Nov. 3, 1953 A. C. EVERETT 2,657,816

BOTTLE LABELING MACHINE

Filed May 28, 1949 3 Sheets-Sheet 1

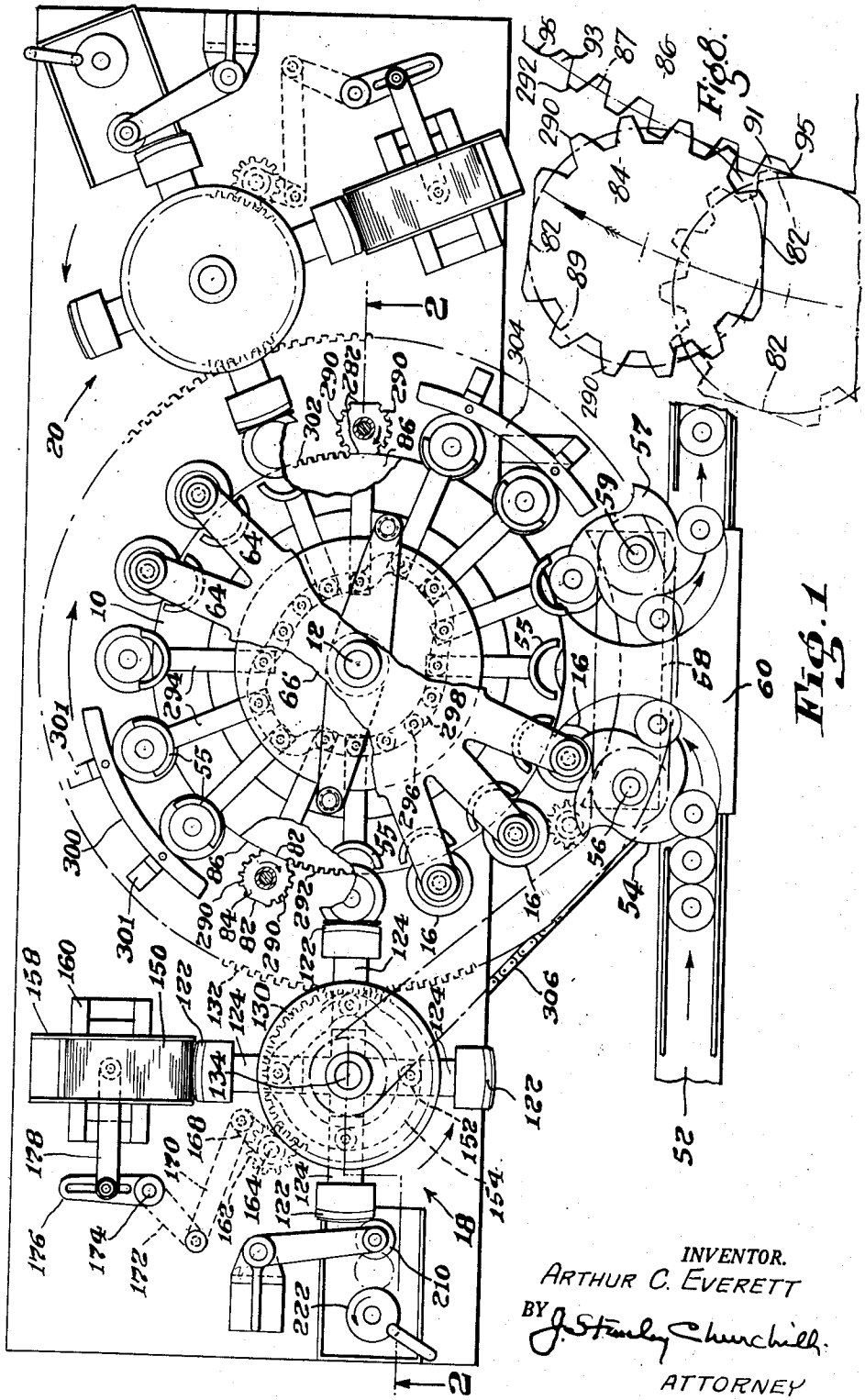


Fig. 1

Fig. 3

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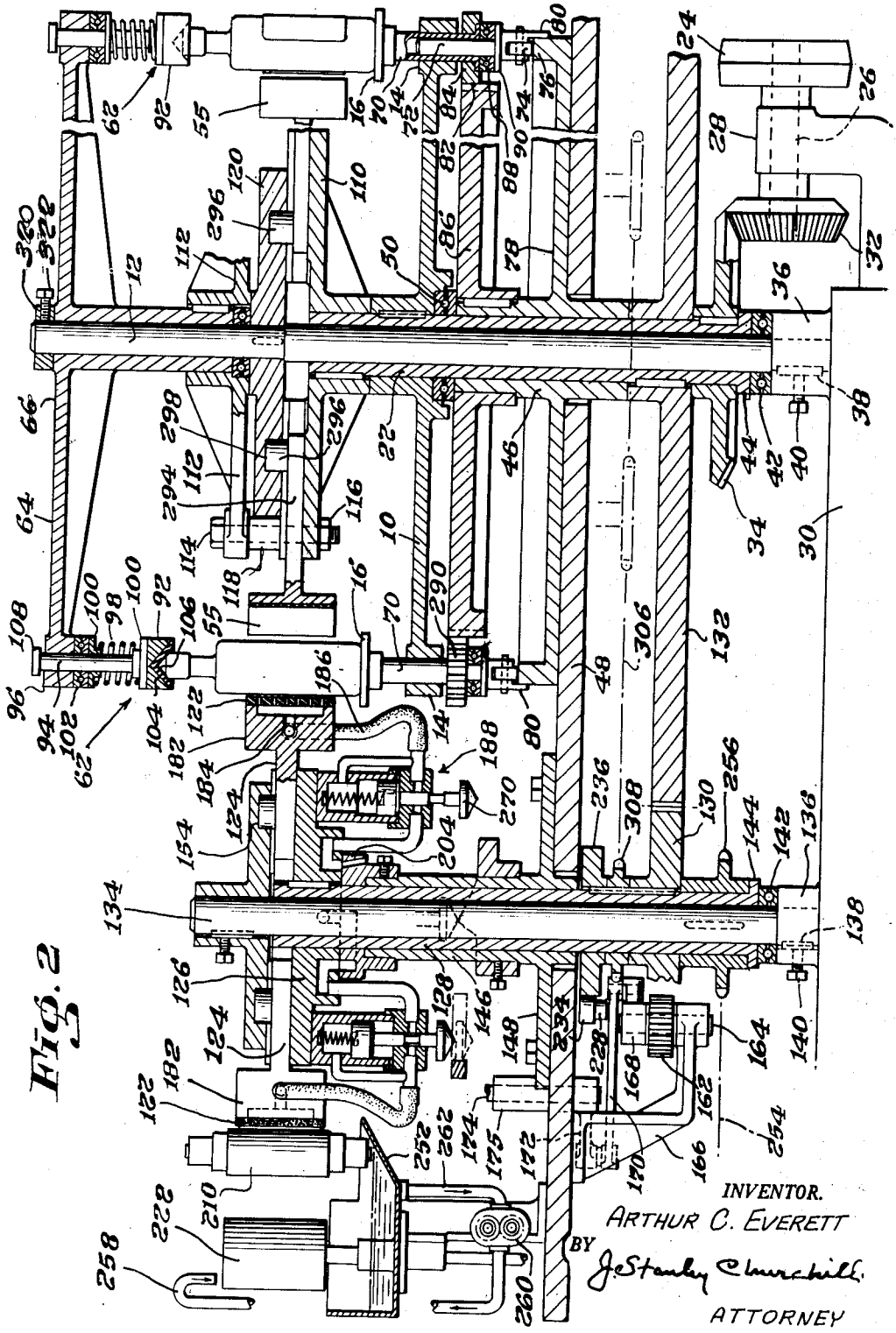


