United States Patent [19]

Scarpa

[11] **3,883,060**

[45] **May 13, 1975**

[54] **LOOP FORMING APPARATUS**

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[73] Assignee: **R. A. Jones & Co. Inc.**, Covington, Ky.

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[52] **U.S. Cl.** **226/113**; 242/182

[51] **Int. Cl.** **B65h 17/42**

[58] **Field of Search** 226/95, 97, 113, 118, 195, 226/172, 114; 242/182, 183

[56] **References Cited**

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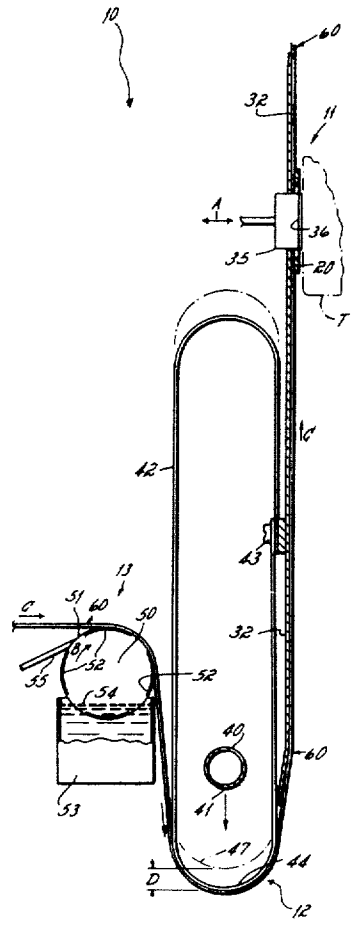
Primary Examiner—Richard A. Schacher

Attorney, Agent, or Firm—Wood, Herron & Evans

[57] **ABSTRACT**

Apparatus for forming a loop in a web path has a flexible sheet formed as an endless band placed in the web's path. A source of pressure air is encircled by the sheet and when air is blown from the source directly against the sheet, the sheet is urged against the web to form a loop in the web.

11 Claims, 8 Drawing Figures



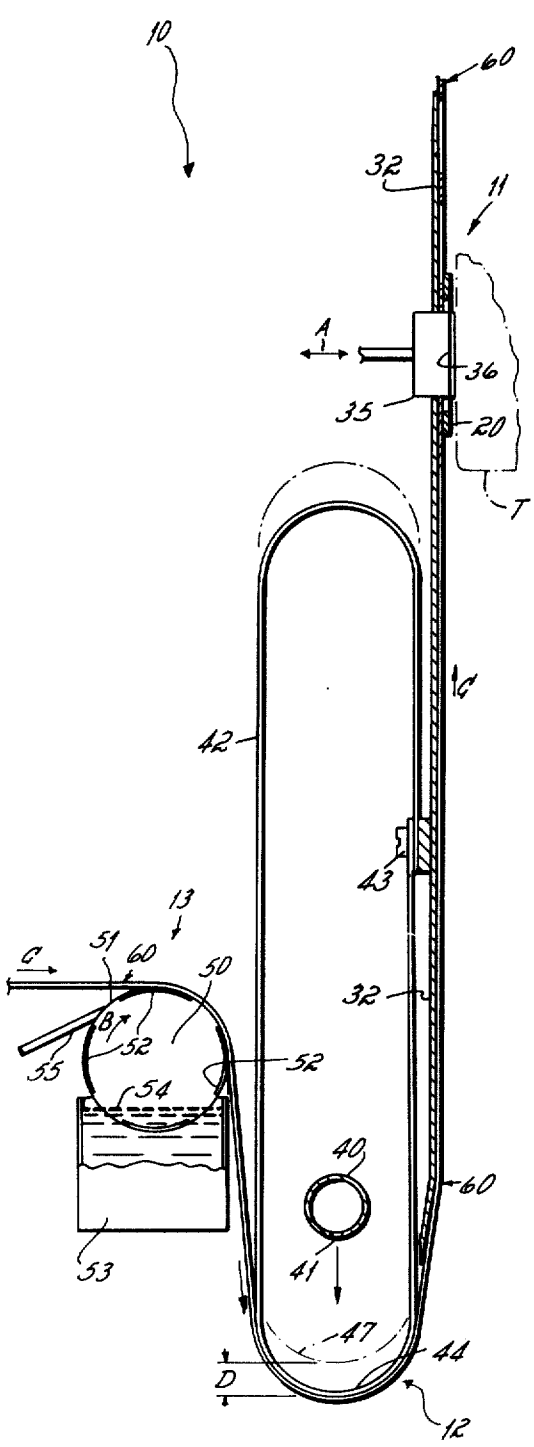

10
60
32
11
A
36
35
20
T
42
43
13
C
51
60
50
B
52
55
52
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40
53
41
47
44
D
12

