United States Patent [19]

Wesen

[11] **3,860,473**

[45] **Jan. 14, 1975**

[54] **METHOD FOR MAKING PRESSURE SENSITIVE LABEL RECORDS**

[76] Inventor: **Glen L. Wesen,** 1193 E. 56th St., Brooklyn, N.Y. 11234

[22] Filed: **Feb. 3, 1972**

[21] Appl. No.: **214,751**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 838,796, July 3, 1969, abandoned.

[52] **U.S. Cl.** **156/252,** 156/257, 156/264, 156/268, 156/299, 53/14

[51] **Int. Cl.** **B32b 31/00**

[58] **Field of Search** ..... 156/250, 152, 209, 219, 156/220, 230, 247, 249, 250, 252, 257, 235, 239, 540, 251, 264, 268, 230, 234, 238; 274/42 P, 42 R, 46 R, 43; 264/106, 107; 161/42, 413, 406

[56] **References Cited**

UNITED STATES PATENTS

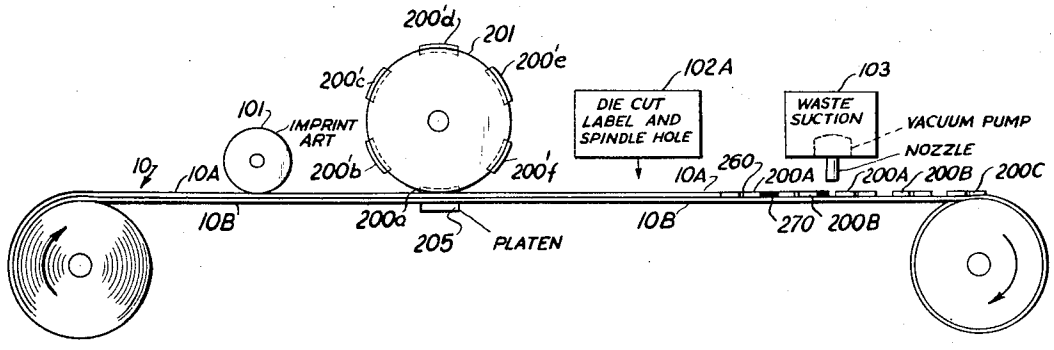
2,279,724	4/1942	Von Hofe	156/256
2,628,929	2/1953	Persoon et al.	156/238
2,789,640	4/1957	Belden	156/252
3,052,586	9/1962	Brown	156/46
3,265,396	8/1966	Gorman	161/42
3,432,376	3/1969	Reed et al.	156/234
3,508,985	4/1970	Sakamoto	156/219

Primary Examiner—Charles E. Van Horn
Assistant Examiner—F. Frisenda
Attorney, Agent, or Firm—Hopgood, Calimafde, Kalil, Blaustein & Lieberman

[57] **ABSTRACT**

A self-adhesive label laminate from a suitable supply is provided with suitable art work or indicia and then a record surface having modulated spiral grooves for sound reproducing is impressed on the label. The modulated label is removed from the laminate by vacuum blowing or mechanical stripping and is precisely air blown onto a predetermined area on a relatively stiff surface of a container and adheres in place, the container material providing the backing to the record. In another aspect of the invention, a heat sealable acetate sheet is stamped, cut and sealed to the backing in a single operation.

