

Dec. 25, 1945.

A. C. EVERETT

2,391,694

LABELING MACHINE

Filed Feb. 18, 1944

6 Sheets-Sheet 1

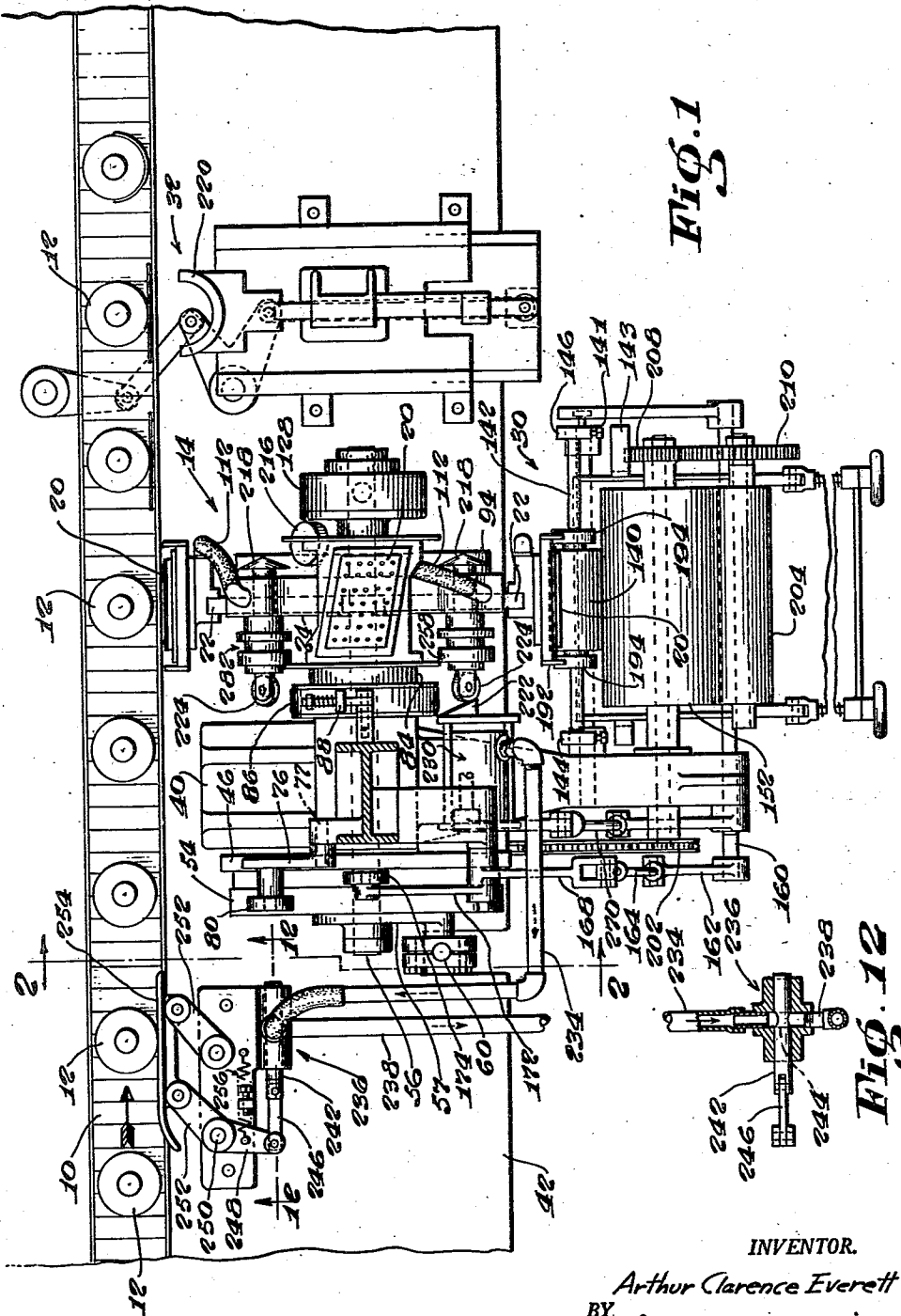


FIG. 1

FIG. 12

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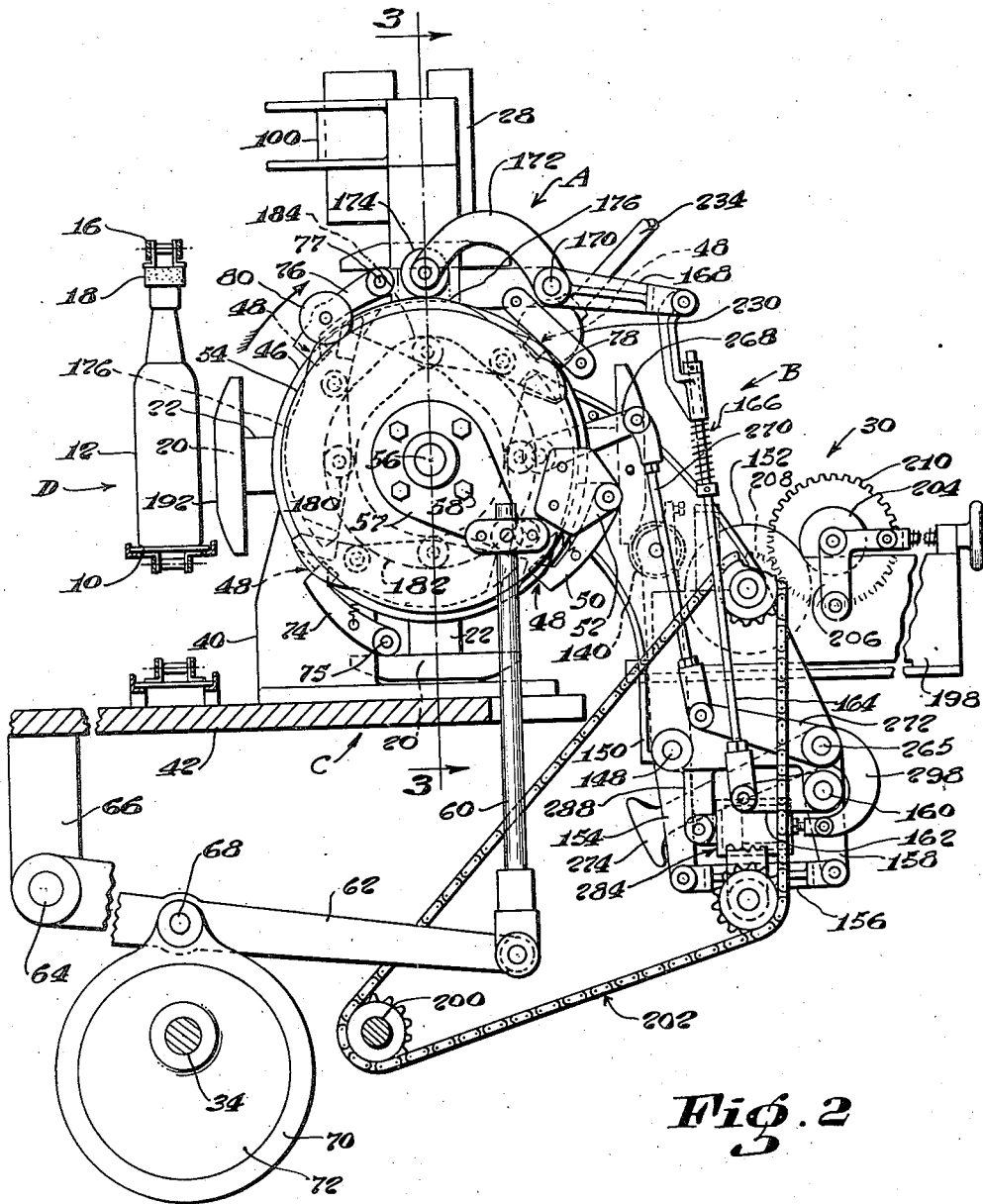