Fig. 1

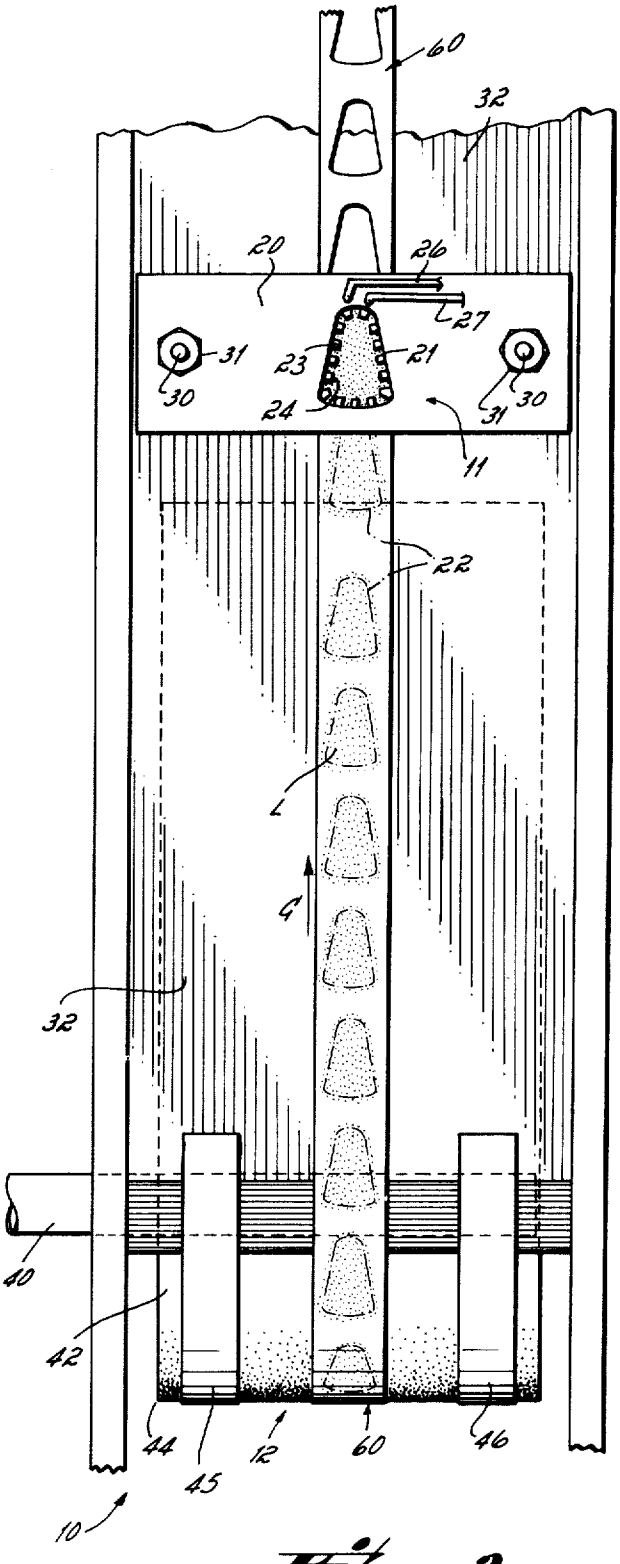

60
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27
31
23
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11
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L
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44
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Fig. 2

