

Christopher G. Foster, Esq. SBN: 119142
MORRIS POLICH & PURDY LLP
1055 West Seventh Street, 24th Floor
Los Angeles, California 90017
Telephone: (213) 891-9100
Facsimile: (213) 488-1178
CFoster@mpplaw.com

Attorneys for Plaintiff
GLUE DOTS INTERNATIONAL, LLC

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA - WESTERN DIVISION

GLUE DOTS INTERNATIONAL, LLC

Plaintiff,

vs.

THE MAYA GROUP, INC.

Defendant.

Case No.:

**COMPLAINT FOR PATENT
INFRINGEMENT**

DEMAND FOR JURY TRIAL

Plaintiff, Glue Dots International, LLC ("Glue Dots"), alleges as follows:

NATURE OF THE ACTION

1. This is an action for patent infringement under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

JURISDICTION AND VENUE

2. This action arises under the patent laws of the United States. This Court has original jurisdiction of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

1 3. Venue in this court is proper pursuant to 28 U.S.C. §§ 1391(b) and
2 1400(b) because Defendant The Maya Group, Inc. ("Maya") does substantial and
3 not isolated business within this district and, therefore, resides here.

4 **PARTIES**

5 4. Plaintiff, Glue Dots, is a limited liability company organized and
6 existing under the laws of the State of Wisconsin, with its principal place of
7 business located at N117 W18711 Fulton Drive, Germantown, WI 53022.

8 5. Defendant Maya is a corporation organized and existing under the
9 laws of the State of California, with its principal place of business located at
10 10741 Walker Street, Cypress, California 90630. Its registered agent for service
11 of process is Obed Ben-Ezer, 10741 Walker Street, Cypress, California 90630.

12 **FACTUAL BACKGROUND**

13 **A. Glue Dots' Patents**

14 6. On August 10, 1999, United States Patent No. 5,935,670 (the "'670
15 Patent"), to inventor John P. Downs, entitled "Thermoplastic Adhesive Dispensing
16 Method and Apparatus," was duly and legally issued to Downs' assignee, All-Pak
17 Sales, Inc. On or about September 1, 1999, All-Pak Sales, Inc. assigned the '670
18 Patent to AP Acquisition, LLC. AP Acquisition, LLC changed its name to All-
19 Pak Sales, LLC, which later changed its name to Glue Dots International, LLC
20 ("Glue Dots"). Glue Dots is the current owner of all right, title, and interest in and
21 to the '670 Patent, including the right to sue for all past and present infringement
22 of the '670 Patent. A true and correct copy of the '670 Patent is attached to this
23 Complaint as Exhibit A and is incorporated herein.

24 7. On February 3, 2004, United States Patent No. 6,686,016 (the "'016
25 Patent"), to inventor John P. Downs, entitled "Thermoplastic Adhesive Dispensing
26 Method and Apparatus," was duly and legally issued to Downs' assignee, Glue
27 Dots. Glue Dots is the current owner of all right, title, and interest in and to the
28 '016 Patent, including the right to sue for all past and present infringement of the

1 '016 Patent. A true and correct copy of the '016 Patent is attached to this
2 Complaint as Exhibit B and is incorporated herein.

3 8. Glue Dots sells products practicing and embodying the '670 and '016
4 Patents.

5 **B. Maya's Unauthorized and Infringing Conduct**

6 9. Maya has been and is importing, using, making, selling, or offering
7 for sale in the United States thermoplastic hot melt adhesive segments or disks on
8 release carrier tape (the "Infringing Product") that infringe one or more claims of
9 the '016 Patent and the '670 Patent under 35 U.S.C. § 271, including, without
10 limitation, in the manner set forth in the claim chart attached hereto as Exhibit C.

11 10. The Infringing Product is incorporated into a Maya craft toy product
12 identified as the "Pom Pom Wow," which Maya is importing, using, making,
13 selling, or offering for sale or planning to import, use, sell, or offer for sale in the
14 United States.

15 11. Upon information and belief, Maya advertises and sells or plans to
16 advertise and sell the "Pom Pom Wow" product (the "Pom Pom Wow") which
17 incorporates the Infringing Product throughout the United States, including at
18 retail locations and through a worldwide web site. Attached hereto as Exhibit D is
19 a true and correct copy of advertising material for the Pom Pom Wow, which
20 shows the inclusion of the Infringing Product.

21 12. In addition, Maya is planning to show the Pom Pom Wow as an
22 Exhibitor at the ToyFair NY16 trade show from February 13-16, 2016 in New
23 York City, New York. Attached hereto as Exhibit E is a true and correct copy of
24 Maya's "Exhibitor Profile" displayed on the ToyFair NY16 website, which
25 indicates that Maya will show the Pom Pom Wow product that incorporates the
26 Infringing Product in its booth at ToyFair NY16.

1 13. Maya is not now, and never has been, licensed or otherwise
2 authorized by Glue Dots to import, use, sell, or offer for sale products covered by
3 the '016 Patent or the '670 Patent.

4 14. In fact, since September 2015, Maya has been working with Glue
5 Dots to qualify an acceptable adhesive product, supplied by Glue Dots, into the
6 Pom Pom Wow. Glue Dots only recently discovered that Maya has been
7 exhibiting the Pom Pom Wow incorporating the Infringing Product, as supplied by
8 an alternative Chinese supplier, at various international trade shows, as well as
9 planning to exhibit the Pom Pom Wow at the upcoming ToyFair NY16 trade
10 show.

11 15. Glue Dots obtained a sample of the Infringing Product for inspection
12 and testing, and confirmed that it infringes one or more claims of the '016 and '670
13 Patents, including, without limitation, in the manner described in the claim chart
14 attached hereto as Exhibit C.

15 **FIRST CLAIM FOR RELIEF**
16 **('670 PATENT INFRINGEMENT)**

17 16. Glue Dots repeats and realleges the allegations contained in
18 paragraphs 1 through 15 above as if fully set forth herein.

19 17. At all relevant times, Maya and the public in general have had notice
20 of the '670 Patent because Glue Dots has consistently marked the packaging of its
21 products embodying the '670 Patent in accordance with 35 U.S.C. § 287.

22 18. Maya has infringed and is still infringing one or more claims of the
23 '670 Patent by importing, using, making, selling, or offering for sale the Infringing
24 Product, including as incorporated in the Pom Pom Wow.

25 19. As a result of the infringement of the '670 Patent by Maya, Glue Dots
26 has been and will continue to be irreparably injured unless Maya is enjoined by
27 the Court, for which injury Glue Dots has no adequate remedy at law.
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1 20. Glue Dots also has suffered and continues to suffer damages as a
2 result of Maya's infringement.

3 **SECOND CLAIM FOR RELIEF**
4 **('016 PATENT INFRINGEMENT)**

5 21. Glue Dots repeats and realleges the allegations contained in
6 paragraphs 1 through 20 above as if fully set forth herein.

7 22. At all relevant times, Maya and the public in general have had notice
8 of the '016 Patent because Glue Dots has consistently marked the packaging of its
9 products embodying the '016 Patent in accordance with 35 U.S.C. § 287.

10 23. Maya has infringed and is still infringing one or more claims of the
11 '016 Patent by importing, using, making, selling, or offering for sale the Infringing
12 Product, including as incorporated in the Pom Pom Wow.

13 24. As a result of that infringement of the '016 Patent by Maya, Glue
14 Dots has been and will continue to be irreparably injured unless Maya is enjoined
15 by the Court, for which injury Glue Dots has no adequate remedy at law.

16 25. Glue Dots also has suffered and will continue to suffer damages as a
17 result of Maya's infringement.

18 **PRAYER FOR RELIEF**

19 WHEREFORE, Glue Dots respectfully requests that the Court enter a judgment
20 against Maya as follows:

21 A. Adjudging that Maya has infringed each of United States Patent No.
22 6,686,016 and United States Patent No. 5,935,670;

23 B. Pursuant to 35 U.S.C. § 283, preliminarily and permanently enjoining
24 Maya and its officers, agents, servants, employees, attorneys, and all persons in
25 active concert or participation with any of them, from any further acts of
26 infringement of the '016 Patent and/or the '670 Patent;

27 C. Pursuant to 35 U.S.C. § 284, awarding Glue Dots any compensatory
28 damages, including increased damages, proven at trial and deemed appropriate by

1 the Court, but in no event less than a reasonable royalty for use of the '016 and
2 '670 Patents by Maya;

3 D. Awarding to Glue Dots its reasonable attorneys' fees incurred as a
4 result of this action, in accordance with applicable law, including 35 U.S.C. § 285;

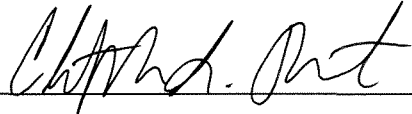
5 E. Awarding to Glue Dots the costs of this action, including expert
6 witness fees, in accordance with applicable law;

7 F. Awarding to Glue Dots pre-judgment and post-judgment interest on
8 any monetary award according to the maximum allowable legal rate; and

9 G. Awarding to Glue Dots any such further award or relief as the Court
10 deems just and proper.

11
12 Dated: February 9, 2016

MORRIS POLICH & PURDY LLP

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16 By: 

17 Christopher G. Foster
18 Attorneys for Plaintiff
19 GLUE DOTS INTERNATIONAL,
20 LLC.
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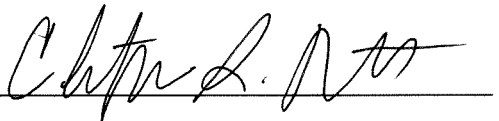
DEMAND FOR JURY TRIAL

Plaintiff, Glue Dots International, LLC, hereby demands a jury trial of all matters so triable as provided by Rule 38(a) of the Federal Rules of Civil Procedure.

Dated: February 9, 2016

MORRIS POLICH & PURDY LLP

By: _____



Christopher G. Foster
Attorneys for Plaintiff
GLUE DOTS INTERNATIONAL,
LLC.



US005935670A

United States Patent [19][11] **Patent Number:** **5,935,670****Downs**[45] **Date of Patent:** ***Aug. 10, 1999**[54] **THERMOPLASTIC ADHESIVE DISPENSING METHOD AND APPARATUS**[58] **Field of Search** 428/40.1, 41.5, 428/41.8, 42.1, 906; 206/411; 427/208[75] **Inventor:** **John P. Downs**, Lannon, Wis.[56] **References Cited**[73] **Assignee:** **All-Pak Sales, Inc.**, West Allis, Wis.

