UNITED STATES PATENT OFFICE.

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AUTOMATIC FEEDER FOR THE METALLIC CAPS OF CROWN CORNS.


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To all whom it may concern:

Be it known that I, ALEXANDER BOGDÁNFFY, a subject of the King of Hungary, and resident 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 Feeders for the Metallic Caps of Crown Corks, of which the following is a specification.

The present invention relates to an automatic feeder for metallic caps to apparatus for making closures of the "Crown cork" type for bottles. These Crown corks comprise usually three parts, that is a metallic cap, having a head and a corrugated flange, a sealing disk, preferably made of cork, and an interposed impervious paper collet. The apparatus for assembling and uniting these parts comprises usually a rotary carrier on which the metallic cap is either placed by hand or fed automatically in an inverted position, to be transported to other parts of the apparatus to receive the paper collet and the sealing disk. The automatic feeders for this purpose have been heretofore provided with rotary distributors. Such distributors feed the metallic caps to the chutes only when said caps present themselves in proper position to pass through the distributors. It is obvious, therefore, that the feeding of the caps to the Crown cork making machines by means of such devices is irregular, and not continuous, so that usually two feeders must be provided for each machine in order to insure the proper operations of the same.

Another defect of these rotary distributors is that they are apt and, in fact do very often injure or deform the caps.

The object of the present invention is to generally simplify the feeding devices of this type, and to obviate the defects of these devices, which have been mentioned hereinafore, and others.

Another object of the invention is to construct a feeder for metallic caps which will present them in their inverted positions to two assembling and uniting machines without interruption.

With these and other objects in view, which will 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 claim 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 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 plan view of the feeder constructed in accordance with the present invention; Fig. 2 is a section taken on line 2—2 of Fig. 1; Fig. 3 is a section taken on line 3—3 of Fig. 1; Fig. 4 is an enlarged sectional detail of the chute of the feeder with its distributor; Fig. 5 is a section taken on line 5—5 of Fig. 4; and Fig. 5a is a section taken on line 5a—5a of Fig. 4.

In the drawings, the numeral 6 indicates a vessel with a slanting bottom 7, in which an opening 8 is provided, communicating with a tubular extension 9 of said bottom. This vessel is placed upon a suitable support 10. The metallic caps are dumped into the vessel, and transferred to the chute supplying means by an elevator mechanism 11. This elevator mechanism is in the case illustrated in the drawings of the bucket type, and consists mainly of a plurality of buckets or cups 12, connected by links 13 to form an endless chain. This chain runs through the tubular extension 9 of the vessel 6 in the direction of the arrow shown in Fig. 3 over a sprocket wheel 14, mounted upon a shaft 15, which is journaled in any suitable manner and rotated by any suitable source of power. As the buckets arrive at their uppermost positions and start their downward movement, they empty their contents into an inclined trough 16, on which the caps slide into the chute supplying mechanism.

The chute supplying mechanism comprises a, preferably, cylindrical receptacle...
17, which is supported by a standard 18, attached to the floor, for instance. The bottom of this receptacle consists of a disk 19, fixedly attached to a shaft 20, which is jour- nealed in the standard 18, and rotated by any suitable source of power, for instance through the intermediary of a pulley 21. Above the disk 19 is secured to, or made integral with, the cylindrical wall of the stationary vessel 17 a segment-shaped block 21, the upper surface 22 of which is inclined toward the center of the receptacle 17 for a purpose hereinafter to be described. This block is provided in its bottom portion with an arc-shaped recess 23, which runs along the cylindrical wall 17. The disk 19 contacts with the block 23, forming thereby with the same a passage 24, the inlet 24' of which is always open. The outlet 24'' of the passage 24 communicates with a slot 25 in the cylindrical wall of the receptacle 17, which slot, in turn, communicates with a chute 26, which directs the metallic caps to the surface of the rotary carrier plates, or to other places. The cross sections of the passage 24, the slot 25 and the chute 26 are, preferably, oblong and of the same size, and of such dimensions that metallic caps can freely pass through the same whether they rest with their concave faces upwardly or downwardly, or in other words whether they rest on their heads or on their flange portions.

The chute 26 branches out at 27 into two sections. The section 28 leads to a carrier 29 of a Crown cork assembing or uniting machine, while the section 30 leads to a carrier 31 of another machine. At the point of junction of the sections 28 and 30 inverted V-shaped lugs 32 and 33 are attached to, or made integral with, the inner surfaces of the walls 24 and 35, respectively, of the chutes. The pointed ends 36, 36 of the V-shaped lugs are arranged above the points of junction of the chute sections 28 and 30, while the legs of the V-shaped lugs extend down into said sections at a distance from their outer walls 37 and 38, respectively, which is somewhat greater than the height of the flanges 39 of the caps 40. The lugs 32 and 33 project toward each other and decreases the cross section of the chute and the sections 28 and 30 thereof to the size of the heads 41 of the caps. The purpose of this arrangement will be described hereinafter. In a plane above the junction of the sections 28 and 30 a slot 42 is provided in the wall 34 of the chute. The slot communicates with an inclined trough 43, leading to the vessel 6.

The operation of this device is as follows: The metallic caps are dumped into the vessel 6, and, when a rotary motion is imparted to the sprocket wheel 14, the caps will be fed intermittently into the receptacle 17, and more particularly onto the rotary plate 19. Those caps which fall on the block 21 will slide down, owing to the inclination of the upper surface of this block, onto the plate 19. The caps are thrown by the centrifugal force outward toward the periphery of the disk 19 some with their concave faces upward and some downward, and pass through the inlet 24' of the passage 24 into the same, and are conveyed toward and through the slot 25 into the chute 26. In sliding down the same, they will be distributed by the cooperating lugs 32 and 33 in the following manner: Those caps which rest with their heads 41 upon the wall 44 of the chute 26 can pass with their heads between the left-hand legs of the lugs 30 and 33 only, and will thus be guided into the section 28 of the chute, and those caps which rest with their flanges 39 on the wall 44 of the chute will be guided by the right-hand legs of the lugs 32 and 33 into the section 30 of the chute. The distribution of the caps is aided by the tapering form of the same, by reason of which they will slide down the points 36, 36 of the lugs in one or the other direction, as they are presented to the said points with their heads or flanges downward. From an inspection of Figs. 2 and 4 of the drawings it will be observed that the caps will always be presented to the carriers 29 and 31 in their inverted positions, or in other words resting upon their heads.

If for some reason the carrying devices 29 and 31 are not able to transport all of the caps fed to the same to other parts of the machine, the same will be held in the sections of the chute and also in the main line 26 thereof until the uppermost reaches the level of the slot 42, when all those, which are fed through the chute 26 afterward, will slide down the inclined trough 43 into the receptacle 6 until again the regular transportation takes place by the carrying devices 29 and 31.

While herein a particular type of elevator mechanism has been shown, it is obvious that any other elevator mechanism could be made use of which, preferably, intermittently carries the caps into the chute supplying mechanism.

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

What I claim is:

In an apparatus for feeding metallic caps, the combination with a cylindrical receptacle having a slot to which a peripheral passage in said receptacle leads, the cover of said passage slanting toward the bottom of said receptacle, a rotary disk in said receptacle for feeding said caps by centrifugal force into said passage and through said slot, a
chute leading from said slot branching into two sections, and lugs in said chute projecting into said two sections for guiding the caps into one or the other of the same as they slide down said chute on their heads or on their flanges, respectively.

Signed at New York, in the county of New York, and State of New York, this 14th day of April, A. D. 1911.

ALEX. BOGDÁNFFY.

Witnesses:
Sigmund Herzog,
S. Birnbaum.