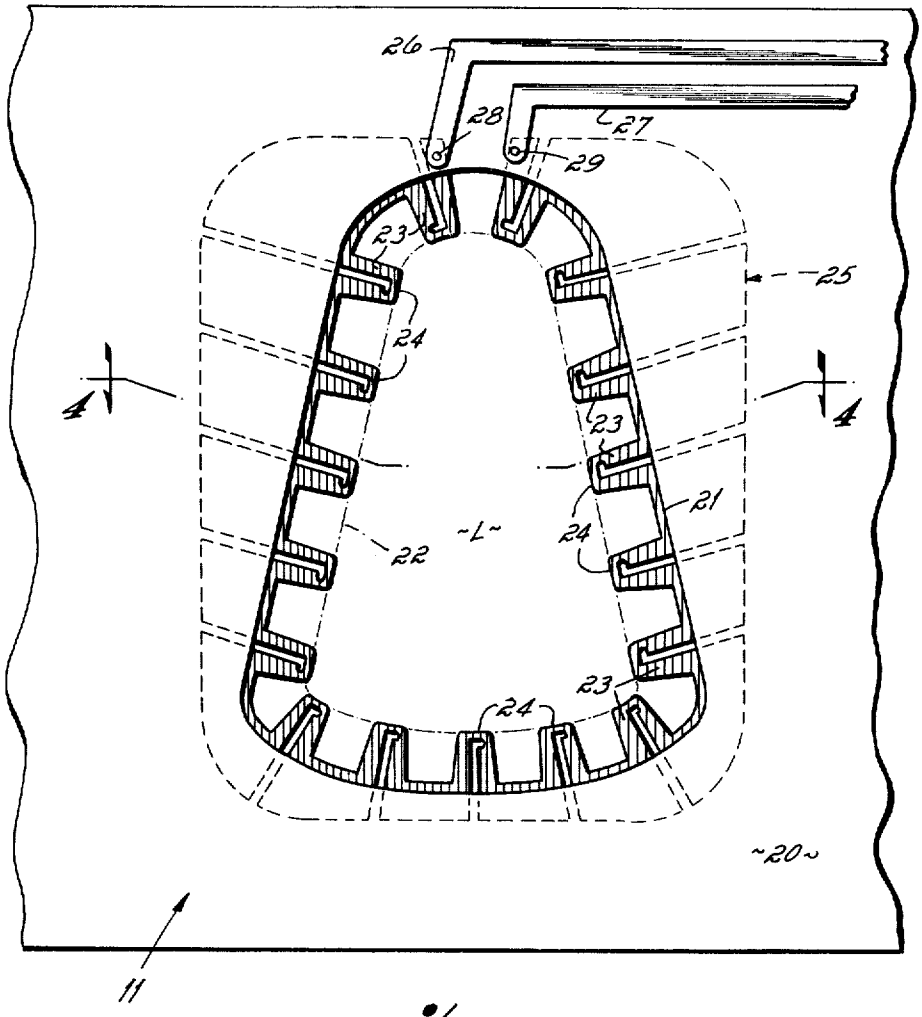

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23
24
20
11

Fig. 3

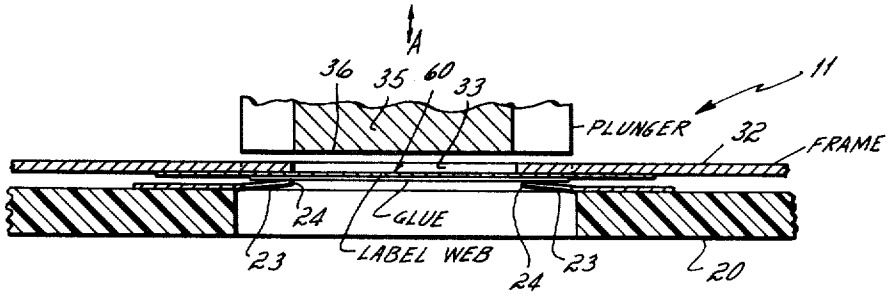

A
36
35
60
33
11
PLUNGER
32
FRAME
24
GLUE
23
LABEL WEB
24
23
20

Fig. 4

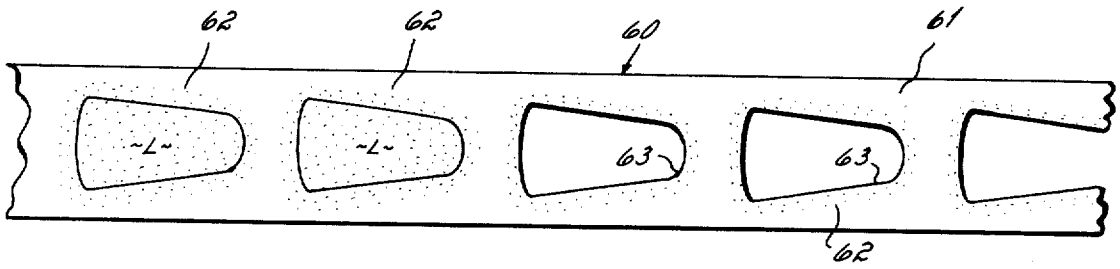


Fig. 5

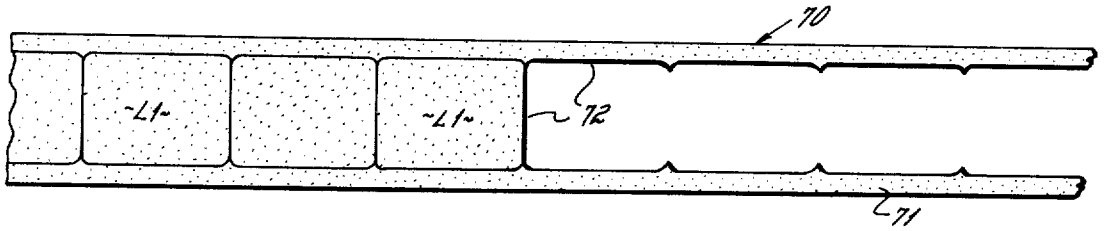


Fig. 6

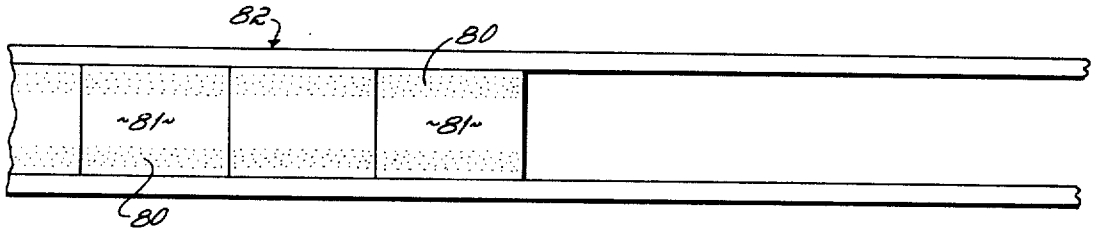


Fig. 7

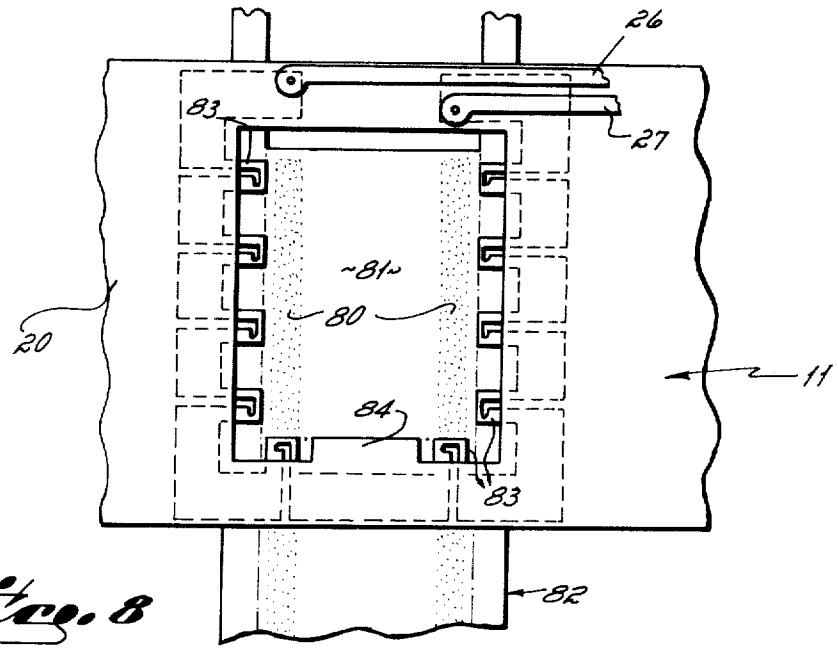


Fig. 8

LOOP FORMING APPARATUS

This invention relates to web handling apparatus and more particularly to apparatus for forming a loop in a web. While the invention may find application in many fields, it is particularly adaptable for use in label applying apparatus utilizing a label supporting web to transfer or carry the label through the apparatus to an applying station.

Reference is made to the commonly owned, copending U.S. Pat. application Ser. No. 325,854, of Dale Jeffries entitled "Web Handling Apparatus" and filed Dec. 18, 1972.

Reference is herewith made to the commonly owned, copending U.S. Pat. application of Dale Jeffries, Ser. No. 315,854, filed Dec. 18, 1972 and entitled "Web Handling Apparatus"; which application discloses but does not claim the invention disclosed and claimed in this application. Reference is also made to the related U.S. Pat. application of Herbert LaMers, Ser. No. 351,829, filed on Apr. 17, 1973 and entitled "Labeling Apparatus".

It is known to provide a high-speed labeling apparatus utilizing a prepared label supply comprising a web remnant supporting labels therein. Such a labeling apparatus and prepared supply are disclosed in U.S. Pat. No. 3,661,625. In that apparatus, the label web is moved intermittently through a glue station where an adhesive is established onto the label. From that station, the web is intermittently moved to a detaching and applying station where a reciprocating plunger is actuated to engage the label web, detach the partially precut label therefrom, and apply it to a target. During the intermittent detaching operation, a clamp is actuated to engage the reverse or adhesive side of the label web and to hold the web stationary while the label is detached.

Such a clamp is specifically shown in FIG. **14** of the cited patent in conjunction with apparatus for cutting out a label. It is known in connection with the apparatus disclosed in the patent, that a similar clamp in the shape of a label can be used without the cutting apparatus and in conjunction with partially pre-cut labels to clamp the web while a partially pre-cut label is detached by the plunger.