Fig. 2

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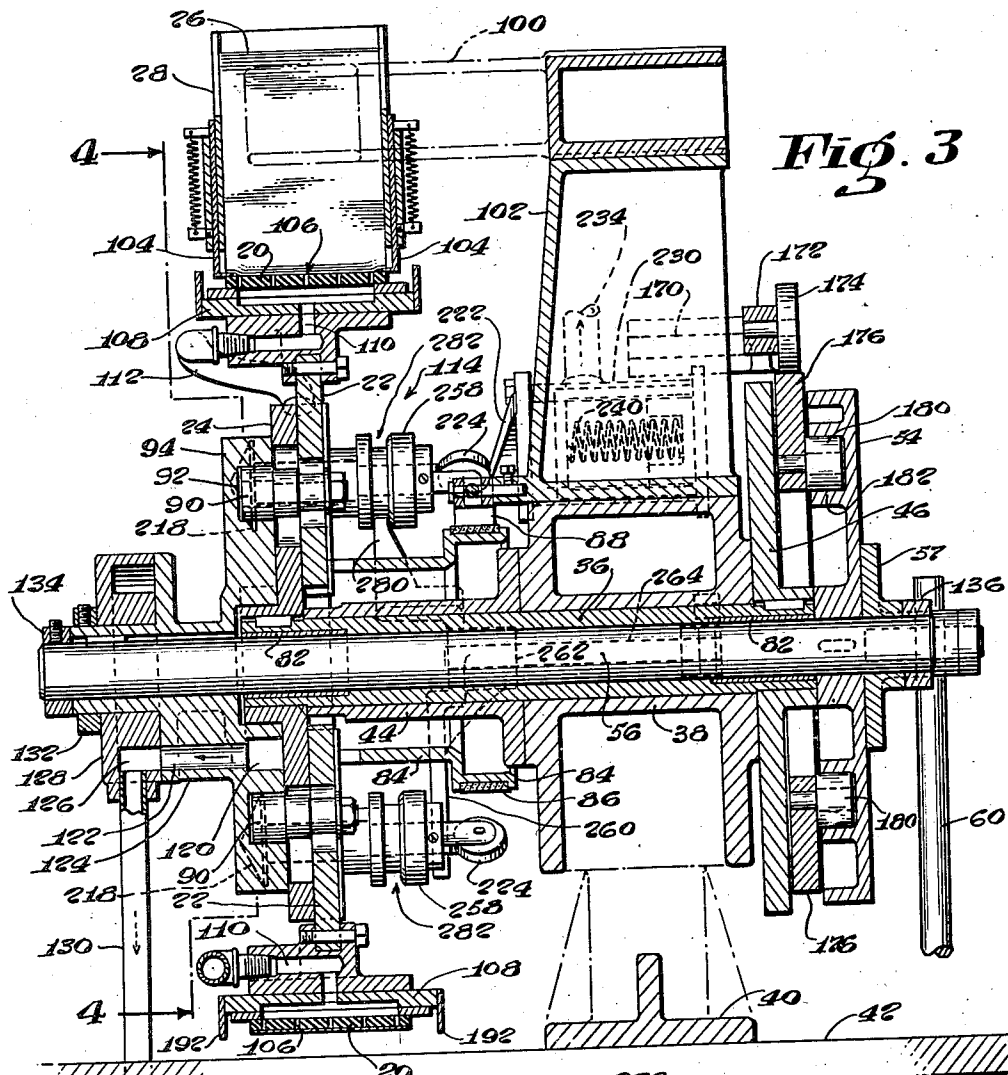


Fig. 3

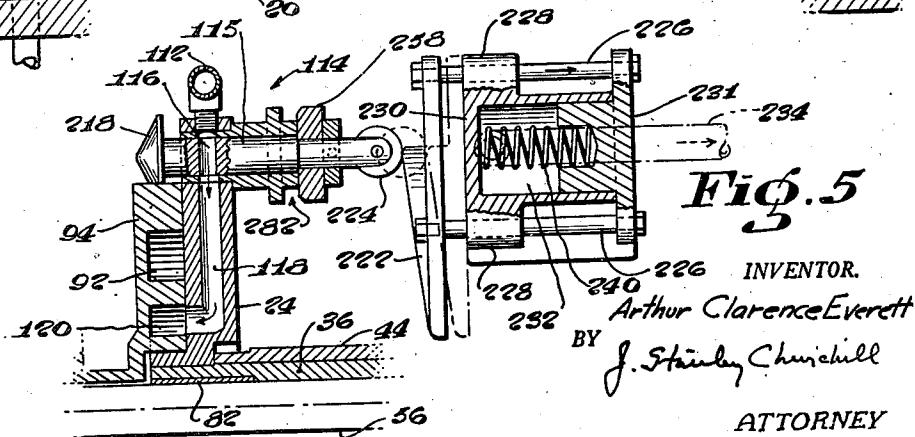


Fig. 5

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UNITED STATES PATENT OFFICE

2,391,694

LABELING MACHINE

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Application February 18, 1944, Serial No. 522,952

23 Claims. (Cl. 216-55)

This invention relates to a labeling machine.