Fig. 2

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Fig. 3

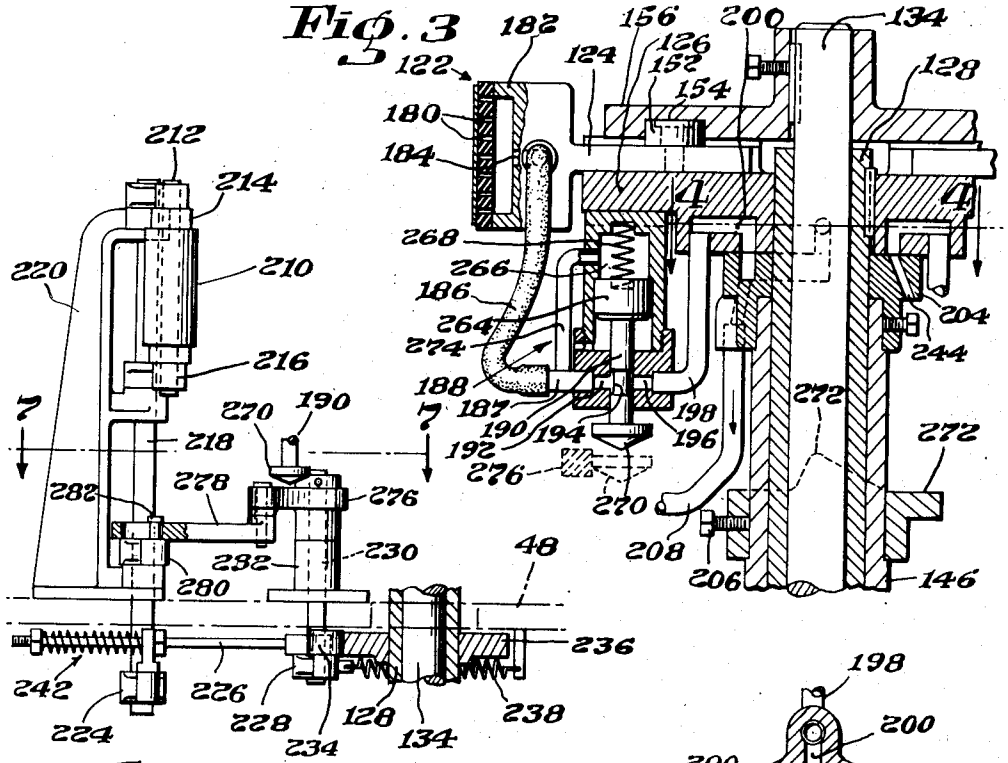


Fig. 6

Fig. 4

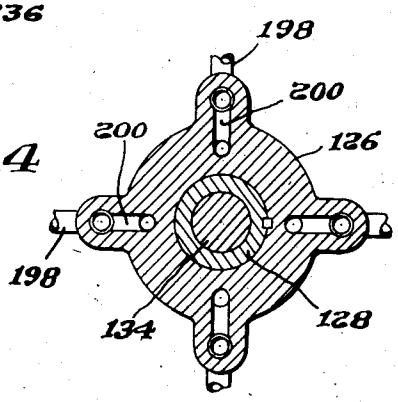
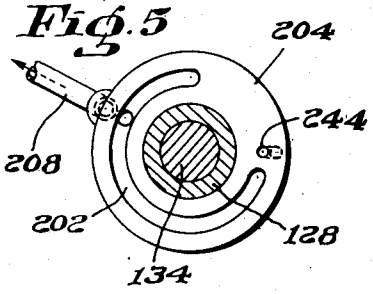


Fig. 5



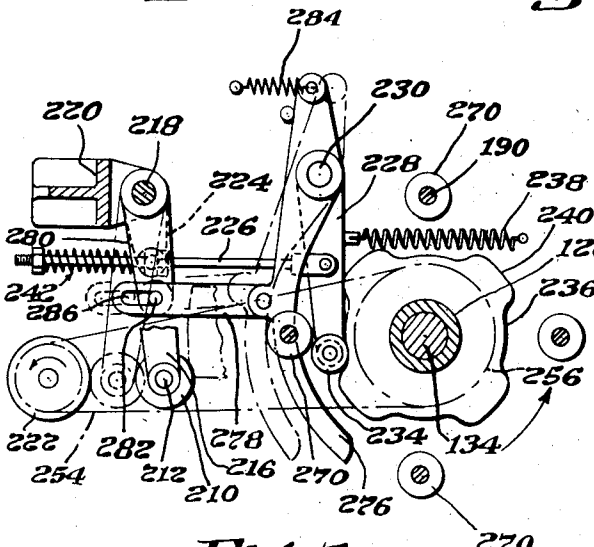


Fig. 7

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UNITED STATES PATENT OFFICE

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BOTTLE LABELING MACHINE

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Application May 28, 1949, Serial No. 95,937

7 Claims. (Cl. 216—55)

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This invention relates to a container labeling machine and particularly to a bottle labeling machine.

The invention has for an object to provide a novel and improved labeling machine adapted for the application of a plurality of labels to a container being continuously moved through the machine and in which provision is made for changing the position of the container during such continuous movement to present different faces thereof in operative position to successive label applying mechanisms for the application of labels to different portions of the container in a novel, rapid and efficient manner.

With this general object in view and such others as may hereinafter appear, the invention consists in the labeling machine and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a plan view of a labeling machine embodying the present invention; Fig. 2 is a vertical cross sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged cross sectional view of a portion of the label applying mechanism; Fig. 4 is a cross sectional plan view taken on the line 4—4 of Fig. 3; Fig. 5 is a plan view detail of a portion of the mechanism shown in Fig. 3, to be hereinafter referred to; Fig. 6 is a side elevation of adhesive applying mechanism and associated safety control mechanism, to be referred to; Fig. 7 is a plan view, partly in cross section, as viewed from the line 7—7 of Fig. 6; and Fig. 8 is an enlarged detail view of gearing shown in Fig. 1.

In general, the present invention is illustrated as embodied in labeling machine of the rotary type having provision for operatively supporting successive containers in spaced relation and for continuously moving the containers in a circular path into operative relation to successive label applying mechanisms adapted for the application of labels to the continuously moving containers. Provision is made for rotating a container on its axis during the continuous movement thereof to dispose different faces of the container in operative relation to successive label applying devices whereby to enable the application in a simple, rapid and superior manner of labels to different portions of the container during the continuous movement of the container through the machine.