While this patent shows apparatus which intermittently moves the web through both the adhesive establishing station and the label detaching station, recent developments have made it desirable in some instances to move the web continuously through the adhesive applying station, but maintain intermittent web motion at the detaching station. In a high-speed apparatus, this transition from continuous motion to intermittent motion creates web "shock". This phenomenon is sufficient to prematurely separate labels from their supporting web remnant.

Such labels are normally partially precut from the web and are held in the web only by small "nicks" or bridges of uncut material. The precut label-bearing web is thus fragile and the labels are subject to separation as a result of any shock imparted to the web.

One known manner of easing the transition from continuous to intermittent motion in a web is to provide a loop in the web. Such loops have been formed in webs by application of air "blasts" as shown in U.S. Pat. No. 3,594,257.

It has been found, however, that in commercial label supply webs comprising partially precut labels supported within web remnants, air "blasts" sufficient to form a loop in the web are sufficient to blow labels from the web remnant. This causes the apparatus to foul and it must be stopped for clearing. Also, "blown" labels results in unlabeled products.

In addition, label webs tend to bend along the label edges which are transverse to the web. Such bending is pronounced in the web remnant where it is small compared to the label size, and since the only bending resistance along the label edge is in the small nicks which support the labels. This bending causes breakage of the label supporting nicks and again, premature separation of labels from the web.

It has been proposed, in U.S. Pat. No. 3,661,625, to utilize a flexible "curtain" drawn by a vacuum to form a web loop. In this device, a web is drawn over a flexible curtain which is confined within the walls of a chamber. A vacuum is drawn through an aperture plate in the chamber on the web side of the curtain in order to pull the web and the curtain toward the plate and thereby form a loop in the web. The curtain serves to seal the perforated areas of the web and to help establish the vacuum when the web width is less than the distance between the chamber walls. A damper is provided in the vacuum system in order to prevent the vacuum from tearing the web, as for example, if it were drawn by the vacuum directly against the aperture plate.