The invention has for an object to provide a novel and improved labeling machine in which provision is made for withdrawing a label from a stack thereof, applying a film of adhesive to the label, and affixing the adhesively coated label to a container in a novel 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 side elevation of the labeling machine, partly in cross-section, as viewed from the line 2-2 of Fig. 1; Fig. 3 is a cross-section on the line 3-3 of Fig. 2; Fig. 4 is a cross-sectional view taken on the line 4-4 of Fig. 3; Fig. 5 is a detail view in cross-section of a control valve to be referred to; Fig. 6 is a perspective view illustrating control mechanism to be hereinafter more fully described; Fig. 7 is a side elevation, and Fig. 8 is a front elevation as viewed from the line 8-8 of Fig. 7, of the intermittent driving mechanism and mechanism for operating the adhesively applying roller; Figs. 9, 10 and 11 are disgrammatical views showing the label applying mechanism in different positions of operation; and Fig. 12 is a detail view in cross-section taken on the line 12-12 of Fig. 1.

In general, the present invention is illustrated as embodied in a labeling machine of the type provided with an intermittently operated conveyor upon which the containers are carried in spaced relation for registration with the labeling mechanism. In prior commercial labeling machines of this type it has been the practice to first provide the container with a film of adhesive and thereafter apply a label to the adhesively coated container. This type of labeler has been in extensive use and while successful for most purposes it has been found that in some instances accurate registration of the label with the adhesively coated area of the container was a difficult operation and in some instances resulted in imperfect labeling. For example, if the label were slightly offset with relation to the adhesive area of the container, a line of surplus adhesive would extend along one edge of the label while the opposite edge would be free of adhesive.

The present invention contemplates the pro-

vision of novel apparatus for applying adhesive to the label prior to the application of the label to the container thus obviating the difficulties above described. Although it has heretofore been proposed to perform the labeling operation in this manner, difficulties have been encountered in such prior machines in the handling of the label particularly with respect to the mechanism for withdrawing a label from a supply thereof, and for holding the label during the application of adhesive thereto. It is the aim of the present invention therefore to provide novel and efficient apparatus for handling the label and affixing the same to a container whereby to successfully perform the labeling operation.

In general, the illustrated embodiment of the invention includes an intermittently rotated spider provided with a plurality of novel suction heads or pads capable of withdrawing successive labels from a stack thereof and for holding the label during the application of adhesive thereto. The suction pad and its label are subsequently moved into operative position to a container supported upon the intermittently operated conveyor and the suction pad is operated to affix the label to the container. The intermittently operated conveyor is preferably arranged to run in timed relation to the operation of the label applying pads to effect application of labels to successive containers.

Provision is also made in the present labeling machine for pneumatically controlling the operation thereof in a manner such as to prevent withdrawal of a label from the supply thereof in the event that no container is present on the conveyor to receive a label such as when there is a break in the line of containers or when the supply thereof is depleted. Pneumatic control is also provided to prevent operation of the adhesively applying mechanism in the event that no label is withdrawn from the label supply.

A feature of the present invention is the provision of an idle station in the intermittently rotated spider disposed between the adhesive applying mechanism and the label applying station for the purpose of permitting the adhesively coated label sufficient time to become "tempered" or "seasoned" prior to the application thereof to the container. That is, the label is permitted to partially absorb some of the adhesive resulting in a firmer bond with the container. It has also been found in practice that the present apparatus is economical in the use of adhesive as compared with prior labeling apparatus and particularly as compared with labeling apparatus

which provides for the application of adhesive to the container before affixing the label.

Upon attachment of the label to a container as above described, the container is moved to a wiping or pressing station which operates to firmly press the loosely attached label to the container.

Referring now to the drawings, the present invention is illustrated as embodied in a labeling machine having an intermittently operated conveyor indicated generally at 10 upon which the containers 12 are carried in spaced relation for registration with the present labeling mechanism indicated generally at 14. The conveyor 10 may and preferably will comprise the intermittently operated conveyor illustrated and described in the U. S. patent to Everett, No. 2,245,659, issued June 17, 1941, and which may be arranged to run in timed relation to the operation of the labeling apparatus for the application of successive labels to successive containers. As shown in said patent and as illustrated herein, see Fig. 2, the conveyor includes a cooperating upper chain 16 provided with a plurality of presser pads 18 engaging the tops of the containers to firmly hold the latter in registered position during the application of the labels. As best shown in Figs. 3 and 4, the present labeling apparatus comprises a plurality of, herein shown as four, suction heads or pads 20 mounted upon the outer ends of radially extended arms 22 carried by and arranged for reciprocation in an intermittently rotated spider 24.

In general, the operation of the apparatus during one complete revolution of the spider is as follows: The suction pad 20 in the upwardly extended position shown in Fig. 4, and which may be designated station A, is reciprocated to engage and withdraw the lowermost label from a stack 26 thereof supported in a magazine 28. The spider is then rotated 90 degrees to bring the suction pad 20 to a position B adjacent adhesive applying mechanism indicated generally at 30 and which is arranged to provide a film of adhesive on the label held by the suction pad as the latter is again moved from station B to station C. The latter station comprises an idle station at which the adhesive coated label is permitted to become "seasoned" or "tempered" for a short time, at least sufficient to permit the adhesive to become partially absorbed by the label and to allow the adhesive to become more concentrated or "tacky" prior to the application of the label to the container at station D. At the latter station, the suction pad is again reciprocated to affix the label to the container, the vacuum being released to free the label from the pad prior to the retracting movement of the latter. As indicated in Fig. 1, the label thus applied in its flat condition to a round container is merely "tacked" on, adhering to the container in an area adjacent the plane of tangency sufficient to hold the label in position for a subsequent wiping or pressing operation by pressing mechanism at the station indicated generally at 32, which operates to press the adhesive coated label into firm engagement with the container.