The illustrated label applying mechanism includes a continuously rotated spider provided with a plurality of suction heads adapted to withdraw successive labels from a supply thereof and to support the labels during the application of adhesive thereto. The continuously rotated suction head spider is rotated in timed relation to the rotary bottle supporting mechanism and is arranged to be operated to affix successive labels to successive containers being conveyed in spaced relation into operative position to the label applying mechanisms. Provision is also preferably made for firmly pressing the applied labels upon the containers during the continuous movement thereof. Provision is also made in the preferred embodiment of the invention for controlling the operation of the continuously operated label applying mechanism in a manner such as to prevent operation of the adhesive applying device in the event that no label is withdrawn from the label supply.

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Referring now to the drawings, the invention is herein illustrated as embodied in a continuously operated rotary labeling machine having provision for applying successive labels to opposite sides of a container, herein shown as a bottle, and in which provision is made for rotating the container on its axis after a label has been affixed to one face thereof to present the opposite face of the container in operative position to receive a label from a succeeding labeling device during the continuous movement of successive bottles through the machine. As herein shown, the illustrated labeling machine is provided with a rotary container supporting and conveying plate 10 mounted for continuous rotation about a stationary central supporting shaft 12. The plate 10 is provided with a plurality of circumferentially spaced slide bearings 14, each bearing having a container supporting and elevating platform 16 mounted for vertical reciprocation therein and upon which the containers are supported and conveyed in spaced relation into operative position to successive label applying mechanisms, indicated generally at 18, 20.