4 Claims, 10 Drawing Figures



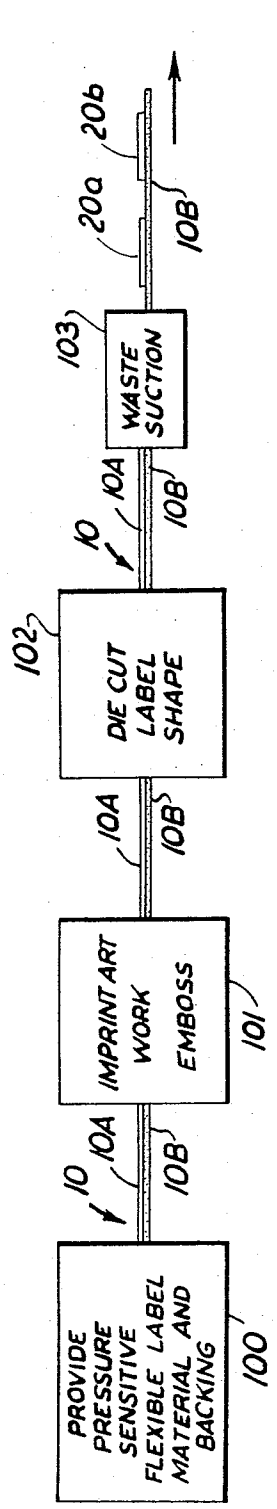


FIG. 1

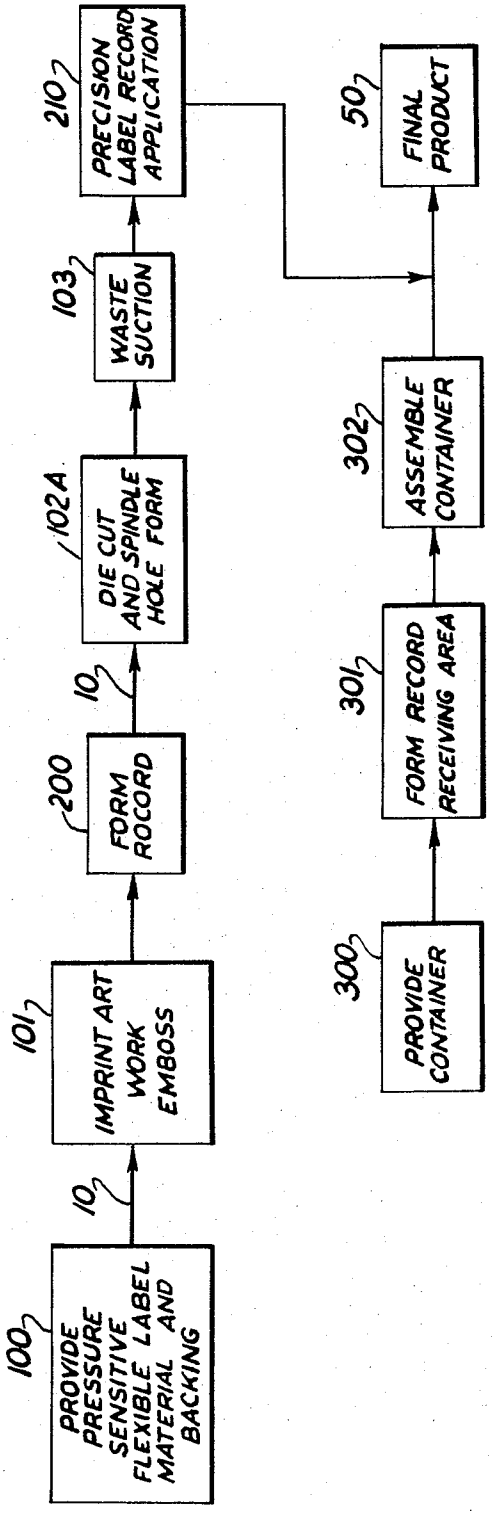
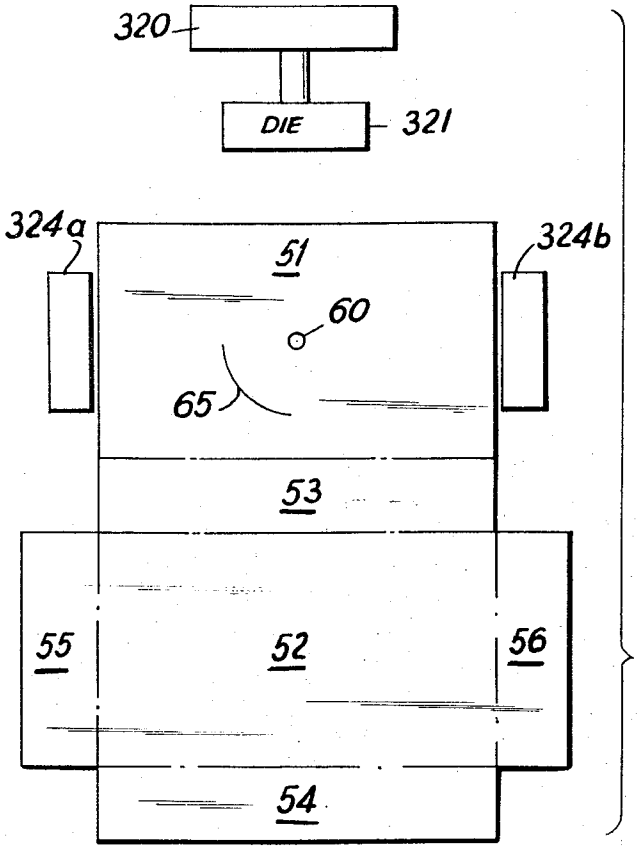


