

J. ALBERTI.

MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES OF THE CAP VARIETY.

APPLICATION FILED JUNE 7, 1912.

1,043,384.

Patented Nov. 5, 1912.

2 SHEETS-SHEET 1.

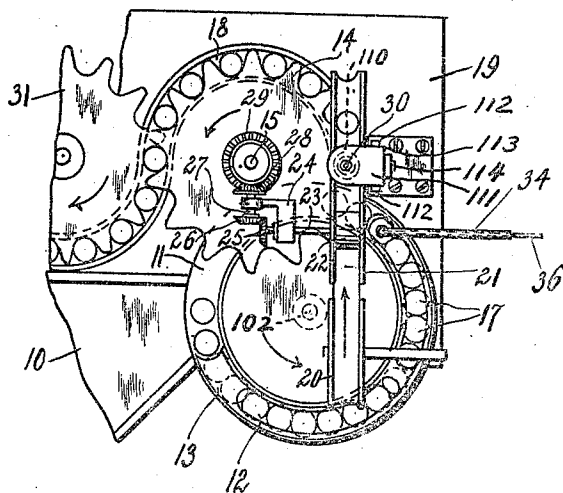
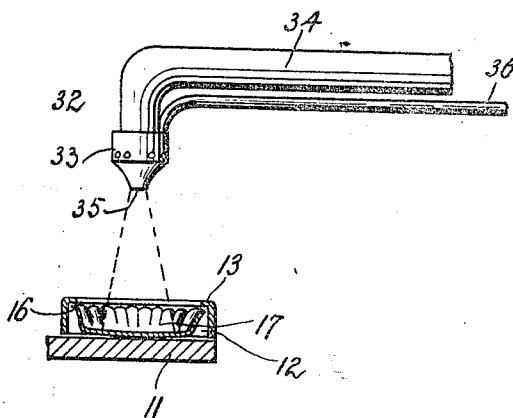


Fig. 1.

Fig. 2.



WITNESSES

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Fig. 3.

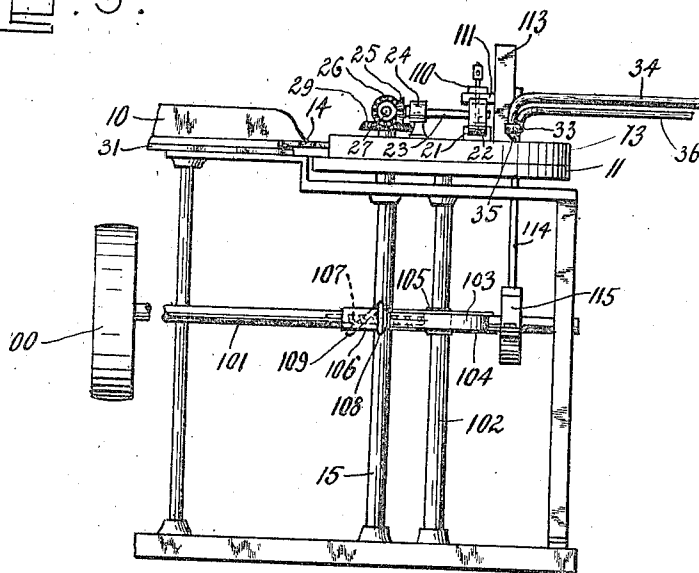
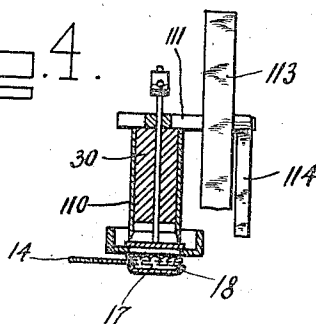


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR THE MANUFACTURE OF BOTTLE-CLOSURES OF THE CAP VARIETY.

1,043,384.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN ALBERTI, a citizen of the United States, 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 Machines for the Manufacture of Bottle-Closures of the Cap Variety, of which the following is a specification.

10 The present invention relates to machines for the manufacture of bottle closures of the class known as "crown cork sealing caps or closures." Closures of this type comprise usually three parts, that is a metallic cap or
15 crown, having a corrugated flange to be locked to the exterior of the bottle neck, a sealing disk or packing of cork or the like, and impervious binding material interposed between the metallic cap and the cork disk.
20 In assembling the parts of the closure and uniting the same, the binding material is softened or fused by heating, and pressure applied to the assembled closure, whereby the binding medium will unite the packing
25 disk with the metallic cap or crown. The metallic cap of the closure is usually greasy or oily, or covered or spotted with some substance that has the effect of grease. This might be due to the fact that the material
30 from which the metallic parts are shaped is in its manufacture rendered greasy, or that while and after the caps are being shaped, they are spotted with a greasy substance. It is obvious that when the impervious binding material is placed into the metallic cap
35 and heated, the grease or other similar substance on the inner surface of the metallic cap prevents the adhesion of the impervious substance to the cap, and prevents thus a
40 firm union between the sealing disk and the said cap. It has been found that no matter what pressure be applied and to what extent the closure be cooled while being assembled and united, a great part, if not the
45 greater part, of the closures manufactured will be defective to the extent that the union between their parts is not firm enough.