In general, in the operation of the machine, the containers to be labeled are delivered to the machine on a supply conveyer 52 and are transferred onto successive platforms 16 by an intake spider or starwheel 54, and after a label has been applied to one side of the container by the labeling mechanism 18, the container is rotated 180° on its axis to present the labeled face in operative relation to reciprocally and radially mounted presser pads 55 arranged to firmly press the

loosely attached label against the container during the continuous rotation of the machine. The container is then carried into operative relation to receive a label on its opposite side at the second labeling station 20 and thereafter the container is again rotated 180° to present the container in operative position to have the second label firmly pressed against the same by the radially reciprocal rotating presser pads 55. The completely labeled container is then guided out of the machine and transferred to the discharge end of the conveyer 52 by a discharge spider 57 to be delivered from the machine.

As shown in Fig. 2, the supporting disk 10 is keyed adjacent the upper end of an elongated sleeve 22 mounted for rotation upon the central shaft 12 and is arranged to be continuously rotated through driving connections including a main drive pulley 24 mounted fast upon one end of a shaft 26 journaled in a bracket 28 attached to the base 30 of the machine frame. The other end of the shaft 26 is provided with a bevel gear 34 fast on the lower end of the elongated sleeve 22. The vertical shaft 12 is supported at its lower end in a hub member 36 formed in the base 30 and is held from rotation by a key 38 and set screw 40, as illustrated. A thrust bearing 42 is interposed between the top of the hub 36 and the underside of the flanged end 44 of the sleeve 22. The sleeve 22 is also rotatably supported within an outer bearing member 46 mounted on the platen 48 of the machine frame and a second thrust bearing 50 is interposed between the upper end of the bearing member 46 and the underside of the disk 10, as illustrated. Thus, in the operation of the machine, the disk 10 is continuously rotated to convey the containers supported on the platforms 16 in a circular path into operative relation to the labeling mechanisms 18, 20.

The containers to be labeled are delivered to the machine on the supply conveyer 52 and successive containers are transferred in predetermined spaced relation from the supply conveyer 52 to successive container supporting platforms 16 by the continuously rotated intake spider or starwheel 54 mounted for rotation with a vertical shaft 56 arranged to be rotated in timed relation to the rotation of the conveying disk 10. As herein shown, the containers being transferred are arranged to pass across a bridge plate 58 and a guide rail 60 cooperating with the starwheel 54 is arranged to guide successive containers onto successive supporting platforms 16 during the continuous operation of the machine.

The platforms 16 are disposed in a horizontal plane in alignment with the conveyer 52 and bridge plate 58 during the transfer operation, and immediately after a container has been transferred thereon, the platform is arranged to be elevated to present the upper end of the container in clamping engagement with a yieldingly mounted clamping member, indicated generally at 62, carried in the outer end of each radial arm 64 of a spider 66 mounted for rotation about the central shaft 12, the clamping members 62 being arranged in vertical alignment with their respective container supporting platforms 16 and rotated in a circular path along with the platforms 16.

As illustrated in Fig. 2, the platforms 16 are mounted upon the upper ends of tubular sleeves 70 rotatably and reciprocally mounted in the slide bearings 14 and an upstanding pin 72 fitted into the lower end of each sleeve 70 is provided with a roller 74 arranged to cooperate with a stationary annular cam 76 formed at the periphery of the flanged portion 78 of the bearing member 46. The tubular sleeve 70 is mounted for rotation at a subsequent time relative to the pin 72 as will be described, and in order to prevent rotation of the pin 72 and to hold the cam roll 74 in alignment with its cam 76, an extended portion 80 of one of the cam roll supporting arms is arranged to engage the outer periphery of the stationary cam, as illustrated.

The platforms 16 and sleeves 70 are arranged to be held from rotation on their axes until the proper time in the cycle of operation of the machine by the cooperation of a concave portion 82 of a partial gear member 84 with the periphery of a stationary disk 86, the partial gear being fast on the lower end of the sleeve 70 and the stationary disk 86 being keyed to the outer bearing member 46. As will be described, the partial gear 84 is provided with gear teeth for cooperation with gear teeth formed at predetermined portions of the stationary disk 86 to effect rotation of the platform 16 and of the container carried thereby through an angle of 180° after a label has been affixed to one side of the same by the label applying mechanism 18. In order to facilitate relative rotation of the sleeve 70 on the pin 72, a roller bearing 88 is provided between the flanged lower end of the sleeve 70 and a collared portion 90 of the pin, as illustrated in Fig. 2.

As herein shown, each clamping member 62 comprises a cap or hood member 92 fast on the lower end of a pin 94 mounted for rotation and vertical reciprocation in a slide bearing 96 formed in the end of the radial arm 64. A coil spring 98 provided with end caps 100 is interposed between the top of the hood member 92 and the underside of a roller bearing 102 engaged with the lower surface of the bearing member 96. The hood member 92 is provided with a conical opening 104 on its underside for engagement with the upper end of the container and the conical opening may and preferably will be provided with a rubber or similar yieldable frictional lining 106 to effect a frictional grip on the top of the container. In operation, the coil spring 98 is arranged to yieldingly urge the hood 92 against the top of the container to clamp the same between the hood and the platform 16 when the latter is elevated, and the roller bearing 102 facilitates rotation of the clamping unit 62 relative to its supporting member 96 when rotation of the platform and container is effected, as will be described. The upper end of the pin 94 is provided with a head 108 arranged to engage the upper surface of the bearing member 96 to serve as a stop to limit the downward movement of the clamping unit.