FIG. 2

INVENTOR.
GLEN L. WESEN

BY

Sandoe, Hopgood & Calimafde
ATTORNEYS



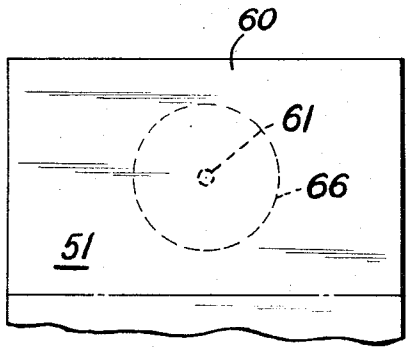


FIG. 3A

FIG. 3

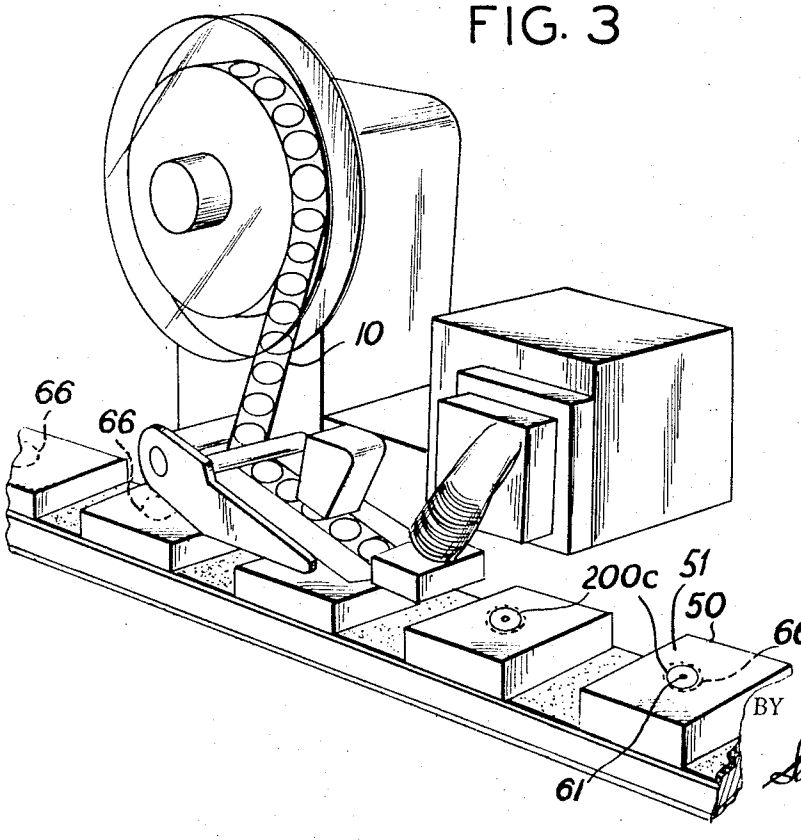


FIG. 6

INVENTOR.
GLEN L. WESEN
BY
Sandoe, Hopgood & Calimafde
ATTORNEYS

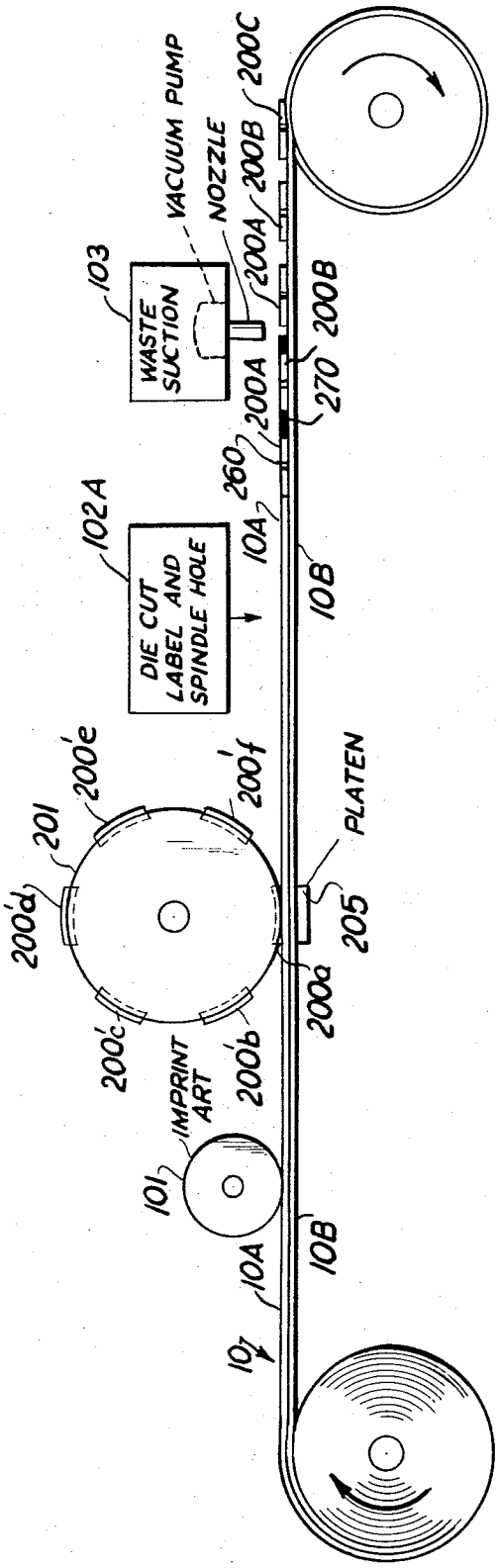


FIG. 4

INVENTOR.
GLEN L. WESEN

BY

Sandoe, Hopgood & Calimafde
ATTORNEYS

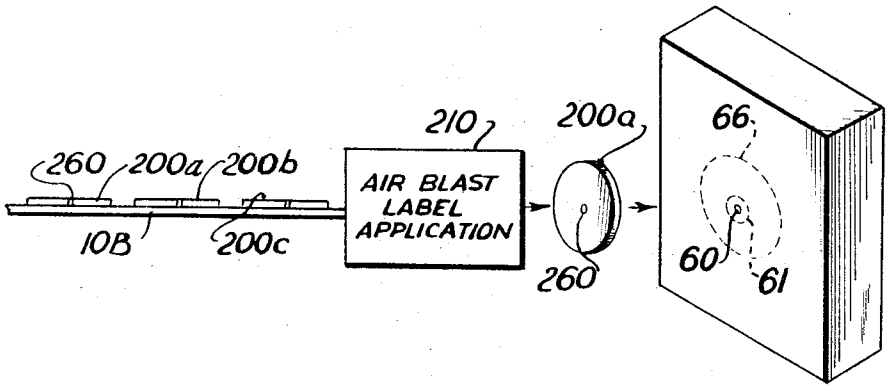


FIG. 5

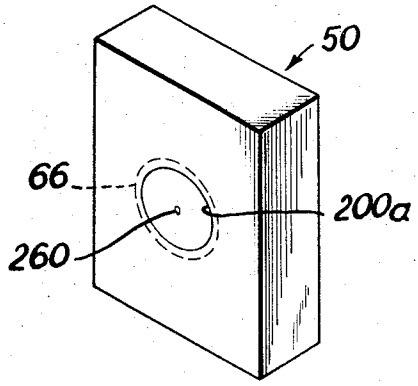


FIG. 5A

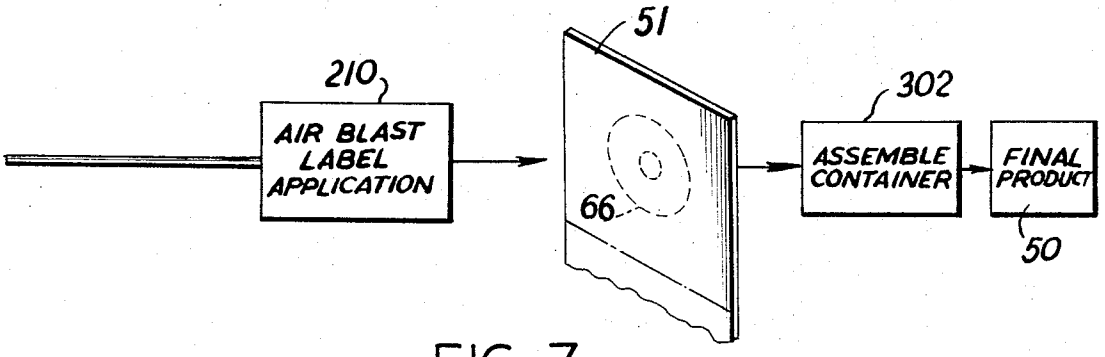


FIG. 7

INVENTOR.
GLEN L. WESEN

BY

Sandoe, Hopgood & Calimafde
ATTORNEYS

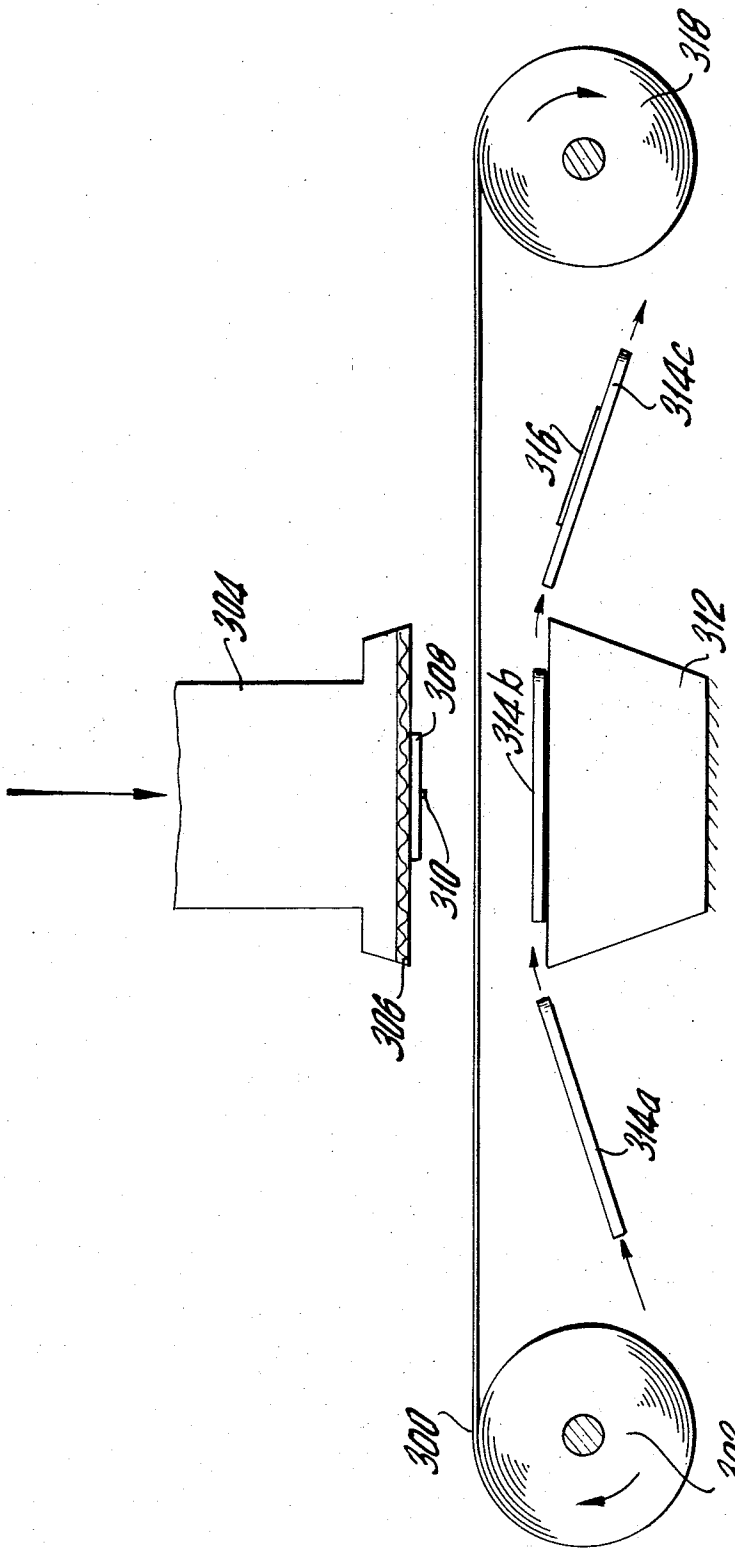


FIG. 8

METHOD FOR MAKING PRESSURE SENSITIVE LABEL RECORDS

This application is a continuation-in-part of an application, Ser. No. 838,796, filed on July 3, 1969 now abandoned.