U.S. PATENT DOCUMENTS

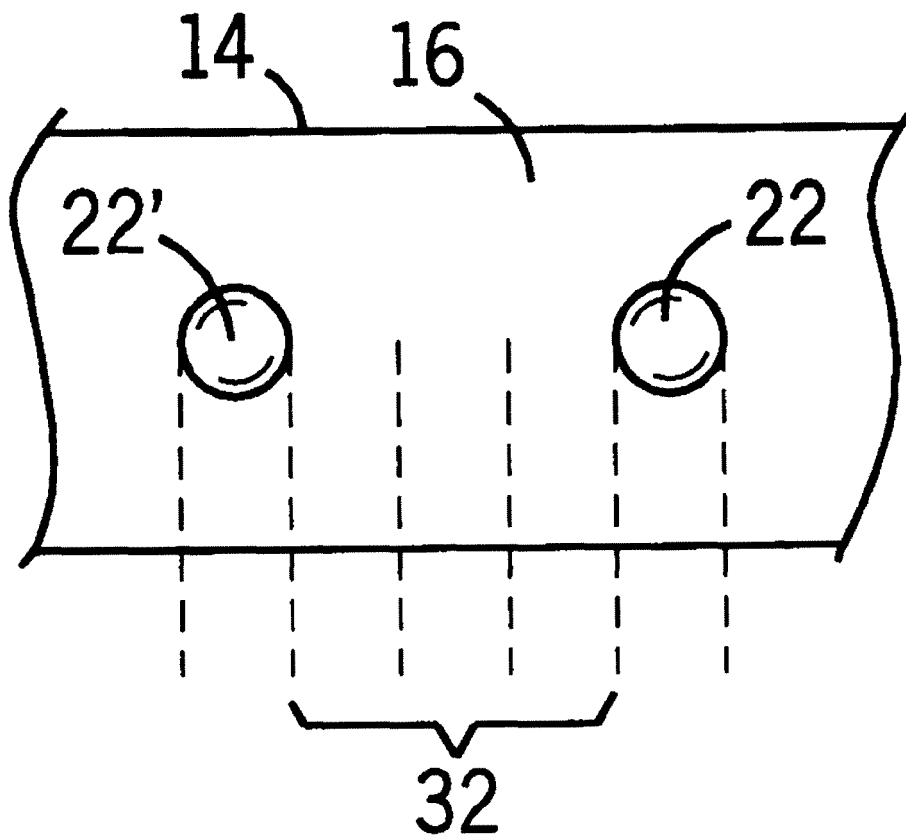
[*] **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

3,741,786 6/1973 Torrey 117/3.1

Primary Examiner—Nasser Ahmad
Attorney, Agent, or Firm—Quarles & Brady

[57] **ABSTRACT**

Hot melt thermoplastic adhesive is predeposited on a carrier strip having front and back release surfaces. The carrier strip is rolled into a coil compressing the thermoplastic hot melt into disks which may later be removed for use. The disks are spaced so that the carrier strip may be deformed to expose a single disk to a planar surface permitting simplified dispensing of the disks.

[21] **Appl. No.:** **08/909,189**[22] **Filed:** **Aug. 11, 1997****Related U.S. Application Data**[60] **Provisional application No.** 60/036,896, Feb. 6, 1997.[51] **Int. Cl.⁶** **A61F 13/02**[52] **U.S. Cl.** **428/40.1; 206/411; 428/41.5; 428/41.8; 428/42.1; 428/906****6 Claims, 2 Drawing Sheets**

U.S. Patent

Aug. 10, 1999

Sheet 1 of 2

5,935,670

FIG. 1

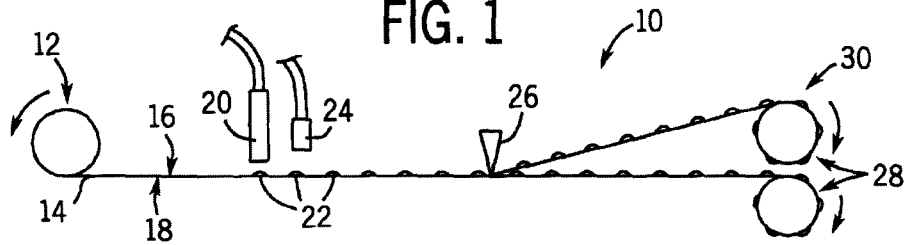


FIG. 2

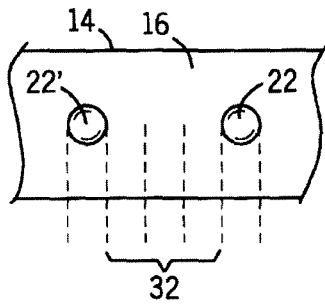


FIG. 3

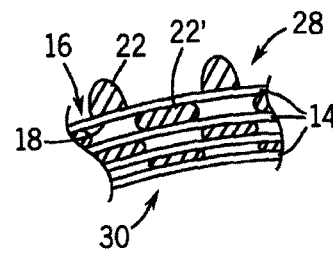


FIG. 5

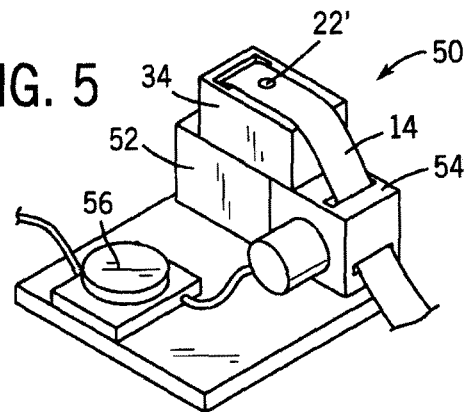
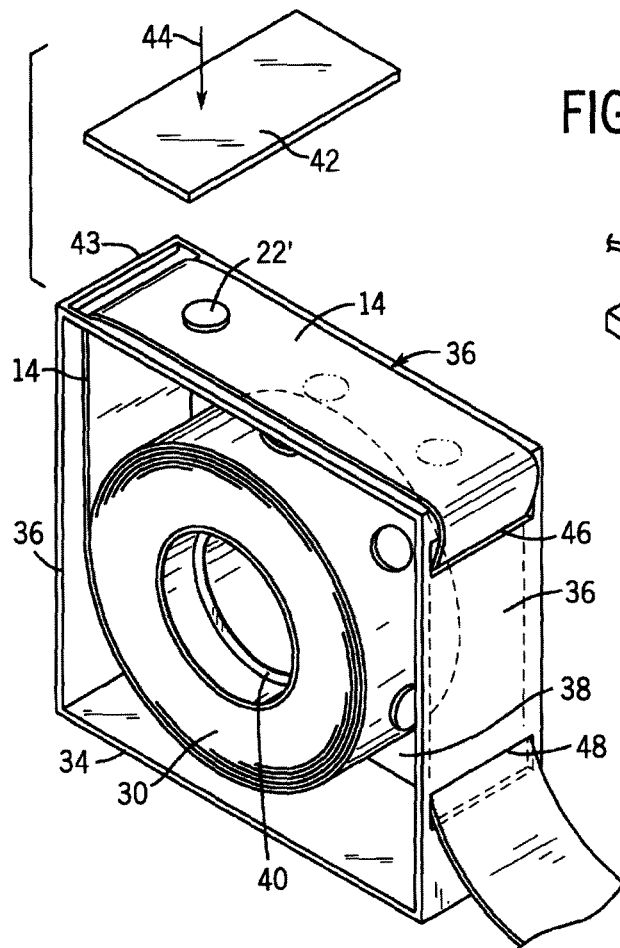


FIG. 4

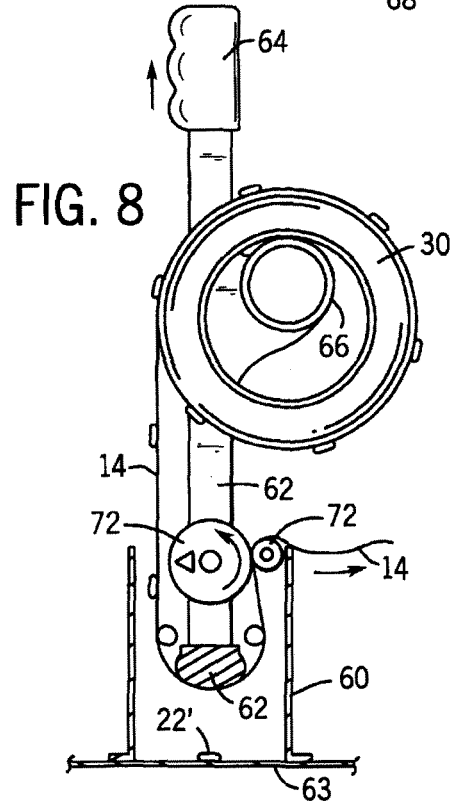
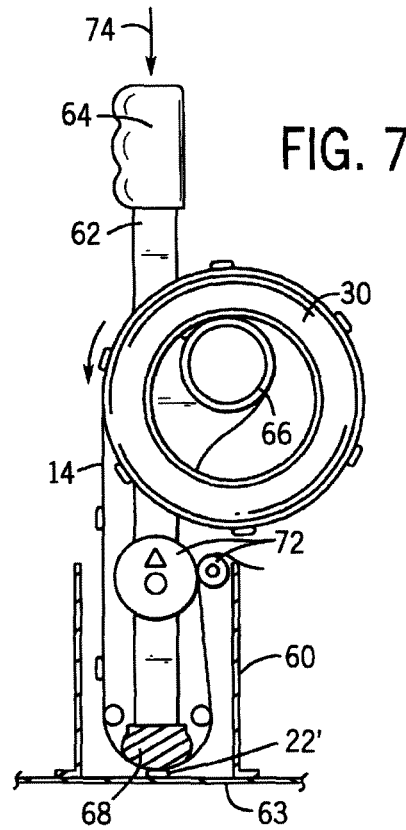
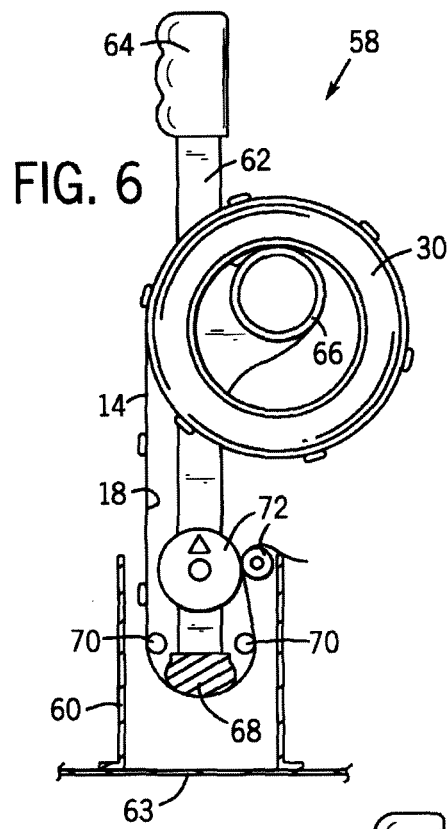


U.S. Patent

Aug. 10, 1999

Sheet 2 of 2

5,935,670



5,935,670

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THERMOPLASTIC ADHESIVE DISPENSING METHOD AND APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of provisional application 60/036,896 filed Feb. 6, 1997.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

BACKGROUND OF THE INVENTION

In the preparation of mass mailings, for example, it is often desired to attach a card, such as a credit card or the like, to a carrier document so that the former can be peeled easily from the carrier document for use by a consumer. One method of making such an attachment uses a pressure-sensitive, thermoplastic adhesive. During the printing or collating process, a portion of the thermoplastic adhesive is metered onto the carrier document and the card pressed against this material. The equipment for this process includes a heating container for the thermoplastic adhesive and a metering pump that may be electrically actuated.