The upper spider 66 on which the clamping units 62 are carried is arranged to be rotated with the lower container supporting disk 10 through connections including an intermediate rotary supporting disk 110 keyed to the uppermost end of the continuously rotated sleeve 22, the disk 110 forming a part of the label wiping or pressing mechanism to be described. The upper spider 66 is provided at its lower end with a pair of opposed connecting arms 112 keyed to the spider and the outer ends of the arms 112 are connected to the intermediate disk 110 for rotation therewith by bolts 114 and nuts 116. Spacing collars 118 are provided between the arms 112 and the driving disk 110 in order to avoid a stationary cam 120 keyed to the central shaft 12 and also forming a part of the pressing or wiping mechanism.

From the description thus far it will be observed that in the operation of the machine successive containers to be labeled are transferred from the supply belt 52 onto successive supporting platforms 16 and are elevated to present the tops of the containers into clamping engagement with the yieldably mounted clamping units 62. The containers are thus firmly supported between the platforms 16 and the clamping units 62 and are held from rotation on their axes by the cooperation of the member 84 in sliding engagement with the stationary disk 86 in which condition the containers are presented to the label applying mechanism 18 to receive a label on one side thereof.

As illustrated in general in Fig. 1, the label applying mechanism 18 includes a plurality of suction heads or pads 122, herein shown as four, mounted upon the outer ends of radially extended arms 124 carried by and arranged for reciprocation in a continuously rotated spider 126. As shown in Fig. 2, the spider 126 is keyed to the upper end of a hollow shaft or driving sleeve 128 and is arranged to be rotated in timed relation to the container supporting and conveying disk 10 by a gear 130 keyed to the lower end of the sleeve 128 and which meshes with a large diameter gear 132 keyed to the sleeve 22 of the container supporting unit. The driving sleeve 128 is mounted for rotation about a central stationary shaft 134 fixedly supported at its lower end in a hub 136, formed in the base 30, by a key 138 and set screw 140. A thrust bearing 142 is interposed between the upper end of the hub 136 and the underside of the flanged end 144 of the sleeve to support the sleeve for rotation about the stationary shaft 134. The sleeve 128 is further supported in an elongated bearing member 146 having a flanged portion 148 attached to the platen 48. Thus, in operation, the spider 126 and the radially mounted suction pads 122 are rotated continuously in timed relation to the containers being continuously moved through a circular path by the rotary disk 10.

In operation, successive suction pads 122 are arranged to be reciprocated in the spider 126, during their continuous movement, to engage and withdraw the endmost label in a stack 150, and as shown in Figs. 1 and 3, each radially extended arm 124 is provided with a roller 152 arranged to cooperate with a cam path 154 formed in a stationary cam disk 156 keyed to the upper end of the central stationary supporting shaft 134.

Provision is made for reciprocating the stack of labels 150 laterally in timed relation to the movement of the suction pads 122 into engagement therewith during the continuous rotation of the spider 126 and as herein shown, the stack is supported in a magazine 158 mounted for lateral reciprocation in a slide bracket or track 160. The label supporting magazine 158 is arranged to be reciprocated through connections from the gear 130 including a pinion 162 in mesh with the gear 130 and fast on a crank shaft 164 journaled in a bracket 166 attached to the underside of the platen 48, as shown in Fig. 2. The upper end of the crank shaft 164 is provided with a crank arm 168 fast thereon and connected by a link 170 to an arm 172 fast on the lower end of a vertical rocker shaft 174 supported in a suitable bearing 175 formed in the platen 48. The upper end of the vertical shaft 174 is provided with a slotted arm 176 connected by a link 178 to the magazine 158. Thus, in the operation of the machine, the label magazine is moved laterally at the same rate

of speed as the continuously rotating suction pads 122 in a manner such that when a suction pad 122 reaches its maximum limit of extension, the stack 150 will be in longitudinal alignment with the endmost label, as shown in Fig. 1. Upon continued rotary and lateral movement of the pad 122 and stack 150 respectively, the endmost label will be withdrawn from the stack during the retracting stroke of the suction pad, the magazine continuing its lateral movement to the left viewing Fig. 1 along with the pad during such retracting movement. Thereafter, the magazine is returned to its initial position, to the right viewing Fig. 1, in readiness for cooperation with a succeeding suction pad 122.