This invention relates to an apparatus and process for forming a carton or container having a flexible self-adhesive label having an impressed record surface. This invention particularly relates to a process for forming a record impregnated label from a roll of a pressure sensitive laminate.

DESCRIPTION OF PRIOR ART

Many techniques have been devised for making a flexible paper or flexible plastic records. In such techniques a die is formed having a series of spiral groove forming members containing the groove modulation to provide a sound when used with a record player. Such flexible records, as shown in U.S. Pat. No. 3,052,586, generally comprise a face or top surface made of plastic which is acted upon or pressed by the die to cut the spiral record grooves in the surface thereof. This face is then adhered to a backing material to provide support so that the modulated grooves will be able to cause the phonograph needle to track the modulations and accurately reproduce the recorded sound.

Such flexible records have also been applied to the surface of containers such as cartons, envelopes and the like, this container carrying visual indicia which might be advertising promotion or other indicia. The record is applied to such containers by adhesive or cement.

OBJECTS OF THE INVENTION

An object of my invention is to provide a simple process for forming a container having a flexible plastic record formed on one surface thereof.

Yet another object is to provide a process for forming a record on conventional self-adhesive laminates used for making pressure sensitive labels.

Still another object of this invention is to provide a pressure sensitive label as the facing or top surface of a flexible record.

A still further object of this invention is to provide a process for forming a container having a predetermined record receiving area of peripheral weakened lines and for applying the labeled record precisely to the area of the container set forth.