Thermoplastic adhesive can be difficult to work with. Its high melting temperature and adhesive properties present some risk of burn to untrained operators. The price of the equipment for dispensing the thermoplastic adhesive and positioning and placing the attachments makes such equipment impractical for low volume mailings.

BRIEF SUMMARY OF THE INVENTION

The present invention provides a method and apparatus allowing thermoplastic pressure-sensitive adhesives to be used simply and safely by those who have low-volume requirements. In the present invention, pressure-sensitive thermoplastic adhesive is pre-metered onto a release strip which may be rolled into coil. The size and spacing of the metered dots of thermoplastic adhesive allows one dot to be exposed at a time across an anvil plate which may be used to press the dot against a card or the like. The carrier strip may be advanced between the pressing operation to bring a new dot into position.

The spacing of the dots along the strip provides simple methods of dispensing the dots including the use of a specially constructed cardboard dispenser box or the like or various automated metering systems and mechanisms to be described.

Specifically, the present invention provides a thermoplastic adhesive dispensing tape having a flexible carrier tape extending longitudinally and having a transverse width and having opposed first and second release surfaces. Thermoplastic adhesive dots are arrayed longitudinally along the first release surface so that the carrier tape may be curved about an axis to expose a single adhesive dot to an abutting planar surface.

Thus, it is one object of the invention to provide a simple means for dispensing thermal plastic adhesive dots without requiring the expense or hazard of molten thermoplastic adhesive.

The second release surface may adhere less strongly to the thermoplastic adhesive dot than does the first release surface.

Thus, it is another object of the invention to provide a thermoplastic adhesive dispensing tape that may be unwound from a coil with the thermoplastic adhesive dots being retained on the first release surface.

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The invention includes a method of manufacturing the thermoplastic adhesive dispensing tape by unrolling the flexible carrier strip from a first reel to expose the first release surface and dispensing molten thermoplastic adhesive at periodic intervals on the unrolled carrier strip. The carrier strip is then rerolled to compress the dispensed molten thermoplastic adhesive into flat disks.

Thus, it is another object of the invention to provide for adhesive disks that approximate the size and area that would be provided by an automatic dispensing equipment directly on the surfaces to be adhered together. The action of adjacent coils of the carrier strip mimics that of a card or other planar surface pressing against a molten portion of thermoplastic adhesives.

The rerolling of the flexible carrier strip may be delayed until the thermoplastic adhesive has skinned over.

Thus, it is yet another object of the invention to ensure that the thermoplastic adhesive dots are retained by the first release surface which receives the thermoplastic adhesive in a molten state prior to it skinning over and therefore adheres to it more strongly.

The step of dispensing molten thermoplastic adhesive may simultaneously dispense at least two separate portions of thermoplastic adhesive at transversely separated locations. The method may include the further step of longitudinally slitting the flexible carrier strip between separate portions of the thermoplastic adhesive prior to rerolling the flexible carrier strip.

Thus, it is another object of the invention to provide for a high throughput manufacture of adhesive dots with a single dispensing unit without jeopardizing the cooling of the dots as is necessary to allow them to skin over.

The invention also includes a dispensing apparatus for the thermoplastic adhesive dispensing tape, including a reel support, for holding the thermoplastic adhesive dispensing tape in coiled configuration, and a guide for receiving the carrier tape after adhesive dots have been removed. An anvil surface is positioned between the reel and the guide to receive the thermoplastic adhesive dispensing tape as unreel from the coil and deform the thermoplastic adhesive dispensing tape to expose a single adhesive dot to a planar surface.

Thus, it is another object of the invention to provide a rapid application technique for the thermoplastic adhesive dots on the tape of the present invention. The positioning of the dots so that a single dot may be exposed to a planar surface allows the dots to be readily applied to planar surfaces by a proper incrementing of the tape over a correctly sized anvil surface.

The foregoing and other objects and advantages of the invention will appear from the following description. In this description, reference is made to the accompanying drawings which form a part hereof and in which there is shown by way of illustration, a preferred embodiment of the invention. Such embodiment does not necessarily represent the full scope of the invention, however, and reference must be made therefore to the claims for interpreting the scope of the invention.

BRIEF SUMMARY OF THE DRAWINGS

FIG. 1 is a schematic view of a manufacturing system for the present invention showing the dispensing of thermoplastic pressure-sensitive dots onto a carrier strip and the winding of the strip into coils;

FIG. 2 is a plan view of a section of a strip of the present invention showing the ultimate spacing of the dots when flattened;

5,935,670

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FIG. 3 is a cross section through a coil of FIG. 1 showing the compression of the dots by adjacent coils of the release strip;

FIG. 4 is a perspective cut-away view of a container for dispensing the coils of FIG. 1 showing the spacing of the dots which permits a single dot to be exposed over an anvil surface for attachment to a card;

FIG. 5 is a perspective view of the container of FIG. 4 placed in an automatic tape advancing apparatus to pull the release strip a predetermined amount at the pressing of a palm button;

FIG. 6 is a simplified fragmentary cross section of a semi-automatic dispensing machine positioned for dispensing an adhesive dot on a carrier sheet prior to dispensing;

FIG. 7 is a view similar to that of FIG. 6 showing a downward activation of the apparatus of FIG. 6 advancing a dot from the carrier strip over a movable anvil surface to be pressed against the carrier sheet; and

FIG. 8 is a figure similar to that of FIGS. 6 and 7 showing the upward return of the apparatus after dispensing, the return causing a tensioning of the used carrier strip in preparation of a second stroke.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, an adhesive dot manufacturing machine 10 provides a back tensioned reel 12 holding a differential release carrier strip 14. The carrier strip 14 is a paper that has a silicon release material on opposed first and second surfaces 16 and 18 selectively applied so that surface 16 provides less release than surface 18.

The carrier strip 14 is dispensed from the tensioned reel 12 with surface 16 facing upward to move beneath a pair of thermoplastic glue metering nozzles 20 (only one of which is visible in FIG. 1) supplied by a metering pump not shown, to dispense side-by-side glue dots 22 onto surface 16 as surface 16 moves past nozzle 20. Air jet 24 directed on surface 16 then cools the glue dots 22 which are also cooled by natural convection as the carrier strip 14 moves along.

Aslitting knife 26 divides the carrier strip 14 into multiple strips, each of which are then wound into coils 30 on take-up reels 28 under controlled tensioning. Capstan and idler wheels may also be provided so that the tension on reels 28 may be controlled independently of the tension provided by reel 12.

Referring now to FIG. 3, the glue dots 22 are initially mounded high on the surface 16 of the carrier strip 14, but as they are wound about the reel 28, each glue dot 22' is compressed beneath surface 18 of the carrier strip 14 of the next succeeding layer of carrier strip 14 and the surface 18 of the layer of the carrier strip 14 on which it was deposited so as to flatten the glue dots 22' into circular disks.

The differential release properties of surfaces 16 and 18, the fact that the glue dots 22 were initially applied in a hot state to surface 16 causing better adherence, and the fact that there is some cooling and hence "skinning over" of the glue dots 22 prior to the winding on reel 28, all ensure that the glue dots 22 remain adhered to surfaces 16 as the coil 30 is unwound.

Referring now to FIG. 2, the spacing of the glue dots 22' after flattening on the carrier strip 14 is such that the glue dots 22' do not overlap in the dimension defined by the extent of carrier strip 14. This ensures that there is a margin 32 in that dimension such that an individual glue dot 22 may be exposed for adhering to a card or the like without the risk

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of the card picking up multiple glue dots 22. Dots 22 and 22' of a preferred embodiment may be separated by three times their diameter.

Referring now to FIG. 4, the coil 30 may be inserted within a dispensing container 34 having generally rectangular configuration with top, side, and bottom walls 36 and a spanning vertical wall 38. Vertical wall 38 includes a coil support hub 40 extending laterally into the volume of the container 34 from the vertical wall 38 about which the coil 30 may be positioned. As positioned, the coil 30 is free to rotate along a horizontal axis with the outer surfaces of the coil containing the glue dots 22' being removed from the inner surfaces of the walls 36.

A slot 43 at one end of the upper wall 36 allows a portion of the carrier strip 14 to be threaded from within the container 34 out of the slot 43 and across the upper wall 36 with the glue dots 22' exposed on the upper surface of the carrier strip 14. The upper wall 36 provides an anvil surface supporting the carrier strip 14 against pressure when a card 42 or the like is pressed down as indicated by arrow 44 against the upper surface of the carrier strip 14 to receive a glue dot 22'.

As a result of the earlier removal of the glue dots 22' on the carrier strip 14, only a single dot 22' will be exposed on the upper surface of the container 34 at a time simplifying this attachment process.

The portion of the carrier strip 14 previously having its dots 22' removed may be received within a slot 46 in a side wall 36 adjacent to the top wall 36 and then threaded out of a similar slot 48 positioned below slot 46 to permit sliding of the carrier strip 14 for the dispensing of additional dots 22 while preventing general looseness of the carrier strip 14 such as would promote unwinding of the coil 30 unintentionally.

Referring to FIG. 5, the container 34 may be used for manual dispensing or may be placed within an automatic dispensing system 50. Such a system includes a rigid container sleeve 52, holding the lower portion of the container 34, and a motor drive unit 54 receiving the carrier strip 14 after dots have been removed and incrementing the tape by a predetermined amount with a pressing of a palm sized push button 56. With each pressing of the button 56, the motor drive unit 54 increments the carrier strip 14 by the interdot spacing so as to expose a single dot 22' at the top of the container 34.