As shown in Figs. 3, 4 and 5, each suction pad 122 may comprise a yieldable or resilient material such as rubber, and is provided with a plurality of suction openings 180. The pad 122 is mounted on the outer end of a hollow head 182 forming a suction chamber and the chamber is connected with a source of suction through ports 184 formed in the head and a flexible conduit 186 connected by a nipple 187 to an individual valve unit 188, four of which are carried by the spider 126. Each valve unit 188 is provided with a valve stem 190 having a reduced diameter portion 194 arranged, in its open position, for alignment with opposed ports 192, 196 of the valve 188 to permit communication between the conduit 186, connected to the port 194, and a second conduit 198 connected to the port 196. The second conduit 198 is connected to the outer end of a radial channel 200, four of which are formed in the lower portion of the rotary spider 126. The inner end of each radial channel is arranged to communicate with an arcuate chamber 202 formed in a stationary member 204 fixed to the upper end of the elongated supporting bearing 146, the member 204 being mounted for rotary adjustment with respect to the bearing and held in its adjusted position by a set screw. A pipe 208 connected to the stationary member 204 and in communication with the arcuate channel or chamber 202 may be connected to any suitable or preferred form of suction creating means, such as a vacuum pump, not shown. Thus, in the operation of the machine, a label is withdrawn from the magazine by a suction pad 122 as it is continuously moved into and from engagement therewith. The label magazine may be of known construction having provision for urging the stack forwardly in the magazine, and provided with the usual means for retaining the labels in the magazine until withdrawn by a suction pad, as described.

As illustrated in Fig. 2, provision is made for applying a film of adhesive to the label supported by the suction pad 122 during continuous movement thereof and as herein shown, the label is brought into engagement with an adhesive applying roller 210 disposed in the path thereof during movement of the suction pad 122 therepast. The adhesive applying roller 210 is rotatably mounted upon a shaft 212 carried between spaced arms 214, 216 fast on a vertical rocker shaft 218 journaled in a bracket 220 attached to the machine frame. Provision is made for rocking the roller 210 into and out of contact with an adhesive supply roll 222 during the intervals between the passage of a label supporting pad therepast, and as herein shown, the lower end of the rocker shaft 218 is provided with an arm 224 fast thereon and connected by a link 226 to an arm 228 fast on the lower end of a vertical

shaft 230 journaled in a bearing member 232 attached to the platen 48, as shown in Fig. 6. The arm 228 is provided with a roller 234 arranged to cooperate with a cam 236 fast on the driving sleeve 128. A spring 238 connected to the arm 228 is arranged to hold the roller 234 against its cam. The cam 236 is provided with four lobes 240 arranged to effect oscillation of the adhesive applying roller 210 into and out of engagement with the adhesive supply roll 222 in timed relation to the rotation of the suction pads. The applying roller 210 is arranged to be yieldingly urged into engagement with the pad and label by the provision of a yieldable connection 242 between the arm 224 and link 226, as shown in Fig. 7, the connection being arranged to effect positive movement of the applying roller 210 into engagement with the supply roll 222.

The adhesive supply roll 222 is rotatably supported in a supply tank 252 and is arranged to be rotated by a chain and sprocket connection 254, as shown in Fig. 7, the driving sprocket 256 being keyed to the lower end of the driving sleeve 128, see Fig. 2. The adhesive is continuously supplied to the vertically disposed supply roll 222 from a pipe 258 connected to a pump 260 which is arranged to recirculate the adhesive received thereby from a pipe 262 connected with the supply tank 252.

In the normal operation of the machine, the adhesively coated label carried by the suction pad 122 will engage the periphery of the container supported on the platform 16 when the pad 122 and platform 16 arrive in alignment with each other as shown in Fig. 1. It will be observed that the arcuate chamber 202 is discontinued immediately prior to the arrival of the pad 122 into label applying position to cut off the suction therefrom in order to permit the label to leave the pad and adhere to the container, and in order to further relieve the label from the suction at this time, a vent opening 244 is provided in the stationary disk 204 arranged in alignment with the inner end of the radial channel 200 when the suction pad arrives in label applying position to open the suction pad chamber to the atmosphere.

When the label, in its flat condition, is thus applied to a round container, it is merely "tacked" on, adhering to an area sufficient to hold the label in position for a subsequent wiping or pressing operation to firmly set the label, as will be described. It will also be observed that the face of the label supporting pad 122 is arcuate in form for engagement with the container being moved therepast in a circular path.