It is thus one object of the invention to provide an improved pressure air apparatus for forming a loop in a web between two web handling stations wherein it is unnecessary to confine the web in a chamber.

A further object of the invention is to provide an improved loop forming apparatus for effectively reducing web shock in a relatively fragile label web.

A further object of the invention is to provide improved web loop forming apparatus utilizing constant loop forming pressure air and means for physically isolating the web from direct pressure air.

A further object of the invention is to provide improved loop forming apparatus for a web, including means to provide a resilient, uniform support for the web in the loop area.

In a preferred embodiment of the invention, a loop is formed in the web between a continuous adhesive applying station and an intermittent label detaching station. To create and maintain this loop, a flexible sheet in the form of an endless band is provided adjacent the web path between the stations. Pressure air is applied, from a position within the area encircled by the sheet, directly against the sheet to urge it into contact with the label web and to form the loop. The sheet contacts the web throughout a relatively large area and prevents the pressure air from nonuniformly contacting the web and blowing out or prematurely separating the labels.

The pressure air provides a sufficient force to form the loop but the force is light enough so that the loop in the sheet can move with the loop in the web as the size of the loop changes due to the variations caused by the combined web tensioning effects of the continuous and intermittent feeds. Thus web shock is effectively reduced.

In addition, the sheet forms a generally continuous curve or loop surface to support the web. This pre-

cludes undesirable bending of the web along transverse label edges.

The invention thus provides apparatus for efficiently forming a loop in a fragile web and substantially reduces label separation or web breakage due to shock in the web caused by a transition from continuous to intermittent motion. The invention can be used at any location along a web's path and does not require the web to be confined within a chamber. It is also to be noted that the invention could be utilized between two intermittent or two continuous stations in order to reduce web shock or to accommodate any slight timing or synchronization error between the two stations.

These and other objects and advantages will become readily apparent from the following detailed description and drawings in which:

FIG. 1 is a diagrammatic side view of the label applying apparatus according to the invention;

FIG. 2 is a front view of the apparatus;

FIG. 3 is a front view of a web clamp;

FIG. 4 is a cross-sectional view taken along the lines 4—4 of FIG. 3;

FIG. 5 is a plan view of a label web with a remnant completely surrounding each label;

FIG. 6 is a plan view of a label web having contiguous labels;

FIG. 7 is a view of an alternate web having a modified glue pattern; and

FIG. 8 is a view of a clamp for use with the web of FIG. 7.

Now referring specifically to the drawings, FIG. 1 shows at 10 a diagrammatic view of a label applying apparatus. A clamping mechanism is shown at 11, and the loop forming apparatus is shown at 12. An adhesive applicator is shown at 13. The clamping apparatus is specifically shown in FIGS. 2, 3, and 4. It includes a clamping plate 20 which is constructed of an insulative material. The clamping plate 20 is provided with an aperture 21 which corresponds generally to the shape of a label L which is defined in FIGS. 2 and 3 by phantom lines 22. The aperture 21, in addition to having the general shape of the label L, is slightly larger than the label in order to provide space for inwardly extending web engaging members as will be described.

The label engaging members of the clamp comprise fingers 23 each having a label engaging tip or end 24. The fingers 23 are formed from a single electrically conductive member 25. The electrically conductive member 25 is shown in dotted lines in FIG. 3 and is attached to the clamping plate 20 by any suitable means. The fingers 23 are of small cross-sectional area and the conductive portions between the fingers are of large cross sectional area.

Electrical conductors 26 and 27 are connected to the respective ends of the member 25 at terminals 28 and 29. The conductors 26 and 27 are connected to a source of electrical current and, when the source is activated, an electrical current is passed through the conductive member 25. Since the conductive member 25 comprises portions of fairly large cross-section, the resistance therein is relatively small. Due to the relatively small cross-section of the finger tips 24 and the resulting relatively high resistance, however electrical current passing through the fingers from one large portion of the member 25 to another causes the tips 24 and the fingers to become relatively hot. The electrical current is controlled to heat the finger tips to approximate temperature range at which adhesive is applied to the label web as will be discussed.

As shown in FIG. 3 of the drawings, the fingers 23 extend from the conductive member 25 beyond the aperture 21 in the clamping plate 20 such that the tips 24 of the fingers generally define the outline of a label L within aperture 21. The tips 24 of the fingers 23 may define a pattern slightly larger than the outline of the actual label edge in order to accommodate slight misalignment of the label as it reaches the detaching station.

The clamping plate 20 is mounted on reciprocating rods 30 and may be held there by way of the nuts 31. The rods 30 are reciprocated in a timed relationship to draw, as shown in FIG. 4, the tips 24 of the fingers 23 into contact with the label web. In the clamping position, the finger tips 24 pinch or clamp the label web against the stationary frame 32 of the apparatus. The frame 32 has an aperture 33 which substantially corresponds to the general outline of the label.