A further object still is to provide a novel technique for making flexible records and for applying them to such surfaces as may be desired.

Yet another object of the invention is to provide a process for stamping, die cutting, and sealing the flexible record surface in a single operation.

SUMMARY OF THE INVENTION

Briefly, in one embodiment of my invention I provide a laminate having a facing layer or label and a backing release paper layer of the type which is used to make pressure sensitive labels. A record forming surface or a die impresses the spirally modulated grooves onto the facing layer surface. A platen and the release paper of the backing provide strong support to the facing layer. The laminate is die cut and any waste material is removed. The laminate is thereafter applied to an applicator such as one having a vacuum means to remove the label from the backing and an air blower for precisely applying the thus-removed label onto a container blank having a surface portion defining a record receiving area. Alternatively, the label may be removed from the backing layer by means of a mechanical stripper or it may be normally removed. A spindle hole is formed by cutting or by weakening the surface of the label and a weakened spindle hole area may be formed in the container. The adhesive used on the label permanently affixes the label to the container to provide the record.

The above mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will best be understood by reference to the following description of embodiments of the invention taken in conjunction with the accompanying drawings, the description of which follows.

DESCRIPTION OF FIGURES

FIG. **1** is a flow chart diagram illustrating a prior art method for making pressure sensitive labels;

FIG. **2** is a flow chart illustrating the process of my invention;

FIG. **3** is a diagram illustrating one step of my invention in which the container blank is formed with weakened lines defining the record area;

FIG. **3***a* is a diagram illustrating a surface of a container of FIG. **3** after the die forming step of FIG. **3** has been carried out;

FIG. **4** is a more detailed diagram illustrating the process of my invention;

FIG. **5** is a detailed diagram illustrating the application of a printed label record to the surface of the container;

FIG. **5***a* is an illustration of the final container product onto which the printed label has been applied;

FIG. **6** is a diagram illustrating the automatic application of label records to a plurality of containers;

FIG. **7** is an alternate embodiment of the step illustrated in FIG. **5** in which the printed label is applied to the container blank; and

FIG. **8** is a schematic diagram illustrating a further embodiment of my invention.

Referring now to FIG. **1**, there is shown a flow chart illustrating a conventional process for making a pressure sensitive label. In the step designated **100**, there is provided a laminate roll from which the laminate **10** is applied into the label machinery. Laminate **10** comprises a release paper layer backing **10B** and a facing layer of printing surface **10A** held together by adhesive. The adhesive is commonly known as a self-adhesive and the pressure of the printing surface on the backing keeps the laminate together and, as is well known, the facing layer of printing surface can be peeled off the backing to provide the label. As used therein, the term label is broad and refers to the subject matter of the printing surface after it has been cut from the waste material of the printing surface and removed from the backing. Further, the laminate may be supplied in other forms than a roll.

It is well known that there are two types of pressure sensitive adhesives, those that are (1) removable when the bodystock is to be removed easily for cleaning and (2) permanent, when the label, after it is removed from the backing, is to remain permanently with the ultimate product. This invention in one of its embodiments uses the permanent pressure sensitive adhesive since the label which is ultimately applied to the container must

permanently adhere to the container since the container provides the supporting surface for the record.

Such permanent adhesives are well known, examples of such commercially available permanent adhesives are:

a. MP-330 Formula (Morgan Adhesive Co., N.J.)

b. BP-16 Formula (Coated Products Co., N.J.)

Also known are heat sealable and electronically heat activated laminates.

In the conventional process shown in FIG. **1**, art work is printed or embossed on the laminate as illustrated at **101** and the laminate is applied to a label shaping stage **102** which includes a die to cut the label to the desired shape. The laminate is then applied to stage **103** containing vacuum nozzles or tubes which suck away or otherwise remove the waste material providing a series of labels **20**A and **20**B on the backing **10**B.

As shown in FIG. **2**, the pressure sensitive laminate at stage **100** is applied to the printing and art work stage **101** in the same manner as shown in FIG. **1**. The laminate is then applied to a record forming stage **200** which contains a record forming surface (a record die) having spiral projecting groove forming members having projecting modulating track forming members which, when impressed on the receiving face of the laminate, forms the record surface. A flexible triacetate which is conventionally used as the facing as pressure sensitive released paper will suitably record the impression to provide clear and accurately defined spiral grooves and modulation tracks which can be engaged by a stylus of a phonograph to reproduce sound.

Means such as a reciprocating press or a rotary press, press the record die against the facing surface which is supported firmly by the platen as well as by the backing of the laminate during the formation of the recording grooves on the facing surface.