Referring now to FIG. 6 in an alternative dispensing method, the coil 30 may be carried on a semi-automatic affixing tool 58. A foot portion 60 of the tool 58 is placed at the top of a carrier sheet 63 where an adhesive dot will be placed. A plunger assembly 62 attached to slide up and down with respect to the foot portion 60 and biased upward with helical tension springs (not shown) so as to normally be held away from the carrier sheet 63 prior to the dispensing action. Plunger assembly 62 has a handle 64 exposed above the coil 30 and connected to a hanger 66 holding the coil for rotation about hanger 66. A lower portion of the plunger assembly 62 includes a convex elastomeric anvil surface 68 flanked by rollers 70. The rollers 70 guide the carrier strip 14 downward across the lower surface of the anvil 68 which contacts the inner surface 18 of the carrier strip and up between pinch rollers 72 which grasp the portion of the carrier strip 14 after dots have been removed.

Referring now to FIG. 7, the handle 64 may be grasped and pressed downward toward the carrier sheet 63 as indicated by arrow 74. The pinch rollers 72 are mounted to be fixed in height with respect to the foot portion 60 and to

5,935,670

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rotate only in a manner that would pull tape from the coil 30. Hence, with downward motion of the plunger assembly 62, the anvil 68 moves towards the carrier sheet 63 simultaneously causing the unwinding of carrier strip 14 from the coil 30 such that at the moment the anvil 68 strikes the carrier sheet 63, a glue dot 22' is positioned immediately beneath the anvil 68 to be attached to the carrier sheet 63.

Referring now to FIG. 8, the handle 64 may be pulled upward aided by the springs (not shown) between the foot portions 60 and the plunger assembly 62, at which time a ratchet lever (not shown) interconnecting the plunger assembly 62 and the foot portion 60 causes a partial rotation of the pinch rollers 72 in response to the movement of the plunger assembly 62 with respect to the foot portion 60. This rotation of the pinch rollers 72 advances the carrier strip 14 to remove slack and cause it to remain abutted to the anvil 68 in preparation for a new actuation sequence.

Thus the tape of the present invention provides a simple method for dispensing dots of glue for joining materials together without the need for complex equipment or exposure to heated thermoplastic materials.

The above description has been that of a preferred embodiment of the present invention. It will occur to those that practice the art that many modifications may be made without departing from the spirit and scope of the invention. For example, a separate release strip may be wound into the coils of the dots to avoid the need for a carrier strip having opposed release surfaces. Glue dots having shapes other than disks may be produced by the appropriate dispensing nozzles. In order to apprise the public of the various embodiments that may fall within the scope of the invention, the following claims are made.

I claim:

1. A thermoplastic adhesive dispensing tape consisting of: a flexible carrier tape extending longitudinally, having a transverse width, and having opposed first and second release surfaces; and

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a plurality of thermoplastic hot melt, adhesive dots arrayed longitudinally along the first release surface, each separated from other dots by a gap extending transversely across the entire carrier tape;

wherein the thermoplastic adhesive dots are arranged in only a single line transversely centered on the release surface;

whereby the carrier tape may be transversely flexed to expose a single adhesive dot to an abutting planar surface;

wherein the adhesive dots are substantially identical.

2. The thermoplastic adhesive dispensing tape of claim 1 wherein:

the thermoplastic adhesive dots have a diameter measured along the first release surface and are separated in the longitudinal direction by a margin at least equal to the diameter.

3. The thermoplastic adhesive dispensing tape of claim 1 wherein:

the second release surface adheres less strongly to the thermoplastic adhesive dot than does the first release surface;

whereby the thermoplastic adhesive dispensing tape may be unwound from a coil with the thermoplastic adhesive dots being retained on the first release surface.

4. The thermoplastic adhesive dispensing tape of claim 1 wherein the adhesive dots have a height substantially less than their diameter.

5. The thermoplastic adhesive dispensing tape of claim 1 wherein the adhesive dots are circular disks.

6. The thermoplastic adhesive dispensing tape of claim 2 wherein the margin is at least three times the diameter of the circular disks.

* * * * *



US006686016B2

(12) **United States Patent
Downs**

(10) **Patent No.:** **US 6,686,016 B2**
(45) **Date of Patent:** ***Feb. 3, 2004**

(54) **THERMOPLASTIC ADHESIVE DISPENSING
METHOD AND APPARATUS**

(75) **Inventor:** **John P. Downs**, Colgate, WI (US)

(73) **Assignee:** **Glue Dots International, LLC**, New
Berlin, WI (US)

(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-
claimer.

(21) **Appl. No.:** **10/125,012**

(22) **Filed:** **Apr. 18, 2002**

(65) **Prior Publication Data**

US 2002/0122911 A1 Sep. 5, 2002

Related U.S. Application Data

(63) Continuation of application No. 09/998,950, filed on Nov.
15, 2001, now Pat. No. 6,640,864, which is a continuation
of application No. 09/363,200, filed on Jul. 29, 1999, now
Pat. No. 6,319,442, which is a continuation-in-part of appli-
cation No. 08/909,189, filed on Aug. 11, 1997, now Pat. No.
5,935,670.

(60) Provisional application No. 60/036,896, filed on Feb. 6,
1997.

(51) **Int. Cl.**⁷ **B32B 3/16**

(52) **U.S. Cl.** **428/42.2**; 206/411; 427/208;
428/40.1; 428/41.5; 428/41.8; 428/42.1;
428/906

(58) **Field of Search** 428/40.1, 41.3,
428/41.8, 42.1, 906, 42.2; 206/411; 427/208

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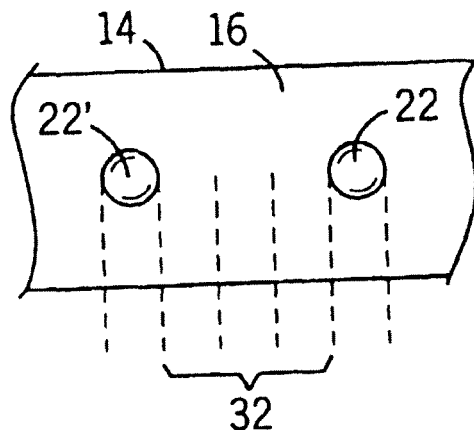
Primary Examiner—Nasser Ahmad

(74) *Attorney, Agent, or Firm*—Reinhart Boerner Van
Deuren s.c.

(57) **ABSTRACT**

Hot melt thermoplastic adhesive is predeposited on a carrier strip having front and back release surfaces. The carrier strip is rolled into a coil compressing the thermoplastic hot melt into disks which may later be removed for use. The disks are spaced so that the carrier strip may be deformed to expose a single disk to a planar surface permitting simplified dispensing of the disks.

42 Claims, 2 Drawing Sheets

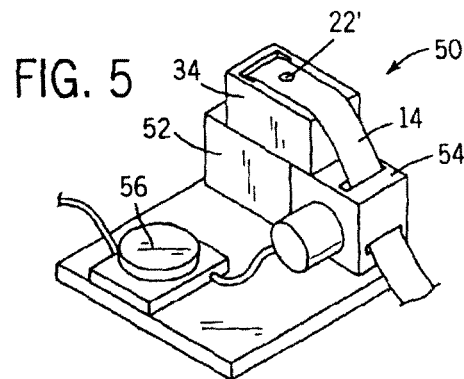
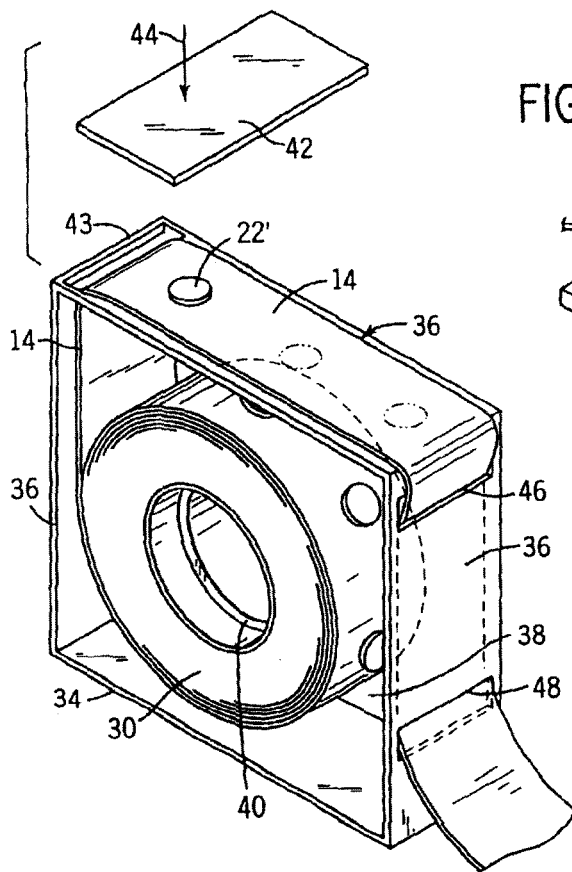
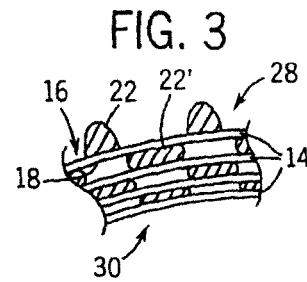
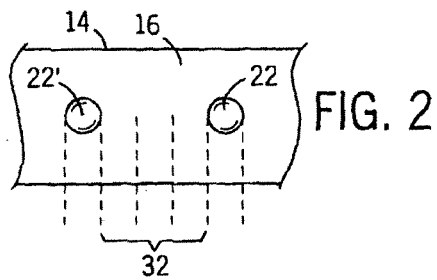
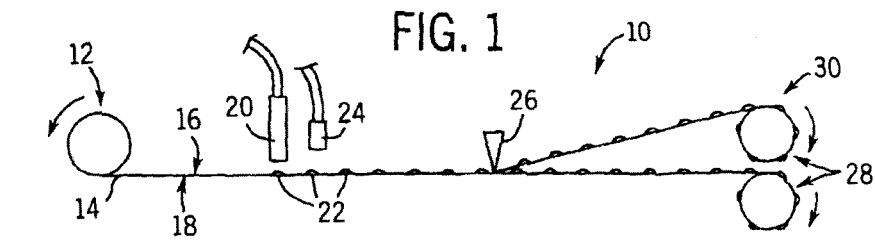