For the purpose of plunging through the label web and attaching a label therefrom, a plunger 35 is provided. The plunger has a face or nose 36 which corresponds in shape generally to that of a label. As shown in FIG. 1, the plunger reciprocates, in a direction as indicated by the double arrow "A", to plunge through the label web, detach a label, and apply it to a target T, such as a bottle or other article of merchandise. The plunger and clamp are timed in their operations so that the clamp engages and holds the web just prior to plunger engagement with a label.

The loop forming apparatus as shown generally at 12 includes a pressure air tube 40 which is connected to a source of pressure air. The tube 40 has a number of apertures 41 which are directed generally downwardly as shown in FIG. 1. A flexible sheet or screen 42 is provided about the tube 40 and adjacent the path of the label web. In the preferred embodiment, the sheet has its ends connected together and to the frame of the apparatus, as at 43, so that the sheet, in effect, forms an endless band encircling or surrounding the pressure air tube 40. Of course, the sheet can be utilized effectively in forms or positions other than an endless band. In the preferred endless band form, the flexible sheet does not have a loose free end to cause problems should the web break. Even without the presence of a web, the sheet remains in a generally circular or oblong disposition and a web can be threaded through the apparatus and over the sheet very expediently.

The label web extends from the adhesive applying apparatus 13 downwardly, forwardly, and then upwardly toward the label detaching station and clamping mechanism. When air pressure is supplied through the tube 40 and escapes through apertures 41, it impinges on the flexible sheet 42, and urges the sheet downwardly and into engagement with the label web thereby forming a loop 44 in the label web. The force provided by the blowing of pressure air is constant and is sufficient to urge the sheet against the web and to form a loop in the web by the constant application of pressure against the web. This serves to constantly maintain web tension. The pressure force is light enough so that the loop is resilient to flex up and down and accommodate fluctuations in web length along the loop. These fluctuations are caused by the continuous motion of the gluer on one side of the loop and the intermittent motion of the clamp and plunger on the other side of the loop.

Web driving sprocket means (not shown) are located, for example, above the web clamp as seen in FIG. 2. Entrance of sprocket teeth into partially precut sprocket holes in the peripheral edges of the web (also not shown) is facilitated by the maintenance of constant web tension. Such sprocket holes are filled with tabs which the sprocket teeth bend out of the web as it is engaged.

The flexible sheet 42 is normally somewhat wider than the web so that no pressure air directly engages the web. While the web width may approach that of the sheet, it is possible that pressure air could directly engage an edge of a relatively wide web and cause web tracking or other problems.

Guide members 45 and 46 are provided forwardly of the flexible sheet and engage the flexible sheet to form the sheet to the desired operating loop shape. These guides are shown in FIG. 2 but not in FIG. 1 for the purposes of clarity. Normally, the guides 45 and 46 are disposed on either side of the label web. In addition, it is contemplated that further guides could be placed in a vertical position behind or, in other words, to the left of the sheet 42 as shown in FIG. 1, in order to control the horizontal extension of the loop. Guide members could be placed at any position about the sheet 42 in order to provide any desired shape in the operating loop 44. In addition to shaping the loop, the guides in some positions tend to urge the loop directly against the web. The loop forming force thus can be a combination of the flexible sheet's natural resilience and the blowing of air directly onto the sheet.

The adhesive applying apparatus is shown at 13 and is operative to establish a tacky surface to at least the labels within the web. While the terms tacky surface, hot melt adhesive, or glue are herein utilized for descriptive purposes, either term means, but is not limited to, any suitable hot melt adhesive of the type which is heated and then applied to a material. In addition, the terms are considered to include thermo-activated adhesive, thermoplastic or any other material which can be applied to a web and activated by heat. Also, the term includes any adhesive having the characteristic of not sticking to or accumulating on a heated element. In addition, it should be noted that the loop forming concept may be utilized with cold glue or any other type of adhesive.

The applying apparatus comprises a glue wheel 50 having a general cylindrical surface 51 and glue holding depressions 52. The glue wheel 50 is disposed above the glue pot 53 such that a portion of the wheel extends below the level 54 of the glue. The glue pot is provided with a means for heating the glue therein to a temperature at which it can be readily applied to the label web. This temperature may be in the range of 300°–340°F or may vary according to the specific adhesive utilized.

As the wheel 50 is rotated in the direction of the arrow B, it is immersed in the glue and some of the glue is picked up by the wheel. Prior to the wheel's engagement with the label web, however, the glue on the cylindrical surface 51 is scraped therefrom by a scraper as at 55 so that when the wheel 50 engages the web, no glue resides on the outermost cylindrical surface 51 but glue does remain in the depressions 52. The glue wheel is constructed so that the depressions 52 are, if desired, formed in the same shape or slightly larger than the labels L. In addition, the depressions are spaced on the glue wheel 50 so that they correspond to the sequential spacing of the labels L in the label web. In this manner as the label web is drawn past the glue wheel 50, the depressions therein serve to establish an adhesive on the labels within the web.