The entire laminate is then applied to stage **102**A which cuts the laminate into the shape of a record and may also form or cut a center hole in the record to receive the spindle. The laminate is then applied to the waste removal stage **103** which removes the waste material.

Before discussing the remainder of FIG. **2**, reference is made to FIG. **4** which illustrates a specific embodiment of the process thus far described. As therein shown the laminate **10** having face surface **10**A and backing **10**B is applied from a roll over an imprint roller **101** which provides the necessary art work, to wit, the proper indicia, words, drawings and the like. The laminate is then passed to a record forming stage which may be any of the conventionally known machines for applying spirally modulated grooves to a flexible plastic such as that shown in U.S. Pat. No. 3,052,586. In the embodiment of FIG. **4**, there is shown a rotating press comprising a drum **201** having a series of die plates **200***a* . . . **200***f* attached to a surface thereof. These die plates are flat surfaces having projecting record forming surfaces previously described. As drum **201** rotates, each die plate contacts the face or label surface of the laminate which has been previously imprinted by roller **101**. It will be understood that the relative dimensions of the rollers used to print the art work on the drum used to cut the record surfaces are illustrative to indicate two successive stages and various techniques may be used in each case. Those skilled in the art will be able to synchronize the operation of the entire system.

It will also be understood that it is possible for an operator by stamping to imprint the art work illustrated in the step of **101** and then for the operator to take this laminate physically to the record machine such as an up and down press, and there place the laminate on the support platen to impress the record surface by allowing downward press action. This step-by-step method approach is explained only to illustrate the feasibility of the system but not as its preferred mode since it is contemplated that the entire sequence of steps will be performed automatically.

The die cut subsequent to the record forming stage is also only shown in that manner illustratively since the die cutting as well as the spindle hole forming could be included as part of record forming step **200** by providing suitable cutting edges on the record forming plates since a platen **205** provides a base for the groove forming means illustrated on drum **201**.

Thus, there is formed a series of records **200**A and **200**B immediately following stage **102**A having formed spindle holes **260** as well as waste material **270**. The laminate is then applied to waste removal stage **103** which may include a vacuum pump and nozzle to draw off the waste sections **270** thereby providing a series of spaced label records **200**A, **200**B and **200**C. The waste may alternatively be mechanically stripped away. These label records may then be wound onto a roll and transported to a distant location or may then be applied directly to the label record application stage illustrated at label application step **210** of FIG. **2** for precise application of the label face onto the container.

The container which may be a carton, envelope or other receptacle or surface, is provided at the step designated **300** in FIG. **2** and a record receiving area is formed on the carton at **301**. This step is shown in greater detail in FIG. **3**.

In FIG. **3** there is shown, for example, a container blank having front and rear sides **51** and **52**, top and bottom sides **55** and **56**, and narrower connecting sides **53** and **54**. Guide blocks **324***a* and **324***b* are provided so that side **51** is positioned under a press **320** having a die **321** and position the container for the remaining operations. Those skilled in the art will recognize that many variations can be used for positioning the containers and container blanks, and these blocks are only examplary. More specifically, an aligned area or outline of an area is shown by the line **65** having a center point at **60**. Point **60** is centrally aligned with respect to the die. The die has cutting edges which form the desired peripheral lines and may provide indentations, grooves, perforations or any other means to weaken the surfaces to facilitate its removal. More specifically, and preferably, die **321** has cutting surfaces to provide a circle **61** of a weakened periphery through which a spindle may pass and a weakened outer periphery **66** which defines the outer periphery of the backing of the record. These weakened surfaces define the aligned area as well as the means to facilitate record removal from the container.

Referring back to FIG. **2**, the container blank may be assembled at **302** to form a complete container at which time the labels are applied at step **210** to the surface of the container. The application stage and the final product **50** are illustrated more particularly in FIGS. **5** and **5**a which are to be understood in connection with FIG. **4**.

As stated previously the laminate comprising the records **200A**, **200B**, and **200C** may be wound on a roll for transporting. Thus, as illustrated in FIG. **5**, the records may be unwound from a roll and applied to an air blast label applicator machine. A machine of this type is conventional and is capable of blowing the labels with pinpoint accuracy onto flat or gently curved surfaces. An applicator machine that may be used to particular advantage in the practice of the invention includes a vacuum pick off which sucks the recorded label surface from the backing, and positions the label and applies a force, mainly an air blast, to throw the label onto the carton surface. Since such machines are conventional, they will not be described in detail herein but reference may be made to the "Modulabler Systems" of the Avery Products Corporation, New Brunswick, N.J. It may be contemplated that automatic feeding means may be used to transport the blank or the container to an appropriate position in synchronism with the speed of the labeling machine to effect high speed operation.