U.S. Patent

Feb. 3, 2004

Sheet 1 of 2

US 6,686,016 B2

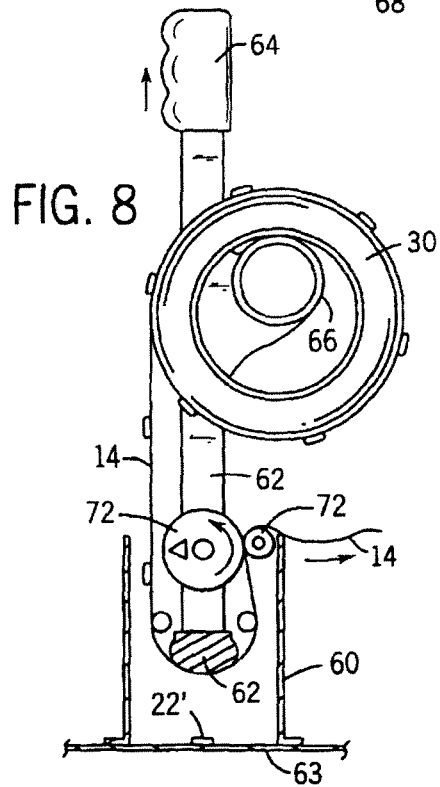
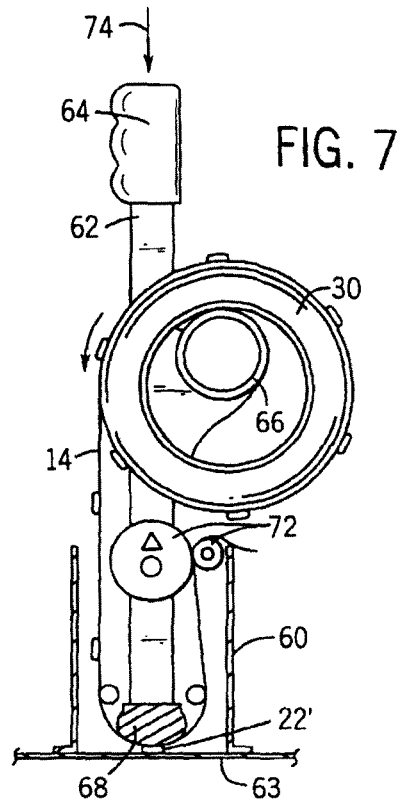
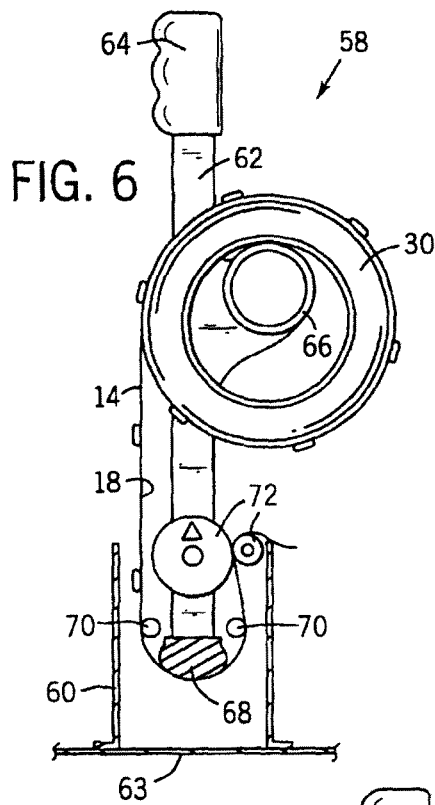


U.S. Patent

Feb. 3, 2004

Sheet 2 of 2

US 6,686,016 B2



US 6,686,016 B2

1

**THERMOPLASTIC ADHESIVE DISPENSING
METHOD AND APPARATUS****IDENTIFICATION OF RELATED
APPLICATIONS**

This patent application is a continuation of U.S. patent application Ser. No. 09/998,950, filed on Nov. 15, 2001, now U.S. Pat. No. 6,640,864, entitled "Thermoplastic Adhesive Dispensing Method and Apparatus," which is a continuation of U.S. patent application Ser. No. 09/363,200, filed on Jul. 29, 1999, now U.S. Pat. No. 6,319,442, entitled Process of Making a Thermoplastic Adhesive Dispensing Tape, which is in turn a continuation-in-part of U.S. patent application Ser. No. 08/909,189, filed on Aug. 11, 1997, now U.S. Pat. No. 5,935,670, entitled "Thermoplastic Adhesive Dispensing Method and Apparatus," which is in turn based upon U.S. Provisional Patent Application No. 60/036,896, filed on Feb. 6, 1997, all of which are assigned to the assignee of the present invention.

BACKGROUND OF THE INVENTION

In the preparation of mass mailings, for example, it is often desired to attach a card, such as a credit card or the like, to a carrier document so that the former can be peeled easily from the carrier document for use by a consumer. One method of making such an attachment uses a pressure-sensitive, thermoplastic adhesive. During the printing or collating process, a portion of the thermoplastic adhesive is metered onto the carrier document and the card pressed against this material. The equipment for this process includes a heating container for the thermoplastic adhesive and a metering pump that may be electrically actuated.

Thermoplastic adhesive can be difficult to work with. Its high melting temperature and adhesive properties present some risk of burn to untrained operators. The price of the equipment for dispensing the thermoplastic adhesive and positioning and placing the attachments makes such equipment impractical for low volume mailings.

SUMMARY OF THE INVENTION

The present invention provides a method and apparatus allowing thermoplastic pressure-sensitive adhesives to be used simply and safely by those who have low-volume requirements. In the present invention, pressure-sensitive thermoplastic adhesive is pre-metered onto a release strip which may be rolled into coil. The size and spacing of the metered dots of thermoplastic adhesive allows one dot to be exposed at a time across an anvil plate which may be used to press the dot against a card or the like. The carrier strip may be advanced between the pressing operation to bring a new dot into position.

The spacing of the dots along the strip provides simple methods of dispensing the dots including the use of a specially constructed cardboard dispenser box or the like or various automated metering systems and mechanisms to be described.

Specifically, the present invention provides a thermoplastic adhesive dispensing tape having a flexible carrier tape extending longitudinally and having a transverse width and having opposed first and second release surfaces. Thermoplastic adhesive dots are arrayed longitudinally along the first release surface so that the carrier tape may be curved about an axis to expose a single adhesive dot to an abutting planar surface.

Thus, it is one object of the invention to provide a simple means for dispensing thermal plastic adhesive dots without requiring the expense or hazard of molten thermoplastic adhesive.

2

The second release surface may adhere less strongly to the thermoplastic adhesive dot than does the first release surface.

Thus, it is another object of the invention to provide a thermoplastic adhesive dispensing tape that may be unwound from a coil with the thermoplastic dots being retained on the first release surface.

The invention includes a method of manufacturing the thermoplastic adhesive dispensing tape by unrolling the flexible carrier strip from a first reel to expose the first release surface and dispensing molten thermoplastic adhesive at periodic intervals on the unrolled carrier strip. The carrier strip is then rerolled to compress the dispensed molten thermoplastic adhesive into flat disks.

Thus, it is another object of the invention to provide for adhesive disks that approximate the size and area that would be provided by an automatic dispensing equipment directly on the surfaces to be adhered together. The action of adjacent coils of the carrier strip mimics that of a card or other planar surface pressing against a molten portion of thermoplastic adhesives.

The rerolling of the flexible carrier strip may be delayed until the thermoplastic adhesive has skinned over.

Thus, it is yet another object of the invention to ensure that the thermoplastic adhesive dots are retained by the first release surface which receives the thermoplastic adhesive in a molten state prior to it skinning over and therefore adheres to it more strongly.

The step of dispensing molten thermoplastic adhesive may simultaneously dispense at least two separate portions of thermoplastic adhesive at transversely separated locations. The method may include the further step of longitudinally slitting the flexible carrier strip between separate portions of the thermoplastic adhesive prior to rerolling the flexible carrier strip.

Thus, it is another object of the invention to provide for a high throughput manufacture of dots with a single dispensing unit without jeopardizing the cooling of the dots as is necessary to allow them to skin over.

The invention also includes a dispensing apparatus for the thermoplastic adhesive dispensing tape, including a reel support, for holding the thermoplastic adhesive dispensing tape in coiled configuration, and a guide for receiving the carrier tape after adhesive dots have been removed. An anvil surface is positioned between the reel and the guide to receive the thermoplastic adhesive dispensing tape as unreel from the coil and deform the thermoplastic adhesive dispensing tape to expose a single adhesive dot to a planar surface.

Thus, it is another object of the invention to provide a rapid application technique for the thermoplastic adhesive dots on the tape of the present invention. The positioning of the dots so that a single dot may be exposed to a planar surface allows the dots to be readily applied to planar surfaces by a proper incrementing of the tape over a correctly sized anvil surface.

The foregoing and other objects and advantages of the invention will appear from the following description. In this description, reference is made to the accompanying drawings which form a part hereof and in which there is shown by way of illustration, a preferred embodiment of the invention. Such embodiment does not necessarily represent the full scope of the invention, however, and reference must be made therefore to the claims for interpreting the scope of the invention.

US 6,686,016 B2

3

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic view of a manufacturing system for the present invention showing the dispensing of thermoplastic pressure-sensitive dots onto a carrier strip and the winding of the strip into coils;

FIG. 2 is a plan view of a section of a strip of the present invention showing the ultimate spacing of the dots when flattened;

FIG. 3 is a cross section through a coil of FIG. 1 showing the compression of the dots by adjacent coils of the release strip;

FIG. 4 is a perspective cut-away view of a container for dispensing the coils of FIG. 1 showing the spacing of the dots which permits a single dot to be exposed over an anvil surface for attachment to a card;

FIG. 5 is a perspective view of the container of FIG. 4 placed in an automatic tape advancing apparatus to pull the release strip a predetermined amount at the pressing of a palm button;

FIG. 6 is a simplified fragmentary cross section of a semi-automatic dispensing machine positioned for dispensing an adhesive dot on a carrier sheet prior to dispensing;

FIG. 7 is a view similar to that of FIG. 6 showing a downward activation of the apparatus of FIG. 6 advancing a dot from the carrier strip over a movable anvil surface to be pressed against the carrier sheet; and

FIG. 8 is a figure similar to that of FIGS. 6 and 7 showing the upward return of the apparatus after dispensing, the return causing a tensioning of the used carrier strip in preparation of a second stroke.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, an adhesive dot manufacturing machine 10 provides a back tensioned reel 12 holding a differential release carrier strip 14. The carrier strip 14 is a paper that has a silicon release material on opposed first and second surfaces 16 and 18 selectively applied so that surface 16 provides less release than surface 18.

The carrier strip 14 is dispensed from the tensioned reel 12 with surface 16 facing upward to move beneath a pair of thermoplastic glue metering nozzles 20 (only one of which is visible in FIG. 1) supplied by a metering pump not shown, to dispense side-by-side glue dots 22 onto surface 16 as surface 16 moves past nozzle 20. Air jet 24 directed on surface 16 then cools the glue dots 22 which are also cooled by natural convection as the carrier strip 14 moves along.