Referring now to Figs. 3, 6 and 7, provision is made for controlling the operation of the labeling mechanism to render the adhesive applying device inoperative in the event that a label is not withdrawn from the magazine, as above described, whereby to prevent the application of adhesive to a suction pad having no label. As illustrated in Fig. 3, the valve stem 190 of the valve unit 188 is provided with a piston head 264 at its upper end slidably mounted in a cylinder chamber 266, the piston being urged downwardly to the lower end of the chamber by a spring 268 to close the ports 194, 196. Immediately prior to the arrival of a suction pad into label withdrawing position, with the pad in engagement with the endmost label in the stack, the valve stem is elevated to open the valve by engagement of the lower conically shaped end 270 of the valve stem with a stationary cam 272 mounted on and adjustably secured to the stationary supporting bearing 146. Upon opening of the valve, suction is created at the openings 180 in the suction pad to effect withdrawal of a label and when the openings 180 are closed by a label carried by the pad, the piston head 264 is maintained in an elevated position in the chamber 266 by the suction created in the chamber through a conduit 274 connected between the nipple 187 and the upper end of the chamber to hold the valve in an open position during the normal operation of the device, the piston being limited in its upward position by a shouldered portion of the cylinder, as shown. However, in the event that the label is missing from the pad after retraction of the pad from engagement with the stack, atmospheric air entering the suction openings 180 in the pad reduces the vacuum in the system to such an extent that the spring 268 is permitted to effect downward movement of the piston member to close the valve. As herein shown, when the valve stem is in its lowered position, the lower end 270 thereof is presented in horizontal alignment with or in the path of a curved lever or safety arm 276 pivotally mounted on the vertical shaft 230. The safety arm 276 is connected by a slotted link 278 to an arm 280 fast on the rocker shaft 218, the arm 280 having a pin 282 extended into the slot, as shown. The safety arm 276, as shown in full lines in Fig. 7, is normally urged in a counter-clockwise direction by a spring 284, the slot 286 permitting freedom of movement of the adhesive applying roller 210 relative to the safety arm 276 during normal operation of the machine. In the operation of the device, when the pressure in the chamber 266 rises, indicating that a label is missing from the pad, the valve stem will drop down into its lowered position and the lower end 270 of the stem will engage and rock the arm 276 in a clockwise direction, as shown in dotted lines in Fig. 7, the closed end of the slot 286 engaging the pin 282 to hold the adhesive applying roller 210 in its retracted position during the travel of the pad 122 therepast. The safety arm 276 will return to its normal position as soon as the end 270 of the stem passes beyond the end of the arm 276, and during the continued operation of the machine, the stem is again elevated and reset by the cam 272 to open the valve ports 194, 196 when the pad again arrives in label withdrawing position, as described, at which time the radial channel 200 is again in communication with the arcuate chamber 202.

In the operation of the rotary label applying apparatus thus far described, it will be observed that the label is loosely attached by the applying mechanism 18, the label adhering to a round container merely along an area adjacent the point of contact of the applying pad and the container. As illustrated in Fig. 1, provision is now made for rotating the container supporting unit 16 on its own axis through 180° to present the labeled side of the container facing inwardly in alignment with the radially reciprocal wiper or presser pads 55 and also to present the unlabeled side of the container facing outwardly for cooperation with the succeeding label applying mechanism 20 during the continued movement of the container in a circular path. As herein shown, the partial gear member 84 is provided with opposed sets of gear teeth 290 one set of which is arranged for cooperation with gear teeth 292 formed on the stationary disk 86 and, in operation, immediately after the label is applied by the labeling mecha-

nism 18, one set of teeth 290 engages the teeth 292 to effect rotation of the supporting unit 16 on its own axis in a clockwise direction, the concave portion 82 in engagement with the stationary disk 86 leaving the disk upon initial engagement of the teeth and the opposed concave portion being presented into cooperative engagement with the disk at the end of the rotary movement of the container supporting unit on its own axis. As illustrated in detail in Fig. 8, the uncut periphery of the stationary disk 86 is coextensive with the pitch line 87 of the gear teeth 292 formed therein, and the arcuate or concave portions 82 of the partial gear 84 are tangent to the pitch line 89 of the gear 84. The disk 86 may be cut away or rounded slightly adjacent the end tooth spaces 91, 93 as indicated at 95 to provide clearance for the ends of the concave portions when leaving or reentering engagement with the periphery of the disk 86, the initial engagement of the teeth 290 with the teeth 292 being illustrated in dotted lines in Fig. 8.

The label presser pads 55 are mounted upon the ends of radially extended arms 294 slidably mounted in the rotary disk 110, and each label presser pad is arranged to be reciprocated in the disk 110 by the cooperation of an individual cam roll 296, carried by each arm 294, with a cam path 298 formed in the stationary cam 120. In the operation of the machine, a presser pad 55 is arranged to be pressed into engagement with the label as soon as rotation of the container on its axis terminates, as described, and is arranged to remain in engagement therewith for a short time during the continued operation of the machine to firmly set the label, whereupon the presser pads are retracted. In order to provide auxiliary support for the supporting units 16 during the pressing operation, a stationary arcuate rail 300 may be supported for engagement with the periphery of the platforms, as illustrated, in Fig. 1, the rail 300 being supported by suitable brackets 301 extended from the platen 48.

During the continued operation of the machine, the container and its supporting unit 16 is maintained with the unlabeled face of the bottle in an outward position by the cooperation of the concave portion 82 with the periphery of the stationary disk 86 and is presented to the second label applying station 20 where a label is applied to the outer face of the container on the opposite side from the previously applied label. Since the labeling mechanism at station 20 is similar in construction and mode of operation to the labeling station 18 previously described, further description thereof is deemed unnecessary.

Immediately after the application of the second label, the container supporting unit 16 is again rotated through 180° by the cooperation of the second set of gear teeth 290 with gear teeth 302 formed on the stationary disk 86 to present the second labeled side of the container facing inwardly for cooperation with the presser member 55 to effect wiping of the loosely attached label into firm engagement with the container in a manner similar to that previously described. A similar auxiliary supporting rail 304 may be provided adjacent the periphery of the platforms 16 during the pressure applying operation. Thereafter, the pressure pads 55 are retracted and the elevating platform unit is permitted by the cam 76 to descend to its original position to present the platform 16 in a plane in horizontal alignment with the bridge plate 58 at the discharge station. The completely labeled container is then guided off its platform 16 by a cutout portion of the stationary guide rail 60 and is transferred across the bridge plate 58 onto the discharge end of the conveyer 52 by the discharge spider 57 to be carried away from the machine. As illustrated in Fig. 1, the discharge spider 57 is secured to the upper end of a vertical shaft 59, and is arranged to be driven in timed relation to the inlet spider 54 through a chain and sprocket connection 306 connecting the shafts 56 and 59 and arranged to run around a driving sprocket 308 fast on the sleeve 128, as shown in Fig. 2.