Referring now particularly to Figs. 2, 3 and 4, provision is made for intermittently rotating the spider 24 to present the suction pad to the different stations of operation through connections from the main driving shaft 34 of the labeling machine, and as herein shown, the spider 24 is keyed to one end of a sleeve 36 journaled in a bearing 38 formed in a bracket 40 supported on

the platen 42 of the machine frame. The sleeve 36 is further supported in an elongated bearing member 44 attached to and extending from the bracket 40. The other end of the sleeve is provided with a ratchet 46 fast thereon having four equally spaced notches 48 arranged to be engaged by a spring actuated driving pawl 50. The driving pawl 50 is pivotally mounted in a bracket 52 attached to a cam disc 54 fast on a shaft 56 which extends through and is rockingly mounted in the hollow sleeve 36 as clearly shown in Fig. 3. The cam disc 54 is arranged to be oscillated 90° in either direction to intermittently advance the spider by connections including an arm 57 attached to the disc by bolts 58, and a rod 60 connected to a lever 62 pivotally mounted at 64 in a bracket 66 attached to the platen 42. The lever 62 is connected at 68 intermediate its ends with a sleeve 70 mounted upon an eccentric 72 fast on the main driving shaft 34 and operating to effect oscillation of the lever 62.

Thus, in operation, the sleeve 36 is rotated with the shaft 56 during the forward stroke or clockwise rotation of the latter, as viewed in Fig. 2, and is held stationary during the return or counter-clockwise movement of the shaft. In order to lock the ratchet disc 46 during the return stroke of the driving pawl 50 a spring pressed pawl 74 pivotally mounted at 75 in the supporting bracket 40 is arranged to engage a notch 48 as shown in Fig. 2. Provision is also made for definitely limiting the forward stroke to 90° to insure accurate registration of the suction pads with the cooperating mechanisms and as herein shown, a second holding pawl 76 pivotally mounted at 77 in the upper portion of the bracket 40 is arranged to drop into a notch 48 at the end of the forward or advancing stroke of the driving pawl 50. A cam lobe 78 formed on the disc 54 is arranged to engage a roller 80 carried by the pawl 76 to lift the latter out of its notch at the end of the return stroke and to hold it out during the start of the advancing stroke to prevent interference of said pawl during initiation of a succeeding stroke. The intermittently rotated sleeve 36 may and preferably will be provided with bushings 82 to serve as bearings for the shaft 56. Provision is also made for frictionally holding the spider 24 to prevent over-riding thereof, and as best shown in Figs. 1 and 3, a brake drum 84 extending from the spider is provided with a friction band 86 arranged to be engaged by a spring pressed braking member 88.

As above stated, successive suction pads 20 are arranged to be reciprocated to engage and withdraw the lowermost label in the stack 26, and as best shown in Figs. 3 and 4 each radially extended arm 22 is provided with a roller 90 adjustably secured thereto and arranged to cooperate with a cam path 92 formed in a cam disc 94. The cam disc 94 is secured to and arranged to be rocked back and forth with the oscillating shaft 56 and to effect reciprocation of the arms 22 adjacent the label applying and withdrawing stations during the retracting stroke of the shaft 56. The relative positions of the cam disc 94 and the spider 24 during the operation of the machine are diagrammatically indicated in Figs. 9 to 11, in which Fig. 9 illustrates the cam and spider as positioned at the beginning of a cycle of operation, all of the arms 22 and their suction pads 20 being in a retracted position at this time. Fig. 10 shows the cam and spider rotated as a unit 90° in a counter-clockwise direction to advance the spider one station of operation, the suction

pads still being in their retracted position, as shown. The shaft 56 with the cam disc 94 fast thereon is now rotated 90° in a clockwise direction while the spider 24 remains stationary, and during such return stroke of the cam disc 94 the high points 96, 98 thereof effect extension and retraction of the spider arms 22 and their suction pads 20 at stations A and D to withdraw a label from the stack 26 and to apply an adhesively coated label to a container 12 respectively. Fig. 11 illustrates the mechanism at its half-way point with the arms 22 at station A and D extended as described. A full return stroke of the shaft 56 and cam disc 94 disposes the parts in their original position as shown in Fig. 9 at the start of a new cycle of operation.

In operation, upon extension of the suction pad 20 into engagement with the lowermost label in the stack 26, a label is withdrawn from the magazine 28 during the retracting stroke of the pad. The magazine 28 is mounted upon an extension bracket 100 extending from an upright 102 attached to the supporting bracket 40. As herein shown, the magazine 28 is open at top and bottom and is provided with a pair of yieldingly mounted retaining hooks 104 arranged to engage two opposed edges of the stack 26 to hold the labels in the magazine until withdrawn by the suction pad as described.

As best shown in Fig. 3, each suction pad 20, which may comprise a yieldable material such as rubber, is provided with a plurality of suction openings 106. The pad is mounted on a hollow head 108 and is connected with a source of suction through ports 110 formed in the head 108, and a flexible conduit 112 connected to an individual valve 114, see Fig. 5, four of which are mounted in the spider 24. Each valve 114 is provided with a valve stem 115 having a port 116 communicating with radial channels 118 formed in the spider 24, and each channel 118 leads to a central vacuum chamber 120 formed in the cam disc 94. A channel 122 in the hub portion 124 of the cam disc connects the chamber 120 with an annular chamber 126 formed in a stationary member 128 loosely mounted upon the hub portion 124 of the cam disc 94 as illustrated in Fig. 3. A pipe 130 connected to the stationary member 128 leads to any suitable or preferred form of suction creating means such as a vacuum pump, not shown. A collar 132 may be provided to prevent lateral movement of the member 128 on the hub 124 of the oscillating cam disc 94. Collars 134, 136 are likewise provided upon either end of the shaft 56, as shown in Fig. 3, to hold the parts in assembled relation.

From the description thus far it will be observed that a label is withdrawn from the magazine by a suction pad 20 during each cycle of operation of the machine, the valve 114 normally being open at this station, and that the suction pad with its label is brought into the position indicated at B adjacent the adhesive applying mechanism 30 during the next intermittent movement of the spider 24. During subsequent movement of the spider from station B to station C, the label is brought into engagement with an adhesive applying roller 140 normally disposed in the path thereof to apply a film of adhesive to the label.