Aslitting knife 26 divides the carrier strip 14 into multiple strips, each of which are then wound into coils 30 on take-up reels 28 under controlled tensioning. Capstan and idler wheels may also be provided so that the tension on reels 28 may be controlled independently of the tension provided by reel 12.

Referring now to FIG. 3, the glue dots 22 are initially mounded high on the surface 16 of the carrier strip 14, but as they are wound about the reel 28, each glue dot 22' is compressed beneath surface 18 of the carrier strip 14 of the next succeeding layer of carrier strip 14 and the surface 18 of the layer of the carrier strip 14 on which it was deposited so as to flatten the glue dots 22' into circular disks.

The differential release properties of surfaces 16 and 18, the fact that the glue dots 22 were initially applied in a hot state to surface 16 better adherence, and the fact that there is some cooling and hence "skinning over" of the glue dots

4

22 prior to the winding on reel 28, all ensure that the glue dots 22 remain adhered to surfaces 16 as the coil 30 is unwound.

Referring now to FIG. 2, the spacing of the glue dots 22' after flattening on the carrier strip 14 is such that the glue dots 22' do not overlap in the dimension defined by the extent of carrier strip 14. This ensures that there is a margin 32 in that dimension such that an individual glue dot 22 may be exposed for adhering to a card or the like without the risk of the card picking up multiple glue dots 22. Dots 22 and 22' of a preferred embodiment may be separated by three times their diameter.

Referring now to FIG. 4, the coil 30 may be inserted within a dispensing container 34 having generally rectangular configuration with top, side, and bottom walls 36 and a spanning vertical wall 38. Vertical wall 38 includes a coil support hub 40 extending laterally into the volume of the container 34 from the vertical wall 38 about which the coil 30 may be positioned. As positioned, the coil 30 is free to rotate along a horizontal axis with the outer surfaces of the coil containing the glue dots 22' being removed from the inner surfaces of the walls 36.

A slot 43 at one end of the upper wall 36 allows a portion of the carrier strip 14 to be threaded from within the container 34 out of the slot 43 and across the upper wall 36 with the glue dots 22' exposed on the upper surface of the carrier strip 14. The upper wall 36 provides an anvil surface supporting the carrier strip 14 against pressure when a card 42 or the like is pressed down as indicated by arrow 44 against the upper surface of the carrier strip 14 to receive a glue dot 22'.

As a result of the earlier removal of the glue dots 22' on the carrier strip 14, only a single dot 22' will be exposed on the upper surface of the container 34 at a time simplifying this attachment process.

The portion of the carrier strip 14 previously having its dots 22' removed may be received within a slot 46 in a side wall 36 adjacent to the top wall 36 and then threaded out of a similar slot 48 positioned below slot 46 to permit sliding of the carrier strip 14 for the dispensing of additional dots 22 while preventing general looseness of the carrier strip 14 such as would promote unwinding of the coil 30 unintentionally.

Referring to FIG. 5, the container 34 may be used for manual dispensing or may be placed within an automatic dispensing system 50. Such a system includes a rigid container sleeve 52, holding the lower portion of the container 34, and a motor drive unit 54 receiving the carrier strip 14 after dots have been removed and incrementing the tape by a predetermined amount with a pressing of a palm sized push button 56. With each pressing of the button 56, the motor drive unit 54 increments the carrier strip 14 by the interdot spacing so as to expose a single dot 22' at the top of the container 34.

Referring now to FIG. 6 in an alternative dispensing method, the coil 30 may be carried on a semi-automatic affixing tool 58. A foot portion 60 of the tool 58 is placed at the top of a carrier sheet 63 where an adhesive dot will be placed. A plunger assembly 62 attached to slide up and down with respect to the foot portion 60 and biased upward with helical tension springs (not shown) so as to normally be held away from the carrier sheet 63 prior to the dispensing action. Plunger assembly 62 has a handle 64 exposed above the coil 30 and connected to a hanger 66 holding coil for rotation about hanger 66. A lower portion of the plunger assembly 62 includes a convex elastomeric anvil surface 68 flanked by

US 6,686,016 B2

5

rollers 70. The rollers 70 guide the carrier strip 14 downward across the lower surface of the anvil 68 which contacts the inner surface 18 of the carrier strip and up between pinch rollers 72 which grasp the portion of the carrier strip 14 after dots have been removed.

Referring now to FIG. 7, the handle 64 may be grasped and pressed downward toward the carrier sheet 63 as indicated by arrow 74. The pinch rollers 72 are mounted to be fixed in height with respect to the foot portion 60 and to rotate only in a manner that would pull tape from the coil 30. Hence, with downward motion of the plunger assembly 62, the anvil 68 moves towards the carrier sheet 63 simultaneously causing the unwinding of carrier strip 14 from the coil 30 such that at the moment the anvil 68 strikes the carrier sheet 63, a glue dot 22' is positioned immediately beneath the anvil 68 to be attached to the carrier sheet 63.

Referring now to FIG. 8, the handle 64 may be pulled upward aided by the springs (not shown) between the foot portions 60 and the plunger assembly 62, at which time a ratchet lever (not shown) interconnecting the plunger assembly 62 and the foot portion 60 causes a partial rotation of the pinch rollers 72 in response to the movement of the plunger assembly 62 with respect to the foot portion 60. This rotation of the pinch rollers 72 advances the carrier strip 14 to remove slack and cause it to remain abutted to the anvil 68 in preparation for a new actuation sequence.

Thus the tape of the present invention provides a simple method for dispensing dots of glue for joining materials together without the need for equipment or exposure to heated thermoplastic materials.

The above description has been that of a preferred embodiment of the present invention. It will occur to those that practice the art that many modifications may be made without departing from the spirit and scope of the invention. For example, a separate release strip may be wound into the coils of the dots to avoid the need for a carrier strip having opposed release surfaces. Glue dots having shapes other than disks may be produced by the appropriate dispensing nozzles. In order to apprise the public of the various embodiments that may fall within the scope of the invention, the following claims are made.

What is claimed is:

1. A thermoplastic adhesive dispensing tape comprising:
 - a flexible carrier tape having a transverse width and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire longitudinal length of said carrier tape, each of said longitudinal segments extending the entire transverse width of said flexible carrier tape, said flexible carrier tape also having opposed first and second release surfaces; and
 - a plurality of thermoplastic hot melt adhesive segments arrayed non-contiguously on said first release surface of said carrier tape along the longitudinal length of said carrier tape;
 - wherein only a single one of said adhesive segments is disposed within each of said longitudinal segments on said first release surface of said carrier tape; and
 - wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.
2. The thermoplastic adhesive dispensing tape as defined in claim 1, wherein said thermoplastic adhesive segments adhere less strongly to said second release surface than they do to said first release surface, whereby said carrier tape may be unwound from a coil with said thermoplastic adhesive segments being retained on said first release surface.

6

3. A thermoplastic adhesive dispensing tape as defined in claim 1, wherein each of said adhesive segments are disposed at a point that is centered along said transverse width of said first release surface of said carrier tape, wherein said adhesive segments form a single line in the longitudinal direction along said carrier tape.

4. A thermoplastic adhesive dispensing tape as defined in claim 1, wherein said adhesive segments are disk-shaped.

5. The thermoplastic adhesive dispensing tape as defined in claim 4, wherein said disk-shaped adhesive segments have a diameter measured along said first release surface and are separated in the longitudinal direction by a distance at least equal to their diameter.

6. The thermoplastic adhesive dispensing tape as defined in claim 4, wherein said disk-shaped adhesive segments have a diameter and are separated in the longitudinal direction by a margin at least three times the diameter of the disk-shaped adhesive segments.

7. A thermoplastic adhesive dispensing tape comprising:

a flexible carrier tape, said carrier tape having a transverse width defined by first and second edges and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire longitudinal length of said carrier tape, each of said longitudinal segments extending from said first edge to said second edge of said transverse width of said carrier tape, said flexible carrier tape also having opposed first and second release surfaces; and

a plurality of thermoplastic hot melt adhesive segments non-contiguously arrayed on said first release surface of said carrier tape along the longitudinal length of said carrier tape;

wherein only a single one of said adhesive segments is arrayed within each of said longitudinal segments on said first release surface of said carrier tape;

wherein said thermoplastic adhesive segments adhere less strongly to said second release surface than they do to said first release surface, wherein said carrier tape may be unwound from a coil with said thermoplastic adhesive segments being retained on said first release surface; and

wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

8. The thermoplastic adhesive dispensing tape as defined in claim 7, wherein said thermoplastic adhesive segments are each disks having a generally circular configuration.

9. The thermoplastic adhesive dispensing tape as defined in claim 8, wherein said thermoplastic adhesive segments have a diameter and are separated in the longitudinal direction by a distance at least equal to their diameter.

10. A thermoplastic adhesive dispensing tape comprising:

a flexible carrier tape, said carrier tape having a transverse width defined by first and second edges and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire length of said carrier tape, each of said longitudinal segments extending from the first edge to the second edge of the transverse width, said carrier tape also having opposed first and second release surfaces; and

a plurality of thermoplastic hot melt adhesive disks, each of said adhesive disks being non-contiguously located on said first release surface along the longitudinal length of said carrier tape between said first and said second edges of said transverse width;

wherein only a single one of said adhesive disks is disposed within each of said longitudinal segments on the first release surface of said carrier tape; and

US 6,686,016 B2

7

wherein each of said adhesive disks is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

11. The thermoplastic adhesive dispensing tape as defined in claim 10 wherein:

said thermoplastic adhesive disks adhere less strongly to said second release surface than they do to said first release surface;

whereby said carrier tape may be unwound from a coil with said thermoplastic adhesive disks being retained on said first release surface.

12. A thermoplastic adhesive dispensing tape as defined in claim 10, wherein each of said adhesive disks is transversely centered between said first and second edges of said transverse width on said first release surface of said carrier tape, wherein said adhesive disks form a single line in the longitudinal direction along said carrier tape.

13. A thermoplastic adhesive dispensing tape as defined in claim 10, wherein each of said adhesive disks is non-contiguously placed on said first release surface along said transverse width, wherein said adhesive disks alternate between a first position nearer said first edge of said transverse width than said second edge of said transverse width and a second position near said second edge of said transverse width than said first edges of said transverse width, said plurality of adhesive disks extending non-contiguously in the longitudinal direction along said first release surface of said carrier tape.

14. A thermoplastic adhesive dispensing tape as defined in claim 10, wherein said adhesive disks are circular in configuration.

15. The thermoplastic adhesive dispensing tape as defined in claim 14, wherein said adhesive disks have a diameter measured along said first release surface and are separated in the longitudinal direction by a margin at least equal to the diameter.

16. The thermoplastic adhesive dispensing tape as defined in claim 15, wherein said adhesive disks have a diameter measured along said first release surface and are separated in the longitudinal direction by a margin at least three times the diameter of the circular disks.

