of the invention to provide mechanism for delivering caps, such as crowns, from a relatively stationary hopper to a reciprocating capping mechanism at a higher rate of speed than has heretofore been possible, and such that jamming
 20 of the caps and like interruptions are avoided.

With this general object in view, the invention consists in the combinations, arrangements of parts, and details of construction which will first be described in connection with the accompanying drawings and then more particularly pointed out.

In the drawings—

30 Fig. 1 is a view, in front elevation, with parts broken away, of a cap feeding device constructed in accordance with the invention;

Fig. 2 is a similar view showing the parts
 35 in a different position;

Fig. 3 is a cross-sectional view taken on the line 3—3 of Fig. 2; and

Fig. 4 is a view in side elevation, with parts in vertical section.

40 Referring to the drawings, in the apparatus here illustrated as an example, a head frame 110 supported on a base or column 111 carries a reciprocating capping mechanism including a tubular plunger 58 sliding
 45 in the head frame 110. On its lower end, this plunger has a throat carrier 60 which carries a bell-mouthed crown platform 61 and a throat ring or capping die 62. Within the tubular plunger 58 is a presser
 50 foot 63. The tubular plunger 58 is reciprocated in any suitable manner, as, for example, by the construction shown in applicant's co-pending application, Serial No.

216,465, to which reference may be had for further details of construction of the capping mechanism which, in themselves, form
 55 no part of the present invention.

Means is provided for supplying caps, such as crowns, to the capping mechanism. To this end, in the present embodiment, the
 60 head frame 110 carries a hopper 177 to which crowns are delivered in a mass. Associated with the hopper is crown selecting mechanism for properly facing the crowns all one way. This may be of any suitable
 65 construction. In the drawings is illustrated an exemplification comprising a cage 178 having a plate or flange 179 forming, with the front of the hopper, a storage ring 180. Pinned to the cage is a dial 181 which carries
 70 vanes 182 for churning up the crowns to cause them to drop into the cage. The cage is provided with a plurality of selecting pins 183 so arranged that crowns can pass between them only when properly
 75 faced. A hopper shaft 184 having thereon a sprocket 185 is driven by a chain 186 driven in turn by a sprocket 187 which may be rotated in any suitable manner. The
 80 hopper shaft drives the cage and dial through a ratchet 188 and a spring pressed pawl 189. With such a construction, should a crown become jammed in the hopper, the pawl will slide over the ratchet
 85 teeth and the selecting mechanism will remain stationary until the obstruction is removed.

There is provided means for feeding crowns from the hopper to the reciprocating capping mechanism, and in structures embodying the invention to the best advantage,
 90 there is provided a fixed chute and a movable chute out of alignment with each other, provision being made for the transfer of crowns from one to the other. Although
 95 capable of various constructions, in the embodiment illustrated, opening out from the storage channel 180 is a stationary chute 190 secured to lugs 191 on the hopper and
 100 frame by set screws 192. This chute curves inwardly toward the head frame and terminates in a vertical portion, as appears in Fig. 4. Alongside the chute 190 is a chute
 105 193 moving with the capping mechanism and having a bearing bracket 194 sliding on a rod 195 carried by the head frame, its

lower end opening into the crown platform and being secured thereto. To allow transfer of crowns from the stationary to the moving chute, the adjacent sides of the chutes are provided with registering openings. As shown, the stationary chute is provided with a side opening 196 of a size to permit one crown at a time to pass and the crowns are directed toward this opening by the slanting bottom 197 of the chute. Registering with this opening 196, in the moving chute, is an opening 198 of such length that whatever the vertical position of the chute, there is always an opening corresponding to the one crown opening 196 of the other chute. It will be seen that crowns passing into the chute 193 will feed downward, by gravity, into the crown platform of the capping mechanism.