As illustrated in Figs. 2 and 6, the adhesive applying roller 140 is rotatably mounted upon a shaft 142 carried between arms 144, 146 pivotally mounted upon a shaft 148 carried in an overhanging portion 150 of the bracket 40. Provision is made for rocking the roller 140 into and

out of engagement with an adhesive supply roll 152 each cycle of operation, and as herein shown, the arm 146 is provided with a second arm 154 connected by a link 156 to an arm 158 fast on a shaft 160 journaled in the bracket 150. A second arm 162 fast on the shaft 160 is connected by a link 164, having a yieldable connection 166, to one arm 168 of a two-armed lever pivotally mounted at 170. The second arm 172 of the two-armed lever is provided with a roller 174 arranged to cooperate with successive of four cam sections 176 pivotally mounted upon studs 178 fast in the intermittently rotated ratchet disc 46 as best shown in Figs. 7 and 8. Each pivotally mounted cam section 176 carries a roller 180 arranged to cooperate with a cam path 182 formed in the oscillating cam disc 54.

In the operation of the adhesive applying mechanism, at the start of a cycle of operation, the parts are disposed as illustrated in Fig. 8, the driving pawl 50 being in driving engagement with the ratchet 46, and the high point 184 of the cam path 182 being arranged to dispose the adjacent cam section 176 in its outwardly rocked position to effect disposal of the adhesive applying roller 140, through the linkage above described, into operative position to transfer adhesive to the label during subsequent movement of the spider. During such subsequent movement, the cam disc 54 and spider 24 move as a unit 90 degrees in a clockwise direction, viewing Fig. 8, while maintaining the adjacent cam section in its outwardly rocked position. During the first portion of such spider advancing movement, the roller 174 is in engagement with the tail end 186 of the adjacent cam section 176 and also engages the leading end 188 of a succeeding cam section which forms a continuation of the first cam section as clearly shown in Fig. 8. The cam sections 176 are designed to hold the adhesive applying roller 140 in the path of the label for a sufficient time to effect transfer of adhesive thereto as it passes thereby. During the remaining portion of the spider advancing movement the roller 174 rides along the lowered portion 190 of the succeeding cam section 176 to effect movement of the adhesive applying roller 140 into engagement with the supply roll 152. Thereafter, during the return stroke of the cam disc 54, the high point 184 of the cam path is returned to the position shown in dotted lines in Fig. 8 to effect outward rocking movement of the succeeding cam section to again dispose the adhesive applying roller 140 in operative position to apply adhesive to a succeeding label. As herein shown, the arms 144, 146 may be provided with stop screws 141 arranged to engage brackets 143 to limit the movement of the roller 140 toward the supply roller 152.

From the description thus far it will be observed that the adhesive applying roller 140 is normally maintained in operative position to transfer adhesive to the label as it is carried therepast and that, through the provision of the spring connection 166, the roller is arranged to be yieldingly pressed against the label pad. In order to guide the roller 140 with relation to the label so as to maintain a substantially uniform pressure and even distribution of the adhesive on the label, each pad supporting head 108 is provided with a pair of spaced guide bars 192 arranged to cooperate with rollers 194 disposed adjacent each end of the applying roller on the shaft 142, as best shown in Figs. 4 and 6. In operation, when the spider is at rest, the rollers 194 engage the

inclined end portions 196 of the guide bars and, upon rotation of the spider, the rollers ride along the straight line portion of the bars to maintain the transfer roller 140 a uniform distance from the label as above described.

Referring now to Figs. 1 and 2, the supply roll 152 is rotatably supported in a supply tank 198 and is arranged to be rotated from the main driving shaft 200 of the machine by a chain and sprocket connection 202 as shown in Fig. 2. A cooperating spreader roll 204 adjustably supported with relation to the supply roll in pivotally mounted arms 206 is arranged to be driven in timed relation to the supply roll by intermeshing gears 208 and 210.

After passing the adhesive applying roller 140 the spider comes to rest to present the suction pad with its adhesively coated label at the idle station C. The idle station provided between the adhesive applying and label applying stations enables sufficient time for the label to become more or less saturated with the adhesive prior to its application to the container, which in practice, has been found to reduce the tendency of the label to curl and wrinkle after attachment to the container.

When the spider is again moved to present the suction pad and label at station D, the arm 22 is reciprocated by the cam 92 and roller 90 in a manner similar to that above described when positioned at the label withdrawing station A, the cam path 92 being designed to effect simultaneous reciprocation of the pads 20 at these stations. As best illustrated in Fig. 4, in which the pad is shown in its maximum outward position in engagement with the container 12, the cam disc 94 is in the halfway position on its return stroke traveling in a clockwise direction. In such position, it will be observed that the end 212 of the chamber 120 has passed beyond the port 118 communicating with the pad in engagement with the container and that the port 118 is in alignment with a vent port 214 which is open to the atmosphere, thus releasing the label on the pad to permit it to adhere to the container. Upon further rotation of the shaft 56 and cam 94 on its return stroke, a roller 216 carried by the cam disc 94 engages the beveled end 218 of the valve stem 115 to effect movement thereof in a direction to cut off the valve port 116.

In the operation of the label applying apparatus thus far described it will be observed that the label is loosely attached, adhering to the container merely at its contact therewith. As illustrated in Fig. 1, upon advancement of the container upon the intermittently movable conveyer 10, the labeling operation is completed at the label pressing or wiping station 32 which operates to firmly press the label on the container. The label wiping mechanism may be of any usual or preferred form herein illustrated as comprising a reciprocable member 220 shaped to conform to the contour of the container.

Referring now to Figs. 1, 5 and 6, provision is made for controlling the operation of the machine to prevent the withdrawal of a label from the magazine 28 in the event that no container is present on the conveyer 10 in a position preceding the applying station, which container would normally arrive at the label applying station at the same time as its respective suction pad 20. As best shown in Fig. 5, a movable cam piece 222 is normally arranged in the path of a roller 224 carried by the opposite end of the valve stem 115. In normal operation, when the spider is advanced

one station, the valve unit 114 for the suction pad being moved from the applying to the withdrawing station, is opened to connect the suction pad with the source of vacuum and to thereby permit a label to be withdrawn from the magazine upon reciprocation of the spider arms 22 during the return movement of the cam disc 94.