While many types of label webs may be utilized, two of the preferred types of label webs are illustrated in FIGS. 5 and 6. FIG. 5 shows one form of label web 60 having a web remnant 61 which defines labels L. It will be noted that the web remnant 61 extends about and surrounds each of the labels L so that the labels do not contact each other. Labels are supported within the web by "nicks" of web material which remain after the web is partially precut to form the labels. The nicks are normally very small and offer a minimal support to the labels. This results in a fragile web subject to label separation in the event of web shock.

The illustration in FIG. 5 further shows a sequential or web-overlapping glue pattern 62. This glue pattern is shown complete on two of the labels which are attached to the web at the left of FIG. 5. The aperture 63 indicates that area from where a label L has been removed, and it will be noted that the glue pattern 62 has overlapped the label and resides partially on the web. It can thus be appreciated that glue is applied to the extreme edges of the labels L and, in fact, overlapped those edges onto the web remnant.

In FIG. 6, a modified label web 70 is illustrated. This web comprises a web remnant 71 which extends along the opposite edges of labels L1. In this web, it can be seen that the labels are contiguous or, in other words, are connected to each other at their ends so that each label is not completely surrounded by a web remnant. The labels are supported in the web and are attached to each other by nicks as described in the description of the web of FIG. 5. The aperture 72 indicates that area of the web from which the labels have been removed at the detaching station of the apparatus.

The glue pattern as shown in FIG. 6 is a continuous one, and it is seen in FIG. 6 that the pattern extends all over the web, having been applied to both the labels within the web and to the web remnant. In order to attain such a glue pattern, a glue wheel with a continuous cylindrical surface could be utilized so that the pattern is a continuous one, rather than the intermittent pattern 62 which is attained by the glue wheel 50 as shown in FIG. 1.

It should be noted that whether the glue pattern established on the label web is a sequential one as shown in FIG. 5 or is a continuous one as shown in FIG. 6, the movement of the label web through the adhesive establishing station 13 is a continuous movement. It will also be appreciated that for either type of pattern to be applied, the adhesive extends beyond the label and onto the supporting web. The depressions 52 in the glue wheel 50 do not have to be so precisely made as to print a glue pattern to the very edge of the label with a very small tolerance of error allowed, but rather, in fact, the depression 52 can be constructed larger than the actual label to insure extreme edge application of adhesive. In this manner, the apparatus can efficiently function even with some error in the registry of the glue patterns with the label.

OPERATION

In FIG. 1, the label web is withdrawn from a label supply and travels in the direction indicated by the arrow C. Like designated arrows illustrate the direction of label web travel throughout the drawings.

The label web is drawn through the adhesive establishing station as indicated at **13.** In a continuous manner, the glue wheel **50** establishes a tacky surface of adhesive on labels L within the label web. The web then continues from the glue wheel downwardly and is urged into a loop by virtue of the pressure applied to the web by the flexible sheet **42.** The sheet is formed into a loop by the application of the pressure air through the pressure air tube **40** and apertures **41.**

It will be noted that the pressure air impinges only on the sheet **42** and not directly on the label web. It has been found that when the sheet **42** is omitted and pressure air is applied directly to the label web, the air has a tendency to blow the partially precut labels out of the web, breaking its supporting nicks and fouling the subsequent operation of the apparatus. This results in machine "down" time and in unlabeled products.

Utilization of the sheet **42** provides for a constant uniform application of pressure to the complete web to form the loop **44** and, therefore, solves this problem. In addition, the sheet **42** forms a smooth surface to support the web in a generally continuous loop or curve. This is especially advantageous with webs carrying relatively large labels or in webs where portions of the label's edge define straight lines generally transverse to the web. If air is applied directly to such webs, the webs tend to bend along these edges thereby causing the nicks to break and the labels to separate from the web. This bending and nick breakage results from the fact that, aside from the web remnant, the only material resisting the bending across the web is in the label supporting nicks.

Also, this structure has an advantage over a "vacuum" system as described in U.S. Pat. No. 3,661,625 since the web is never directly acted upon by the pressure air. In the "vacuum" system, the web could be drawn against the aperture plate by the vacuum and, if the damper was misadjusted or fouled, the web could be torn.

From the loop forming area, the web then continues upwardly toward the detaching station and the clamping mechanism as indicated at **11** in FIG. **1.** When a given label reaches the exact detaching station, the clamp plate **20** is actuated to move toward the label web and the frame **32** so that the finger tips **24** engage the label web in areas just adjacent to and surround the label L. The fingers press against the web and clamp it against the frame **32** to hold it there for the subsequent detaching operation.

At this time, the reciprocating plunger **35** is actuated to plunge through the web, detach a label from the web and apply it to the target, the adhesive on the label serving to bond the label to the target. The plunger and clamp are then withdrawn freeing the web remnant which is then indexed in the direction of arrow C.

It will be appreciated that in the preferred embodiment, the web motion through the adhesive station is a continuous motion, while the motion of the web through the clamping and detaching station is an intermittent motion. The forming of the loop **44** and its resiliency due to the nature of the pressure air provides enough resiliency in the web to accommodate fluctuations along the loop as previously stated and aids in the reduction of web shock. This serves to reduce detachment of labels due to this shock alone. Of course, the adhesive applying station could be adapted to intermittent web motion as shown in the previously mentioned patent. In this case, the loop forming apparatus could be utilized to reduce the web shock due to web inertia or slight timing errors between the adhesive station and the detaching station. Also it could be considered as a tension adding apparatus for the web. Among other advantages, this would aid in sprocket-web engagement as previously discussed.