Referring to FIG. **5**, the label record **200***a* is there shown precisely blown onto the alignment area **66** on carton **50** so that the spindle aperture is aligned with the point **60** and container spindle aperture **61.**

As illustrated in FIG. **5***a*, the weakened lines **66** may be coincidental with the periphery of the record **200***a* or may be beyond it to facilitate record removal. However, the record thus formed comprises the backing formed from the container and the record surface which now permanently adheres to the backing.

FIG. **6** is an illustration of the process for automatically applying the label records to a series of containers (which may include container blanks). The containers are transported at spaced intervals on a conveyor to the labeling applicator to which the label record laminate has also been applied. In this way, the sequence of removing the label and blowing it onto successive containers is applied automatically and serially.

FIG. **7** illustrates an alternate embodiment of the invention in which the labels are applied to the container blanks rather than the finished container after which the container is assembled and completed.

FIG. **8** illustrates a further embodiment of the invention in which record forming and the application and securing of the record onto the carton surface are all performed substantially in a simple operation. As therein shown, a sheet **300** of a heat sealable acetate is placed on a roller **302.** The acetate foil is removed from the roll and passed beneath a reciprocal press **304** which carries on its lower surface a heating surface **306.**

A record die **308** is secured to the under surface of the heating surface and contains a centrally formed spindle hole forming member **310.** A platen **312** is positioned beneath press **304** such that as shown in FIG. **8** the acetate sheet passes between the record die **308** and the upper surface of platen **312.** Cartons **314** are sequentially passed by suitable means (not shown) onto the upper surface of the platen such as carton **314***b* in FIG. **8.** Means (also not shown) synchronize the operation of press **304** with the carton feeding mechanism such that whenever a carton is applied onto platen **312,** press **304** is moved downwardly such that a record layer is formed from the acetate sheet **300** and simultaneously cut by record die **308.** At the same time the heat applied to the acetate sheet by heating surface **306** causes the thus stamped and cut record label surface to be heat sealed onto the surface of the carton, after which, as indicated by a record **316** secured to carton **314***c*, the carton is automatically removed from the platen by means (not shown) to a receptacle, after which a new carton is placed onto platen **312***a*, and the press is raised and then lowered to perform a succeeding record forming, cutting, and sealing operation. The remainder waste portion of acetate sheet **300** is taken up on a roll **318.**

While the principles of the invention have been described in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of the invention as set forth in the objects thereof and in the accompanying claims.

What is claimed is:

1. A method for forming a container having a plastic record surface having modulated grooves for reproducing sound, said method comprising the steps of; providing a self-adhesive label laminate having a relatively flexible, thin plastic label face removably sticking by means of a pressure-sensitive adhesive to a relatively thick and rigid backing; impressing on said label face a record surface having modulated spiral grooves for reproducing sound, to provide a label record; forming a spindle receiving aperture in said label face; providing a container; forming a predetermined alignment area on a surface of one side of said container; cutting a label record from said label face; vacuum sucking said label record to remove said label record from said backing, and simultaneously air blowing said thus removed label record to position said label record to adhere to said container at said predetermined area, said label record adhering to said container by means of said adhesive.

2. A process for forming an article having a flexible plastic record surface having modulated grooves thereon for reproducing sound, said method comprising the steps of; providing a self-adhesive label laminate having a relatively flexible, thin plastic face removably sticking by means of an adhesive to a relatively thick, rigid backing layer; impressing modulated recording grooves onto said plastic face of said laminate to provide a label record; forming a spindle receiving aperture in said label record; cutting said label record from the unused remaining portion of said laminate; removing said removed unused portion of said laminate; providing a relatively stiff backing surface; separating said plastic face from said backing layer; and adhering said thus separated plastic face onto said backing surface by means of said adhesive.

3. The method of claim **2,** in which separating step comprises the step of vacuum sucking said plastic face from said backing layer, and said removing step comprises the step of simultaneously air blowing said plastic face onto said backing surface.

4. A method for forming a container having a plastic record having modulated grooves for reproducing sound, said method comprising the steps of passing a heat sealable sheet of acetate between a heated record forming die and a platen; feeding a carton onto an upper surface of said platen; bringing said die into engagement with said acetate sheet to bring said sheet into engagement with said carton; said heated record forming die being effective when said acetate sheet is brought into contact with said carton by said die to (a) impress said record grooves into said sheet, (b) cut said sheet into the shape of a record to form a grooved record surface, and (c) heat seal said thus formed record label onto said carton; thereafter removing said carton and adhering record label from said platen; and collecting the remaining portion of said acetate sheet.

* * * * *