As herein shown, the cam piece 222 is carried by a pair of rods 226 slidably mounted in lugs 228 provided in a stationary casing 230 attached to the supporting bracket 40. The rods 226 are secured at their other ends to a piston member 231 slidably fitted in a vacuum chamber 232 formed in the casing 230. A pipe 234 connects the chamber 232 to a container controlled valve 236 disposed adjacent the conveyer 10 and arranged to be normally open when a container is in position on the conveyer. A pipe 238 connects the valve 236 to a source of suction, not shown. Thus, in normal operation, the piston member 231 is held in the full line position shown in Fig. 5 by the vacuum connection against the resistance of a coil spring 240 so as to open the valve port 116.

As illustrated in Figs. 1 and 12 the container controlled valve 236 is provided with a rod 242 arranged to be moved to present a port opening 244 into an out of alignment with the pipes 234, 238. The valve rod 242 is connected by a link 246 to one arm 248 of a two-armed lever pivotally mounted at 250. The second arm of the two-armed lever forms one of a pair of parallel arms 252 which carry a plate 254 arranged to be engaged by the containers as they are carried therpast. A spring 256 connected to the arm 248 is arranged to move the valve rod 242 in a direction to close the valve when a container is missing from the conveyer. Under normal operating conditions, the valve rod is held in its open position by the pressure of the containers against the plate 254 through the connections above described. Thus, in operation, in the event no container is present on the conveyer, the vacuum line to the chamber 232 is cut off, thereby permitting the coil spring 240 to move the piston member to the right, viewing Fig. 5, and to carry the cam piece 222 out of the path of the roller 224 of the valve unit 114 so that the latter will remain in its closed position to prevent withdrawal of a label from the magazine 28. The valve thus closed will remain closed during its movement with the spider until it again arrives at the withdrawing station to be opened by the cam piece 222.

Provision is further made for rendering the adhesive applying device inoperative in the event that a label is not withdrawn from the magazine as above described, that is, where the valve unit 114 remains in its closed position at the withdrawing station. In such event, a roller 258 provided on the valve unit 114 is arranged to engage a tail portion 260 of a safety lever 262 which operates to lock the adhesive applying roller 140 in its outward or inoperative position. As best shown in Fig. 6, the safety lever is secured to a rocker shaft 264 which is connected to a rocker shaft 265 by linkage including an arm 268, link 270, and arm 272. The rocker shaft 265 is provided with a locking lever 274 arranged to be rocked into engagement with a roller 276 carried at the lower end of arm 154 as clearly shown in Fig. 6. Thus, in operation, when the valve unit 114 is in its closed position as it moves from station B to station C past the adhesive applying device, the adhesive applying roller 140 is held in its inoperative position. Under normal operating conditions, that is, when the valve 114 is in its open position and the

pad 20 is provided with a label, the roller 258 of the valve unit is out of alignment with the tail 260 of the safety lever, as shown in Fig. 3, so that the adhesive applying roller 140 is permitted to remain in operative position as above described.

Provision is also made in the present apparatus for closing the valve unit 114 in the event that the suction pad 20 fails to withdraw a label from the magazine after the valve has been normally opened by the movable cam section 222 at the withdrawing station. Failure of the pad to withdraw a label may be caused by depletion of the labels in the magazine or through mechanical failure and, in any event, it is desirable that the valve unit 114 be moved to its closed position in order that it may actuate the locking arm 274 to render the adhesive applying mechanism inoperative, as above described, thereby preventing the application of adhesive to a suction pad having no label.

Movement of the valve 114 to its closed position under such conditions is effected by a cam arm 280 forming the leading end of the safety lever 262. Such cam arm, normally disposed out of the path of the valve unit 114 is arranged to be rocked into operative position with relation to a grooved portion 282, formed in the valve 114, through connections from a vacuum operated unit indicated generally at 284. As illustrated in Figs. 2 and 6, the unit 284 comprises a casing 286 pivotally mounted on an arm 288 depending from the bracket 150. A piston member 290 slidably fitted in a chamber 292 in the casing is normally held in an inward position by suction effected by a vacuum connection 294 in communication with the pipe 130, as clearly shown in Fig. 6. A spring 296 in the chamber is arranged to effect outward movement of the piston member when the vacuum in the chamber is reduced.

In operation, when a label is missing from the pad 20 after withdrawal from engagement with the label magazine, the atmospheric air entering the pad reduces the vacuum in the system to such an extent that the spring 296 is permitted to effect outward movement of the piston member 290. As herein shown, the piston member is connected to a curved lever 298 fast on the rocker shaft 265. Thus, when the vacuum in the chamber 292 is reduced because of no label being in place on the suction pad open to the vacuum system, the lever 298 rocks the shaft 265 and through the linkage 272, 270 and 268, the safety lever 262 is rocked to move the cam arm 280 into the path of the groove 282. During subsequent movement of the spider, the valve unit 114 is moved in a direction to close the port 116, and such movement, to the right viewing Figs. 3 and 5, aligns the roller 258 with the tail 260 of the safety lever to effect locking of the adhesive applying roller in an inoperative position through the connections above described. It will be observed that the yieldable connection 166 permits locking of the adhesive applying unit against the action of the operating cams 176.

Briefly, the operation of the machine is as follows: The containers 12 are carried along on the intermittently operated conveyer 10 in spaced relation for registration with the labeling mechanism 14, the intermittently rotated spider 24 being rotated in timed relation to the conveyer to apply labels to successive containers. In the operation of the spider, after a label has been applied to a container, the valve 114 associated with the suction pad 20 is closed and the pad is moved

to station A where normally the valve is opened to permit the pad to withdraw a label from the magazine 28 upon reciprocation of the pad. However, in the event a container is absent from the conveyer at a station preceding the labeling mechanism, and to which a label withdrawn would otherwise be applied, the control mechanism prevents opening of the valve 114 at station A so that no label is withdrawn. Thereafter, the spider is rotated past the adhesive applying mechanism 30 to normally apply a film of adhesive to the label. However, in the event that the valve 114 is in its closed position because of the absence of a container on the conveyer, the valve is arranged to cooperate with control mechanism including the tail end 260 of the safety lever to effect locking of the adhesive applying roller 140 in an inoperative position and to thus prevent application of adhesive to the pad. In the event that the suction pad fails to withdraw a label when the valve 114 is in its open position, the safety lever 262 is rocked to move the end 280 into position to effect closing of the valve so that upon subsequent movement of the spider the adhesive applying roller is prevented from applying adhesive to the pad having no label, as above described. At station C, an adhesively coated label is permitted to become "tempered" prior to the application of the label to a container at station D. Thereafter, the container is moved to the wiping station 32 where the label is firmly pressed against the container.