50 The object of the present invention is to obviate these defects, and with this 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 55 in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and minor details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention. 60

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:— 65

Figure 1 is a plan view of a device constructed in accordance with the present invention; Fig. 2 is a front elevation, partly in section, of an enlarged detail of construction; Fig. 3 is a front elevation of the machine; and Fig. 4 is a sectional elevation of the paper disk cutting means. 70

In the drawings only so much of the crown cork assembling and uniting machine has been shown as is necessary to fully understand the invention. The metallic caps are placed in their inverted positions upon a support 10, to be passed manually to a continuously rotating disk 11, which conveys the caps one after the other along a channel 80 12 in the direction of the arrow indicated in Fig. 1 of the drawings. The channel is formed between the carrying disk 11 and a cover plate 13. The carrying disk 11 feeds the inverted caps or crowns one after the other to the recesses of a star wheel 14, which is attached to a vertical shaft 15 to which intermittent motion is imparted in the direction of the arrow by any suitable means. The star wheel overlies partly 90 the carrying disk 11, engages the flange portions 16 of the caps 17, and conveys them along a groove 18 in a table 19 to rest directly beneath the means which cuts the impervious binding disk from a strip of suitably prepared paper or other material, and places the disk into the inverted cap. The paper strip from which the disks are cut is wound upon a reel 20, which may be suitably journaled in the frame of the machine, and 100 from which the strip is conducted into a guide 21, to pass between the feeding rollers 22. In the drawings only the upper one of these rollers is shown, its spindle 23 being journaled in a bearing 24, and carries at its outer end a bevel gear 25, meshing with a similar gear 26 upon a shaft 27, upon the opposite end of which is mounted another

bevel gear 28, meshing with a similar gear 29, which latter is attached to the shaft 15 of the star wheel 14. It will be observed that the feeding rollers will thus rotate intermittently and advance the paper strip to a cutting means 30, which may be actuated in any suitable manner. The cutting means serve at the same time to deposit the paper disk, which is cut from the strip, into the metallic cap, which is then conveyed by the star wheel 14 to another star wheel 31 to be transported by the latter to the other parts of the machine.

Motion is imparted to the mechanism through the intermediary of a pulley 100, which is keyed to the main driving shaft 101. The shaft 102 of the continuously rotating disk 11 is driven by a belt 103, running over pulleys 104 and 105, attached to the shafts 102 and 101, respectively. The shaft 15 is driven by a worm 106 upon the main driving shaft 101, which worm meshes with a worm gear 107 upon the shaft 15. The worm 106 has a straight portion 108, and, while this is engaging the worm gear 107, the latter is at rest. When the inclined portion 109 of the worm 106 coacts with a tooth of the worm gear, the same will be rotated a given distance, whereby the star wheel 14 will transport the crowns a corresponding distance. The cutting means 30 comprises a tubular cutter 110, secured in any suitable manner to an arm 111, which is slidably arranged in vertical guideways 112 of a bracket 113, the latter being attached to the table 19. The arm 111 is pivotally engaged by a rod 114, which is fastened to the strap of an eccentric 115, the latter being mounted upon the driving shaft 101 of the machine.

It is, of course, obvious that while herein a particular arrangement of the conveying means of the cap and the cutting means of the impervious disks have been described, any other suitable means may just as well be employed, those herein mentioned having been shown only for purposes of illustration.

Before the caps are to receive the binding disks or binding material, their inner surfaces are freed from the oily or greasy substance which covers or spots the same. This may be effected, preferably, by subjecting the inner surface of the caps to an intense heat, whereby the oily or greasy substance will be evaporated or burned. The heating means may consist, preferably, of a gas burner, which should be of the "Bunsen" type to cause a complete combustion of the illuminating gas in order to prevent unconsumed particles of carbon to settle onto the surface to be freed from the greasy or oily substance. A heater of this type is denoted in the drawings by the numeral 32, consisting of a Bunsen burner 33, to which illuminating gas is supplied through a pipe

34. This burner is arranged above the channel 12 in front of the means which deposits the binding disk or similar material into the cap. The mouth 35 of the burner is directed downward, and, as the star wheel 14 rotates intermittently, the caps, moving in the channel 12 step by step, will stop below the burner 33. Into this burner compressed air is conducted by a pipe 36, which will direct the flame on the inner surface of the inverted cap, evaporating or burning thereby the greasy or oily substance covering or spotting the same, thereby cleaning the said surface effectively. When then the impervious fusible material is deposited into the cap and heated, it will adhere perfectly to the inner surface of the cap and thereby cause a firm union between the cap and the sealing disk, when the assembled closure is subjected to pressure in the manner well known in the art.

What I claim is:—

1. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for the metallic caps, of means for depositing impervious binding material into said caps, and heating means arranged in front of said depositing means for freeing the inner surface of the metallic caps while upon said transporting means from the greasy or oily substance covering or spotting the same.

2. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for the metallic caps, of means for depositing impervious binding material into said caps, a gas burner arranged in front of said depositing means, and means for directing the flame issuing from said burner against the inner surfaces of said cap while upon said transporting means, whereby the said surfaces are freed from the greasy or oily substance covering or spotting the same.

3. In a machine for the manufacture of bottle closures of the cap variety, the combination with a rotary carrier for the metallic caps, of a transporting wheel receiving said caps in their inverted positions from said carrier, means for depositing impervious binding material into said caps while being transported by said wheel, a gas burner arranged above said carrier, and means for directing the flame issuing from said burner against the inner surfaces of said caps while upon said carrier, whereby the said surfaces are freed from the greasy or oily substance covering or spotting the same.

4. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for the metallic caps, of means for depositing impervious binding material into said caps, and means arranged in front of said depositing means for freeing the inner surfaces of the

metallic caps while upon said transporting means from the greasy or oily substance covering or spotting the same.

5. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for the metallic caps, of means for depositing impervious binding material into said caps, and means arranged in front of said depositing means above said transporting means for freeing the inner surfaces of the metallic

caps while upon said transporting means from the greasy or oily substance covering or spotting the same.

Signed at Brooklyn, in the county of Kings and State of New York, this 22nd day of May A. D. 1912.

JOHN ALBERTI.

Witnesses:

EMILIO ALBERTI,
JACOB GRAU.