17. A thermoplastic adhesive dispensing tape, comprising:

a flexible carrier tape, said carrier tape having a transverse width and a longitudinal length including a plurality of longitudinal segments extending along the entire length of said carrier tape, each of said longitudinal segments extending the entire transverse width of said carrier tape, said carrier tape also having opposed first and second release surfaces, said second release surface of said flexible carrier tape tending to adhere less strongly to thermoplastic adhesive material than does said first release surface of said flexible carrier tape; and

a plurality of thermoplastic hot melt adhesive segments arrayed non-contiguously on said first release surface of said flexible carrier tape along the longitudinal length of said carrier tape; wherein each of said adhesive segments is disposed within one of said longitudinal segments on said first release surface of said flexible carrier tape which is longitudinally spaced apart from other every other adhesive segment on said first release surface of said flexible carrier tape; and wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

18. A thermoplastic adhesive dispensing tape as defined in claim 17, wherein said adhesive segments are each disposed

8

on said flexible carrier tape at one of at least two transversely separated locations.

19. A thermoplastic adhesive dispensing tape, comprising: a flexible carrier tape, said carrier tape having a transverse width and a longitudinal length including a plurality of longitudinal segments extending along the entire length of said carrier tape, each of said longitudinal segments extending the entire transverse width of said carrier tape, said carrier tape also having opposed first and second release surfaces; and

a plurality of thermoplastic hot melt adhesive segments arrayed non-contiguously on said first release surface of said flexible carrier tape along the longitudinal length of said carrier tape;

wherein only a single one of said adhesive segments is disposed within each of said longitudinal segments on said first release surface of said carrier tape with longitudinally consecutive ones of said adhesive segments being spaced apart at uniform intervals;

wherein each of said adhesive segments are disposed on said flexible carrier tape within one of said longitudinal segments at one of at least two transversely separated locations; and

wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

20. A thermoplastic adhesive dispensing tape as defined in claim 19, wherein said second release surface of said flexible carrier tape tends to adhere less strongly to thermoplastic adhesive material than does said first release surface of said flexible carrier tape.

21. A thermoplastic adhesive dispensing tape as defined in claim 19, wherein said flexible carrier tape is longitudinally slit into at least two separate portions each having adhesive segments thereupon.

22. A thermoplastic adhesive dispensing tape comprising:

a flexible carrier tape having a transverse width and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire longitudinal length of said carrier tape, each of said longitudinal segments extending the entire transverse width of said flexible carrier tape, said flexible carrier tape also having opposed first and second release surfaces; and

a plurality of pressure-sensitive adhesive segments arrayed non-contiguously on said first release surface of said carrier tape along the longitudinal length of said carrier tape;

wherein only a single one of said adhesive segments is disposed within each of said longitudinal segments on said first release surface of said carrier tape; and wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

23. The thermoplastic adhesive dispensing tape as defined in claim 22, wherein said adhesive segments adhere less strongly to said second release surface than they do to said first release surface, whereby said carrier tape may be unwound from a coil with said adhesive segments being retained on said first release surface.

24. A thermoplastic adhesive dispensing tape as defined in claim 22, wherein each of said adhesive segments are disposed at a point that is centered along said transverse width of said first release surface of said carrier tape, wherein said adhesive segments form a single line in the longitudinal direction along said carrier tape.

25. A thermoplastic adhesive dispensing tape as defined in claim 22, wherein said adhesive segments are disk-shaped.

US 6,686,016 B2

9

26. The thermoplastic adhesive dispensing tape as defined in claim 25, wherein said disk-shaped adhesive segments have a diameter measured along said first release surface and are separated in the longitudinal direction by a distance at least equal to their diameter.

27. The thermoplastic adhesive dispensing tape as defined in claim 25, wherein said disk-shaped adhesive segments have a diameter and are separated in the longitudinal direction by a margin at least three times the diameter of the disk-shaped adhesive segments.

28. A thermoplastic adhesive dispensing tape comprising:
a flexible carrier tape, said carrier tape having a transverse width defined by first and second edges and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire longitudinal length of said carrier tape, each of said longitudinal segments extending from said first edge to said second edge of said transverse width of said carrier tape, said flexible carrier tape also having opposed first and second release surfaces; and

a plurality of pressure-sensitive adhesive segments non-contiguously arrayed on said first release surface of said carrier tape along the longitudinal length of said carrier tape;

wherein only a single one of said adhesive segments is arrayed within each of said longitudinal segments on said first release surface of said carrier tape;

wherein said adhesive segments adhere less strongly to said second release surface than they do to said first release surface, wherein said carrier tape may be unwound from a coil with said thermoplastic adhesive segments being retained on said first release surface; and

wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

29. The thermoplastic adhesive dispensing tape as defined in claim 28, wherein said adhesive segments are each disks having a generally circular configuration.

30. The thermoplastic adhesive dispensing tape as defined in claim 29, wherein said adhesive segments have a diameter and are separated in the longitudinal direction by a distance at least equal to their diameter.

31. A thermoplastic adhesive dispensing tape comprising:
a flexible carrier tape, said carrier tape having a transverse width defined by first and second edges and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire length of said carrier tape, each of said longitudinal segments extending from the first edge to the second edge of the transverse width, said carrier tape also having opposed first and second release surfaces; and

a plurality of pressure-sensitive adhesive disks, each of said adhesive disks being non-contiguously located on said first release surface along the longitudinal length of said carrier tape between said first and said second edges of said transverse width;

wherein only a single one of said adhesive disks is disposed within each of said longitudinal segments on the first release surface of said carrier tape; and wherein each of said adhesive disks is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

32. The thermoplastic adhesive dispensing tape as defined in claim 31 wherein:

said adhesive disks adhere less strongly to said second release surface than they do to said first release surface;

10

whereby said carrier tape may be unwound from a coil with said adhesive disks being retained on said first release surface.

33. A thermoplastic adhesive dispensing tape as defined in claim 31, wherein each of said adhesive disks is transversely centered between said first and second edges of said transverse width on said first release surface of said carrier tape, wherein said adhesive disks form a single line in the longitudinal direction along said carrier tape.

34. A thermoplastic adhesive dispensing tape as defined in claim 31, wherein each of said adhesive disks is non-contiguously placed on said first release surface along said transverse width, wherein said adhesive disks alternate between a first position nearer said first edge of said transverse width than said second edge of said transverse width and a second position near said second edge of said transverse width than said first edges of said transverse width, said plurality of adhesive disks extending non-contiguously in the longitudinal direction along said first release surface of said carrier tape.

35. A thermoplastic adhesive dispensing tape as defined in claim 31, wherein said adhesive disks are circular in configuration.

36. The thermoplastic adhesive dispensing tape as defined in claim 35, wherein said adhesive disks have a diameter measured along said first release surface and are separated in the longitudinal direction by a margin at least equal to the diameter.

37. The thermoplastic adhesive dispensing tape as defined in claim 36, wherein said adhesive disks have a diameter measured along said first release surface and are separated in the longitudinal direction by a margin at least three times the diameter of said circular adhesive disks.

38. A thermoplastic adhesive dispensing tape, comprising:
a flexible carrier tape, said carrier tape having a transverse width and a longitudinal length including a plurality of longitudinal segments extending along the entire length of said carrier tape, each of said longitudinal segments extending the entire transverse width of said carrier tape, said carrier tape also having opposed first and second release surfaces, said second release surface of said flexible carrier tape tending to adhere less strongly to thermoplastic adhesive material than does said first release surface of said flexible carrier tape; and

a plurality of pressure-sensitive adhesive segments arrayed non-contiguously on said first release surface of said flexible carrier tape along the longitudinal length of said carrier tape;

wherein each of said adhesive segments is disposed within one of said longitudinal segments on said first release surface of said flexible carrier tape which is longitudinally spaced apart from other every other adhesive segment on said first release surface of said flexible carrier tape; and

wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

39. A thermoplastic adhesive dispensing tape as defined in claim 38, wherein said adhesive segments are each disposed on said flexible carrier tape at one of at least two transversely separated locations.

40. A thermoplastic adhesive dispensing tape, comprising:
a flexible carrier tape, said carrier tape having a transverse width and a longitudinal length including a plurality of longitudinal segments extending along the entire length of said carrier tape, each of said longitudinal segments extending the entire transverse width of said carrier

US 6,686,016 B2

11

tape, said carrier tape also having opposed first and second release surfaces; and

- a plurality of pressure-sensitive adhesive segments arrayed non-contiguously on said first release surface of said flexible carrier tape along the longitudinal length of said carrier tape;
 wherein only a single one of said adhesive segments is disposed within each of said longitudinal segments on said first release surface of said carrier tape with longitudinally consecutive ones of said adhesive segments being spaced apart at uniform intervals;
 wherein only a single one of said adhesive segments is disposed on said flexible carrier tape within each of said longitudinal segments at one of at least two transversely separated locations; and

12

wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.

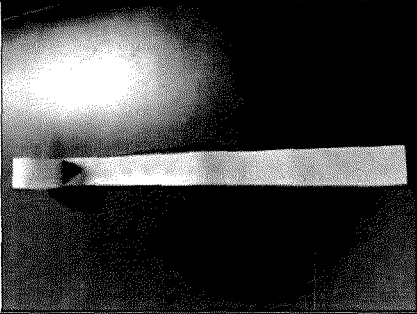
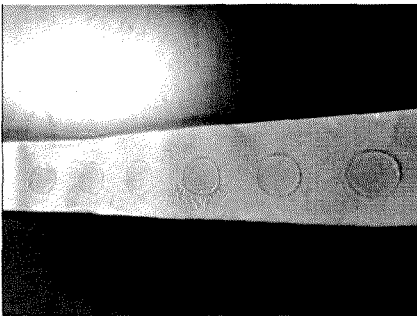
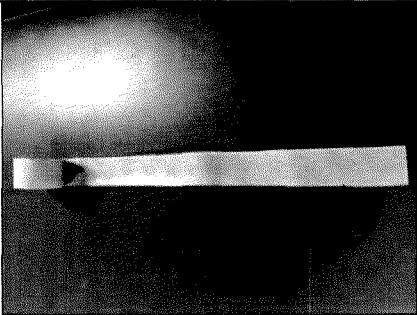
41. A thermoplastic adhesive dispensing tape as defined in claim 40, wherein said second release surface of said flexible carrier tape tends to adhere less strongly to said adhesive segments than does said first release surface of said flexible carrier tape.