Throughout the detaching and clamping operation, an electrical current is supplied to the fingers **23** and the finger tips **24.** This electrical current, as previously described causes the tips **24** of the fingers to heat to a temperature range of 300° to 340°F which is similar to that at which adhesive is applied. While a relatively small amount of the hot melt adhesive will accumulate on the finger tips **24,** it will not build up in any substantial amount, and the problem of excessive accumulation of tramp adhesive in this area is thereby eliminated. Any small amount of adhesive which does accumulate on the finger tips is maintained at a temperature sufficient to prevent any other adhesive coming into contact with the fingers from sticking thereto and "stringing" between the web remnant and the clamp.

It can be seen in FIG. **4,** that the fingers **23** are bent inwardly toward the web so as to engage the web and clamp it against the frame member **32** without requiring the upper and lower portions of the plate **20** to be pressed directly against the web. Thus, the only portion of the clamping apparatus which engages the web are the heated finger tips **24.**

FIGS. **7** and **8** depict an alternate embodiment of the clamping mechanism. This embodiment is particularly useful where it is not required to apply adhesive to the extreme edge of the label. Many label products do not require this degree of quality and, as shown in FIG. **7,** a glue pattern such as the one shown at **80** is applied to a label **81** within the web **82.** There is still the possibility of a mis-registry between the glue pattern and the label, however, and the web flapping problem remains. Thus, as shown in FIG. **8,** it is desirable to use heated finger tips in those areas most likely to contact or acquire an adhesive accumulation. In this embodiment, clamp fingers **83** are thus, as shown in FIG. **8,** to engage the web remnant near the glue patterns on the labels. The remainder of the clamp comprises merely a solid, unheated, clamp member **84.** Of course, any type of glue pattern and configuration of clamping fingers could be utilized, and the illustrations in FIGS. **7** and **8** are by way of example only to indicate that heated clamp elements are only needed in those areas where there is a possibility of engaging or accumulating adhesive. In other areas where this possibility does not exist, it is sufficient to provide a non-heated clamping element such as the one shown at **84.**

The invention, thus, provides an improved apparatus for applying labels to products and eliminates the troublesome problem of label separation due to web shock. The invention has made possible the transition from continuous to intermittent motion of relatively fragile webs in an efficient and non-destructive manner and has made it unnecessary to confine the web or the flexi-

ble sheet in a chamber. The web is not directly acted upon by the pressure air and cannot be torn thereby.

In addition, the invention could be utilized in many other applications with obvious advantages. For example, it could be used in any web or strip material handling apparatus between two continuous or two intermittent stations.

Other modifications and alterations will become readily obvious to one of ordinary skill in the art without departing from the scope of the invention, and applicant intends to be bound only by the appended claims.

I claim:

1. Apparatus for forming a loop in a web within a web handling apparatus, said loop forming apparatus comprising:

a flexible sheet having a curvilinear portion disposed adjacent a path of said web, said sheet forming a closed loop having a web engaging outer side,

means for fixing a portion of said flexible sheet to a stationary element of said web handling apparatus so that the closed loop formed by said sheet is movable about the fixed portion thereof, and

means for blowing air directly onto an internal side of said sheet within said closed loop and for thereby urging said curvilinear portion of said sheet against said web to form a loop in said web.

2. Apparatus as in claim **1** wherein said sheet comprises an endless band.

3. Apparatus as in claim **2** wherein said sheet at least partially surrounds said means for blowing air directly onto said sheet.

4. Apparatus as in claim **3** wherein said means for blowing air directly onto said sheet comprises

a tube at least partially surrounded by said sheet,

means for supplying pressure air to said tube, and

said tube having apertures disposed to direct pressure air directly onto a side of said sheet opposite said web engaging side.

5. Apparatus as in claim **1** wherein the pressure of air blown onto said sheet is sufficient to form said sheet and said web into a loop, but is slight enough to allow said sheet to move against said pressure due to web tension along said loop.

6. Apparatus as in claim **1** wherein said web comprises a web remnant supporting therein a plurality of partially precut labels.

7. Apparatus as in claim **6** wherein said web remnant surrounds each of said labels.

8. Apparatus as in claim **6** wherein said web remnant is disposed along generally opposite edges of said labels and wherein said labels are contiguous within said web remnant.

9. Apparatus as in claim **1** including guide means engaging said sheet for forming said sheet into a desired loop shape upon application of pressure air thereto.

10. Loop forming apparatus as in claim **1** wherein said means for blowing air includes a tube extending at least partially into said closed loop of said flexible sheet, said tube having an air passage therethrough and apertures connected to the passage and disposed to direct air onto said internal side of said sheet opposite said web engaging side.

11. Loop forming apparatus as in claim **1** wherein said flexible sheet has two ends joined to each other to form said closed loop, said closed loop being fixed to said stationary portion of said web handling apparatus at the juncture of said ends.

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