Means is provided for intermittently cutting off the flow of crowns from chute to chute and in structures embodying the invention to the best advantage, this operation takes place once for each reciprocation of the capping mechanism. While variable within a wide range, this means for cutting off the crown flow may include a yieldable gate moving with the capping mechanism to intermittently close the crown passage. Although capable of various constructions, in that shown, fitting freely in the moving chute is a gate block 199 hung on a rod 200 passing freely through the top of the chute and having on its upper end a nut 201 normally resting on the top of the chute. When the chute, with the capping mechanism, is raised, the gate is also raised and held up by the engagement of the chute top with the nut 201. When the chute descends the gate will also descend under the force of gravity, and will close the crown passage to cut off the flow of crowns, as appears in Fig. 2. It sometimes happens that a crown in transit through the transfer passage is met by the descending gate. In such event, the gate being freely mounted, yields, and its slanting lower end engages the crown which is held thereby against the bottom 197 of the transfer passage due to the weight of the gate. In this manner the flow of crowns is cut off as before and there is no danger of crown mutilation.

The construction described provides an effective means for feeding caps at a high rate of speed and without jamming or the like, from a stationary hopper to a reciprocating capping mechanism.

It will be understood that the invention is not limited to the specific structure shown, variations in the form, construction and arrangement of the parts being possible without departing from the invention.

What is claimed is:

1. In a packaging apparatus, and in com-

bination, a reciprocating capping mechanism, a chute moving therewith, a relatively stationary cap supply chute having a portion paralleling part of said moving chute edge to edge, said portions being provided with cooperating openings in their adjacent edges for the passage of crowns from one chute to another, the supply chute having associated therewith an element for directing caps through said openings into the moving chute.

2. In a packaging apparatus, and in combination, a reciprocating capping mechanism, a chute moving therewith, a relatively stationary cap-supply chute having a portion alongside a portion of said moving chute, said portions being provided with cooperating openings for the passage of caps from one chute to the other, and a directing element in the supply chute for directing caps through said openings into the moving chute.

3. In a packaging apparatus, and in combination, a reciprocating capping mechanism, a chute moving therewith, a relatively stationary cap-supply chute having a portion alongside a portion of said moving chute, said portions being provided with cooperating openings for the passage of caps from one chute to the other, a directing element in the supply chute for directing caps through said openings into the moving chute, and a gate for intermittently blocking said openings to cut off the flow of caps.

4. In a packaging apparatus and in combination, a reciprocating capping mechanism, a chute moving therewith, a relatively stationary cap-supply chute having a portion alongside said moving chute, one of said chutes having an opening capacitated to pass a single cap, the other chute having a cooperating opening of a length to be available in any relative position of the two chutes, and a slanting bottom in the supply chute for directing caps through said openings into the moving chute.

5. In a packaging apparatus, and in combination, a reciprocating capping mechanism, a chute moving therewith, a stationary cap-supplying chute alongside said moving chute, said chutes being provided with a passage for the caps, and a gravity-operated, freely suspended, passage-closing gate carried by said moving chute for cutting off the flow of caps.

6. In a packaging apparatus, and in combination, a reciprocating capping mechanism having a crown platform, a chute moving with said capping mechanism and having a substantially vertical portion and communicating with said platform, a relatively stationary cap supply hopper, crown selecting mechanism associated therewith, a crown supply chute communicating with

- said hopper and having a substantially vertical portion alongside the vertical portion of said moving chute in edge to edge relation, said portions having, in their opposing edges, cooperating openings for the passage of crowns from the supply chute to the moving chute, and a crown directing element in the supply chute below its opening.
7. In a capping apparatus, the combination with a capping head frame, of a capping plunger reciprocable therein and having a crown platform, a chute communicating with the crown platform and having a bearing bracket, a bearing element carried by the head frame and on which said bracket slides, a stationary hopper, a supply chute connected therewith and having a portion paralleling part of said moving chute, edge to edge, said chutes having cooperating openings in their adjacent edges for the passage of crowns from the supply chute to the moving chute, the supply chute having a slanting bottom for directing crowns through said openings into the moving chute.
8. In a capping apparatus, in combination with a reciprocable capping plunger having a crown platform, a chute moving with the plunger and communicating with the crown platform, a stationary hopper, a supply chute secured thereto and having a portion paralleling part of the moving chute, edge to edge, the chutes being provided with cooperating openings in their adjacent edges for the passage of crowns, a block in the moving chute, a rod, on which said block is mounted, freely suspended from the top of the chute, said block serving to cut off the flow of crowns intermittently, and being free to yield in case of a jam.
- In testimony whereof, I have hereunto set my hand.

EDGAR P. DORMAN.