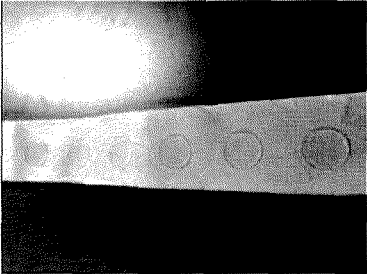
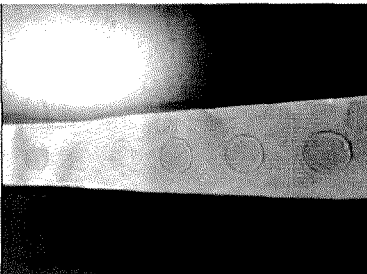
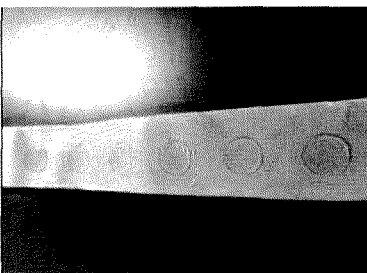
42. A thermoplastic adhesive dispensing tape as defined in claim 40, wherein said flexible carrier tape is longitudinally slit into at least two separate portions each having adhesive segments thereupon.

* * * * *

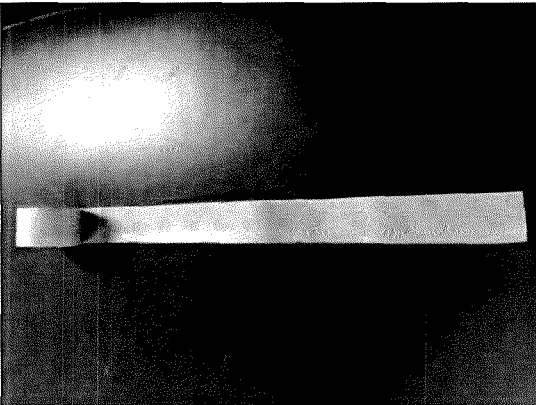
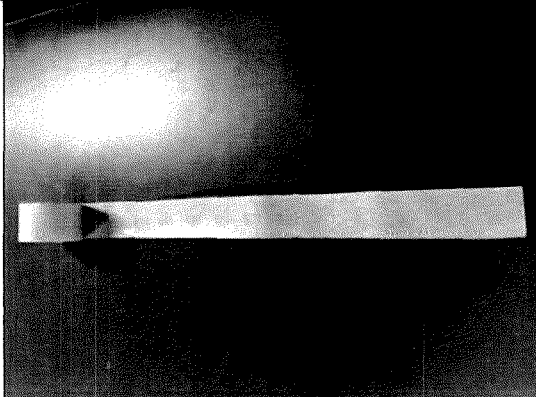
EXHIBIT C

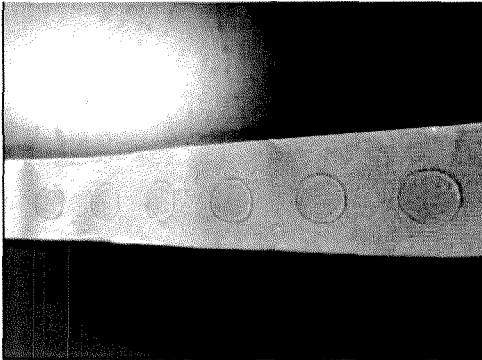
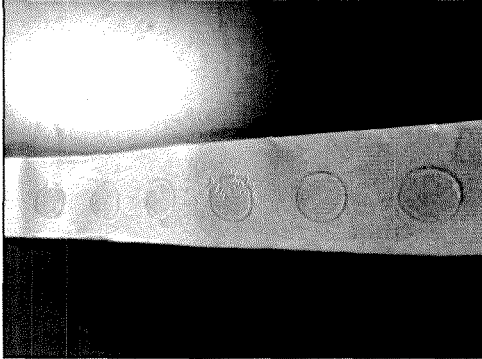
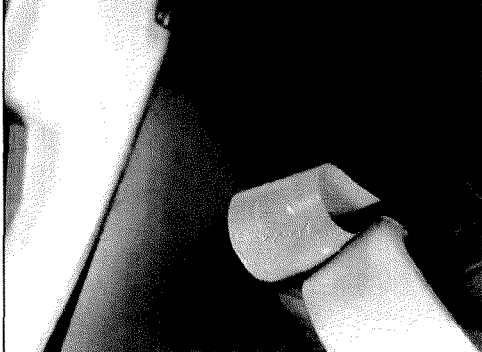
U.S. Patent No. 5,935,670, Claim 1

1. A thermoplastic adhesive dispensing tape consisting of:		The Infringing Product comprises a thermoplastic adhesive dispensing tape.
a flexible carrier tape extending longitudinally, having a transverse width, and		The Infringing Product consists of a flexible strip of carrier tape extending longitudinally, having a transverse width as shown.
having opposed first and second release surface; and		The flexible carrier tape of the Infringing Product has opposed first and second release surfaces.

a plurality of thermoplastic hot melt, adhesive dots arrayed longitudinally along the first release surface, each separated from other dots by a gap extending transversely across the entire carrier tape;		The Infringing Product includes a plurality of thermoplastic hot melt adhesive dots arrayed longitudinally along the first release surface, each separated from other dots by a gap extending transversely across the entire carrier tape.
wherein the thermoplastic adhesive dots are arranged in only a single line transversely centered on the release surface;		The thermoplastic adhesive dots in the Infringing Product are arranged in only a single line transversely centered on the release surface.
whereby the carrier tape may be transversely flexed to expose a single adhesive dot to an abutting planar surface;		The flexible carrier tape of the Infringing Product may be transversely flexed to expose a single adhesive dot to an abutting planar surface.
wherein the adhesive dots are substantially identical.		The adhesive dots of the Infringing Product are substantially identical to each other.

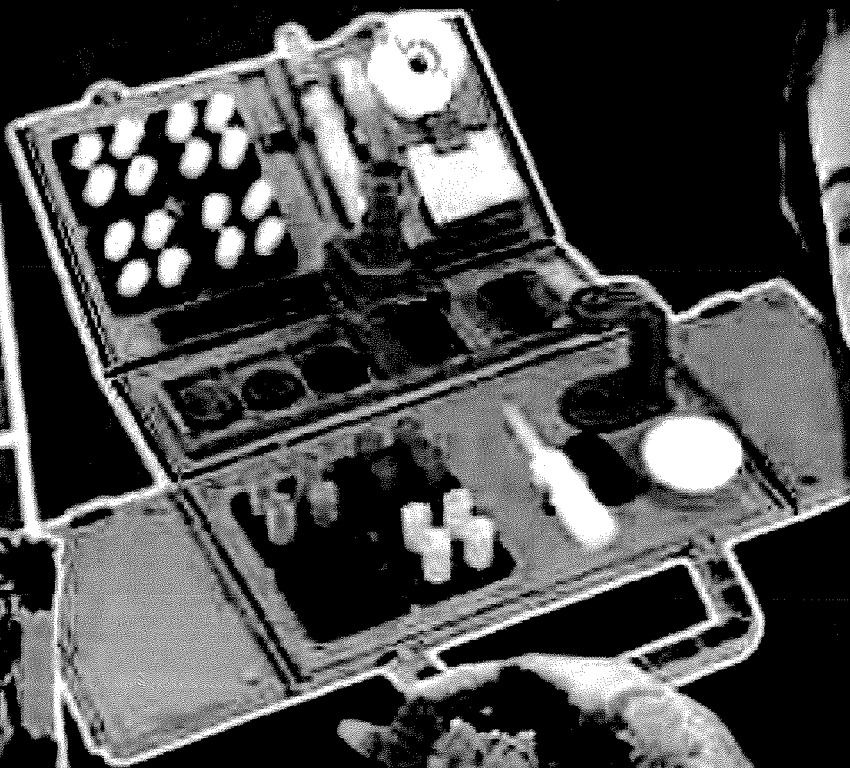
U.S. Patent No. 6,686,016, Claim 1

1. A thermoplastic adhesive dispensing tape comprising:		The Infringing Product comprises a thermoplastic adhesive dispensing tape.
a flexible carrier tape having a transverse width and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire longitudinal length of said carrier tape, each of said longitudinal segments extending the entire transverse width of said flexible carrier tape, said carrier tape also having opposed first and second release surfaces; and		The Infringing Product comprises a flexible carrier tape having a transverse width and a longitudinal length including a plurality of contiguous longitudinal segments extending along the entire longitudinal length of the carrier tape, each of the longitudinal segments extending the entire transverse width of the flexible carrier tape as shown. The flexible carrier tape of the Infringing Product also has opposed first and second release surfaces.

a plurality of thermoplastic hot melt adhesive segments arrayed non-contiguously on said first release surface of said carrier tape along the longitudinal length of said carrier tape;		The Infringing Product includes a plurality of thermoplastic hot melt adhesive segments arrayed non-contiguously on the first release surface of the carrier tape along the longitudinal length of the carrier tape.
wherein only a single one of said adhesive segments is disposed within each of said longitudinal segments on said first release surface of said carrier tape; and		In the Infringing Product only a single one of the adhesive segments is disposed within each of the longitudinal segments on the first release surface of the carrier tape.
wherein each of said adhesive segments is individually exposable to an abutting planar surface when said carrier tape is transversely flexed.		In the Infringing Product each of the adhesive segments is individually exposable to an abutting planar surface when the carrier tape is transversely flexed.

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PROOF OF SERVICE

Glue Dots International v, The Maya Group, LLC.
United States District Court Central District of California- Western Division

STATE OF CALIFORNIA, COUNTY OF LOS ANGELES

I am employed in the County of Los Angeles, State of California. I am over the age of 18 and not a party to the within action; my business address is 1055 West Seventh Street, 24th Floor, Los Angeles, California 90017.

On February 9, 2016, I served the foregoing documents described as **COMPLAINT FOR PATENT INFRINGEMENT AND DEMAND FOR JURY TRIAL** on the parties in this action by placing

☒ the original of the document(s) ☐ true copies of the document(s)

in separate sealed envelopes addressed to the following party(ies) in this matter at the following address(es):

Obed Ben-Ezer
The Maya Group
10741 Walker Street
Cypress, California 90630

☒ BY U.S. MAIL: I enclosed the documents in a sealed envelope or package addressed to the above-named persons at the addresses exhibited therewith. I am readily familiar with Morris Polich & Purdy's practice of collection and processing correspondence for mailing. Under that practice, documents are deposited with the U.S. Postal Service on the same day which is stated in the proof of service, with postage fully prepaid at Los Angeles, California in the ordinary course of business. I am aware that on motion of party served, service is presumed invalid if the postal cancellation date or postage meter date is more than one day after the date stated in this proof of service.

Executed on February 9, 2016, at Los Angeles, California.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.


HIBA HAMMAD