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, a conveyer for supporting and conveying successive containers into labeling position, labeling mechanism including a magazine for holding a supply of labels, means for engaging and withdrawing the lowermost label in the magazine, and control means including a pneumatically operated member for preventing withdrawal of a label from the magazine in the event of absence of the container from the conveyer to which such label would otherwise be applied.

2. In a labeling machine, in combination, a conveyer for supporting and conveying successive containers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a label carrying member adapted to engage and withdraw the lowermost label in the stack, adhesive applying mechanism for applying a film of adhesive to the label while carried by said member, control means including a pneumatically operated member for preventing withdrawal of a label from the stack in the event of absence from the conveyer of the container to which such label would otherwise be applied, and means for rendering inoperative said adhesive applying mechanism in the event of the absence of a label from said label carrying member.

3. In a labeling machine, in combination, labeling mechanism including a magazine for supporting a stack of labels, a label supporting member adapted to engage and withdraw the lowermost label in the stack, adhesive applying mechanism for applying a film of adhesive to the label while carried by said label supporting member, and control means including a pneumatically operated member for rendering inoperative said

adhesive applying mechanism in the event that no label is present on said supporting member.

4. In a labeling machine, in combination, a conveyer for supporting and conveying containers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, and control means including a cam piece actuated by air pressure for preventing withdrawal of a label from said stack in the event that no container is present on said conveyer.

5. In a labeling machine, in combination, a conveyer for supporting and conveying the containers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, adhesive applying mechanism for applying a film of adhesive to the label while carried by said suction pad, control means including a cam piece actuated by air pressure for preventing withdrawal of a label from said stack in the event that a container is not present on the conveyer, and means including a pneumatically operated safety lever for rendering inoperative said adhesive applying mechanism in the event that no label is present on said suction pad.

6. In a labeling machine, in combination, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, adhesive applying mechanism for applying a film of adhesive to the label while carried by said suction pad, and control means including a safety lever actuated by air pressure for rendering inoperative said adhesive applying mechanism in the event that no label is present on said suction pad.

7. In a labeling machine, in combination, a conveyer for supporting and conveying the containers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a source of suction, a valve associated with said pad and the source of suction, and control means including a pneumatically operated cam piece normally disposed to engage and open said valve to permit withdrawal of a label from the magazine, and means for moving said cam piece out of the path of said valve to prevent opening thereof in the event that a container is not present on said conveyer whereby to prevent withdrawal of a label from the magazine.

8. In a labeling machine, in combination, a conveyer for supporting and conveying the container to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a source of suction, a valve associated with said pad and the source of suction, adhesive applying mechanism for applying a film of adhesive to the label while carried by said suction pad, control means including a pneumatically operated cam piece normally disposed to engage and open said valve to permit withdrawal of a label from the magazine, means for moving said cam piece out of the path of said valve to prevent opening thereof in the event no container is present on said conveyer whereby to prevent withdrawal of a label from the magazine, and means cooperating with said valve for rendering inoperative the adhesive ap-

plying mechanism in the event that no label is present on said suction pad.

9. In a labeling machine, in combination, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a source of suction, a valve associated with said pad and the source of suction and normally arranged to be moved from a closed to an open position to permit withdrawal of a label from said magazine, adhesive applying mechanism including a roller normally disposed in the path of movement of said suction pad to transfer a film of adhesive to the label carried by said suction pad, and control mechanism including a safety lever actuated by air pressure and having a portion arranged to cooperate with said valve for moving the same from its open to its closed position in the event the suction pad fails to withdraw a label, said valve having a second portion arranged when the valve is in its closed position to cooperate with a second portion of said safety lever for rendering inoperative said adhesive applying mechanism in the event that no label is present on said suction pad.

10. In a labeling machine, in combination, a conveyer for supporting and conveying the containers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a source of vacuum, a valve associated with said pad and the source of vacuum, a vacuum operated chamber, a movable cam piece operatively connected to said chamber and normally disposed to effect opening of said valve to permit withdrawal of a label from the magazine, means adjacent said conveyer for detecting the presence or absence of a container, a second valve operated by said detecting means and disposed between said vacuum operated chamber and the source of vacuum, said second valve being arranged to cut off the vacuum to said chamber to effect movement of the cam piece into an inoperative position to prevent opening of said first valve and thereby prevent withdrawal of a label in the event that no container is present on said conveyer.

11. In a labeling machine, in combination, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a source of vacuum, a valve associated with said pad and the source of vacuum and normally arranged to be moved from a closed to an open position to permit withdrawal of a label from said magazine, adhesive applying mechanism including a roller normally disposed in the path of movement of said suction pad to transfer a film of adhesive to the label carried thereby, and control means for rendering inoperative said adhesive applying mechanism in the event no label is present on said suction pad including a locking lever arranged to lock said roller in its inoperative position, a vacuum chamber connected to said source of vacuum and operatively connected to said locking lever, the pressure in said chamber being normally sufficient to hold said lever in an inoperative position and arranged to effect movement of the lever into locking position in the event that the pressure in the chamber is increased by reason of the absence of a label from said suction pad.

12. In a labeling machine, in combination, a conveyer for supporting and conveying the con-

tainers to be labeled, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a source of vacuum, a valve associated with said pad and the source of vacuum, a vacuum operated chamber, a movable cam piece operatively connected to said chamber and normally disposed to effect opening of said valve to permit withdrawal of a label from the magazine, means adjacent said conveyor for detecting the presence or absence of a container, a second valve operated by said detecting means and disposed between said vacuum operated chamber and the source of vacuum, said second valve being arranged to cut off the vacuum to said chamber to effect movement of the cam piece into an inoperative position to prevent opening of said first valve and thereby prevent withdrawal of a label in the event that no container is present on said conveyor, adhesive applying mechanism for applying a film of adhesive to the label while carried by said pad, and means for rendering inoperative said adhesive applying mechanism in the event no label is present on said suction pad, said last named means including a safety lever arranged to cooperate with a portion of said first valve when in its closed position.