Referring to Figs. 1 and 2, it will be observed that the spider 66 is keyed to the arms 112, and adjustably secured on the shaft 12 by the collar 320 and locking screw 322. In practice the shaft 12 is made of greater length than shown in Fig. 2 to permit vertical adjustment of the spider to accommodate bottles or containers of different heights. Suitable fillers may be used for supporting the lower end of the hub of the spider.

Although the present machine has been herein illustrated and described as adapted for operation upon round bottles or bottles having a cylindrical surface, it will be apparent that the machine may be used with equal advantage for applying labels to bottles or other containers of different shape, such as square, rectangular or oval bottles having flat, convex or concave surfaces to which the labels may be applied.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. In a labeling machine, in combination, means for supporting and continuously moving successive containers to be labeled, a plurality of continuously moving label applying mechanisms arranged to apply labels to successive containers as the containers are continuously moved through the machine, and means for changing the position of successive containers after a label has been applied to one face thereof to present a different face into operative position for the application of a label thereto by a succeeding label applying mechanism, and means complementary to a container surface carried by and movable with said continuously moving and supporting means for pressing the applied labels throughout their areas into firm engagement with the container during the continued movement of the container through the machine.

2. In a labeling machine of the character described, in combination, a continuously operating rotary conveyer for supporting and continuously moving successive containers to be labeled, a plurality of continuously operated rotary label applying mechanisms disposed for cooperation with said rotary conveyer to effect application of labels to the outwardly directed face of successive containers, and means for rotating each container on its own axis after the application of a label to the outer face thereof to present a different face into operative position for the application of a label thereto by a succeeding label applying mechanism, and a plurality of radially reciprocal presser pads carried by and movable with said rotary conveyer radially inwardly of said containers for thereafter pressing the applied labels into firm engagement with the containers during continued movement of the containers in a rotary path.

3. In a labeling machine of the character described, in combination, a continuously operated conveyer for supporting and continuously moving successive containers to be labeled along a predetermined path, labeling mechanism disposed on one side of said path to apply labels to successive containers during the continuous movement of the containers through the machine, label pressing means complementary to a container surface carried by and movable with said conveyer on the other side of said path arranged to press the applied labels into firm engagement with the containers during the continuous movement thereof, and means for changing the position of successive containers relative to the conveyer after the application of a label thereto to present the labeled face of the container into operative position with relation to said pressing means.

4. In a labeling machine of the character described, in combination, rotary conveying means for supporting and continuously moving successive containers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a continuously operated rotary spider having a plurality of radially reciprocal suction pads adapted to engage and withdraw successive labels from the magazine for application to the outwardly directed face of successive ones of said continuously moving containers, a valve associated with each of said pads and arranged to be automatically moved from an open to a closed position in the event the suction pad fails to withdraw a label, and means for effecting lateral reciprocation of said label supporting magazine along a path tangent to the path of movement of label carrying members in timed relation to the movement of said suction pads during the label withdrawing operation, adhesive applying mechanism for applying a film of adhesive to successive labels carried by said suction pads, and control means including a safety lever operatively connected to said adhesive-applying mechanism and having a portion arranged to cooperate with said valve when in its closed position for rendering inoperative said adhesive applying mechanism in the event of the absence of a label from a suction pad.

5. In a labeling machine of the character described, in combination, rotary conveying means for supporting and continuously moving successive containers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a plurality of continuously rotating label carrying suction pads adapted to engage and withdraw successive labels from the magazine for application to the outwardly directed face of successive containers, adhesive applying mechanism for applying a film of adhesive to successive labels carried by said suction pads, and control means including a valve associated with each of said suction pads arranged to be automatically moved from an open to a closed position in the event the suction pad fails to withdraw a label, and means operatively connected to said adhesive-applying mechanism arranged to cooperate with said valve in its closed position for rendering inoperative said adhesive applying mechanism in the event of the absence of a label from said carrying suction pad.

6. In a labeling machine of the character described, in combination, rotary conveying means for supporting and continuously moving successive containers to be labeled in a circular path including a plurality of container supporting platforms, means for elevating said platforms, and container means engageable with the tops of the containers for firmly clamping the same to said platform when said platforms are elevated, a plurality of rotary label applying mechanisms arranged to apply labels to the radially directed outer face of successive containers as they are continuously moved through the machine, and engageable with said elevating platforms, means for rotating the platforms on their own axes after the application of a label to one face of a container to present a different face of the container into operative position for the application of a label thereto by a succeeding label applying mechanism, said clamping means being mounted for rotation with the container during rotation of the platforms on their own axes as the containers are being continuously moved through a circular path.

7. In a labeling machine of the character described, in combination, a continuously operated rotary conveyer for supporting and continuously moving successive containers to be labeled, a rotary label applying mechanism disposed to apply labels to successive containers during the movement of the containers through the machine, a presser pad rotating in timed relation with said rotating conveyer for pressing the applied label in firm engagement with the containers during the continuous movement thereof.

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