13. In a labeling machine, in combination, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a source of vacuum, a valve associated with said pad and the source of vacuum and normally arranged to be moved from a closed to an open position to permit withdrawal of a label from said magazine, adhesive applying mechanism including a roller normally disposed in the path of movement of said suction pad to transfer a film of adhesive to the label carried thereby, and control means for rendering inoperative said adhesive applying mechanism in the event no label is present on said suction pad including a locking lever arranged to lock said roller in its inoperative position, a vacuum chamber connected to said source of vacuum and operatively connected to said locking lever, the pressure in said chamber being normally sufficient to hold said lever in an inoperative position and arranged to effect movement of the lever into locking position in the event that the pressure in the chamber is increased by reason of the absence of a label from said suction pad, a safety lever also operatively connected to said vacuum chamber and arranged to be moved into a position for cooperation with said valve to close the same when said pressure is increased, said safety lever having a second portion for cooperation with said valve arranged to maintain said roller in its inoperative position during movement of said pad to adhesive applying position.

14. In a labeling machine, in combination, a conveyor for supporting and conveying the containers to be labeled, labeling mechanism including an intermittently rotatable spider, a label magazine, adhesive applying mechanism, a label applying station, a plurality of label carrying suction pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine at one station of operation and the application of a label to a container at another station of operation, a source of air under reduced pressure, a plurality of ports connecting said air to said suction pads, an oscillating disc provided

with a chamber communicating with said ports, a vent port in said disc, and means for moving said disc with relation to said ports to cut off the air from a suction pad and to align a port corresponding to said pad with said vent whereby to release a label from its pad upon reciprocation thereof to apply the label to the container.

15. In a labeling machine, in combination, a conveyor for supporting and conveying the containers to be labeled, labeling mechanism including an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label magazine, adhesive applying mechanism, a label applying station, a plurality of label carrying suction pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine at one station of operation and application of a label to a container at another station of operation, and a cam operatively connected to said pawl and ratchet mechanism and movable with said spider during the forward stroke of the pawl and ratchet mechanism and movable in an opposed direction to effect said reciprocation during the return stroke of said pawl and ratchet mechanism.

16. In a labeling machine, in combination, a conveyor for supporting and conveying containers to be labeled, labeling mechanism including an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label magazine, adhesive applying mechanism, a label applying station, a plurality of label carrying suction pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine at one station of operation and to effect application of a label to the container at another station of operation, a source of air under reduced pressure, a valve for each suction pad communicating with said source of air, and a roller movable with said pawl and ratchet mechanism arranged to close the valve at said label applying station during the return stroke of said pawl.

17. In a labeling machine, in combination, a conveyor for supporting and conveying containers to be labeled, labeling mechanism including an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label magazine, adhesive applying mechanism, a label applying station, a plurality of label carrying suction pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine at one station of operation and to effect application of a label to the container at another station of operation, a source of air under reduced pressure, a valve for each suction pad communicating with said source of air, and a roller movable with said pawl and ratchet mechanism arranged to close the valve at said label applying station during the return stroke of said pawl, a movable cam piece adjacent said label magazine normally disposed in a position to open said valve upon arrival at the withdrawing station.

18. In a labeling machine, in combination, a conveyor for supporting and conveying containers to be labeled, labeling mechanism including an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label magazine, adhesive applying mechanism, a label applying station, a plurality of label carrying suction pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine at one station of operation and to effect application of a

label to the container at another station of operation, a source of air under reduced pressure, a valve for each suction pad communicating with said source of air, and a roller movable with said pawl and ratchet mechanism arranged to close the valve at said label applying station during the return stroke of said pawl, a movable cam piece adjacent said label magazine normally disposed in a position to open said valve upon arrival at the withdrawing station, and control means for preventing opening of said valve in the event no container is present on said conveyer whereby to prevent withdrawal of a label from said magazine.

19. In a labeling machine, in combination, a conveyer for supporting and conveying containers to be labeled, labeling mechanism including an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label magazine, adhesive applying mechanism, a label applying station, a plurality of label carrying suction pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine at one station of operation and to effect application of a label to the container at another station of operation, a source of air under reduced pressure, a valve for each suction pad communicating with said source of air, and a roller movable with said pawl and ratchet mechanism arranged to close the valve at said label applying station during the return stroke of said pawl, a movable cam piece adjacent said label magazine normally disposed in a position to open said valve upon arrival at the withdrawing station, control means for preventing opening of said valve in the event no container is present on said conveyer whereby to prevent withdrawal of a label from said magazine, and means for rendering inoperative the adhesive applying mechanism in the event no label is present on said suction pad.

20. In a labeling machine, in combination, labeling mechanism comprising an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label magazine, adhesive applying mechanism, a plurality of label carrying suction pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine, and means for rendering inoperative said adhesive applying mechanism in the event no label is present on said suction pad.

21. In a labeling machine, in combination, labeling mechanism comprising an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label

magazine, a plurality of label carrying pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine, adhesive applying mechanism including an applying roller, an adhesive supply roll, means for operating said applying roller including a disc movable with said spider, a plurality of segmental cams carried by said disc, a cam disc movable with said pawl and ratchet mechanism arranged to cooperate with said segmental cams to retain said applying roller in operative position to apply adhesive to a label carried by a pad during the intermittent movement of said spider and to effect movement of said roller into and out of engagement with said supply roll.

22. In a labeling machine, in combination, labeling mechanism comprising an intermittently rotatable spider, means for rotating said spider including a pawl and ratchet mechanism, a label magazine, a plurality of label carrying pads mounted for radial reciprocation in said spider to effect withdrawal of a label from said magazine, adhesive applying mechanism including an applying roller, an adhesive supply roll, means for operating said applying roller including a disc movable with said spider, a plurality of segmental cams carried by said disc, a cam disc movable with said pawl and ratchet mechanism arranged to cooperate with said segmental cams to retain said applying roller in operative position to apply adhesive to a label carried by a pad during the intermittent movement of said spider and to effect movement of said roller into and out of engagement with said supply roll, and control means actuated by air pressure for locking said adhesive applying roller in an inoperative position in the event that no label is present on said label carrying pad.

23. In a labeling machine, in combination, labeling mechanism including a magazine for supporting a stack of labels, a suction pad adapted to engage and withdraw the lowermost label in the stack, a valve associated with said pad and arranged to be moved from an open to a closed position in the event the suction pad fails to withdraw a label, adhesive applying mechanism for applying a film of adhesive to a label carried by said suction pad, and control mechanism 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 no label is present on said suction pad.

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