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(54) **Slider device and method for positioning a slider device onto reclosable packaging**

Scheiber und Verfahren zur Befestigung eines Scheibers an einer wiederverschliessbaren
Verpackung

Curseur et procédé pour monter un curseur sur un emballage refermable

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(56) References cited:
US-A- 5 301 394 **US-A- 5 431 760**

EP 1 110 876 B1

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Description

Field of the Disclosure

[0001] This disclosure concerns reclosable packages. In particular, this disclosure relates to the positioning and application of slider devices onto closure constructions of reclosable packages, and the packages made thereby.

Background

[0002] Reclosable, resealable packages having a zipper closure construction are common in today's commercial market and in residential homes. Consumable goods, such as potting soil, fertilizer, pet food, dog biscuits, vegetables, cereal and many other different foods edible by humans, are often packaged in reclosable, resealable packages by the manufacturer. Resealable packages are convenient in that they can be closed and resealed after the initial opening to preserve the enclosed contents. The need to locate a storage container for the unused portion of the products in the package is thus avoided. As such, providing products in resealable packages appreciably enhances the marketability of those products.

[0003] Additionally, there is a large market for the resealable packages themselves. Consumers often remove an item from its original packaging and repackage it within a resealable package.

[0004] Often, the opening and closing of the zipper closure of the reclosable package is facilitated by a slider device that is mounted on the zipper closure. The slider device is constructed to pry apart the interlocking zipper closure members when the slider device is moved in a first direction along the zipper, and to engage the interlocking zipper closure members when the slider device is moved in a second, opposite direction along the zipper.

[0005] In order for the slider device to function properly, the slider device needs to be oriented and seated properly onto the closure members of the zipper closure. This proper orientation and seating of the slider device onto the zipper closure can cause difficulties when manufacturing the packages. Improvements in the manufacturing of these types of packages are desirable.

[0006] Such a slider device and a method of manufacturing a package with such a slider are disclosed in US-A-5 431 760.

Brief Description of the Drawings

[0007]

FIG. 1 is a perspective view of a flexible, reclosable, resealable package;

FIG. 2 is a perspective view of a spool having a plurality slider devices on a continuous length of carrier

ribbon, in accordance with the present disclosure; FIG. 3 is a schematic, perspective view of a process utilizing the slider spool of the present disclosure; FIG. 4 is a perspective view of a first embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 5 is a perspective view of a second embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 6 is a perspective view of a third embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 7 is a perspective view of the carrier ribbon depicted in FIG. 6, without the slider devices;

FIG. 8 is a perspective view of a fourth embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 9 is a perspective view of a fifth embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 10 is a perspective view of a sixth embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 11 is a perspective view of a seventh embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 12 is a perspective view of an eighth embodiment of a carrier ribbon of the present disclosure having slider devices mounted thereon;

FIG. 13 is a perspective view of a second embodiment of a spool having a plurality of slider devices on a continuous length of carrier ribbon, in accordance with the present disclosure;

FIG. 14 is a schematic, side view of a process for application of slider devices, supplied by a carrier ribbon in accordance with the present disclosure, to a zipper closure;

FIG. 15 is an enlarged side view of the process depicted in FIG. 14, with the applicator in a first position;

FIG. 16 is an enlarged side view of the process depicted in FIG. 14, with the applicator in a second position; and

FIG. 17 is an enlarged side view of the process depicted in FIG. 14, with the applicator in a third position.

Summary of the Disclosure

[0008] The present disclosure relates to a method of manufacturing a package, such as a flexible bag, having a resealable, reclosable zipper mechanism, opening and closing of which is accomplished by a slider device mounted on the zipper mechanism. In one aspect, the present disclosure is directed to the mounting of the slider device onto the zipper mechanism.

[0009] In particular, the methods of the present disclosure are directed to providing a plurality of slider de-

vice on a continuous length of carrier ribbon. The carrier ribbon is an extended length of flexible material that is adapted to carry a plurality of slider devices to the point in the manufacturing process where the slider devices are mounted or otherwise placed onto the zipper closure of the package. Preferably, the carrier ribbon, with the slider devices mounted thereon, is provided wound on a core or a spool.

[0010] After the slider devices have been removed from the carrier ribbon and mounted onto the zipper closure of the package, the carrier ribbon can be discarded, reused for carrying additional slider devices, or be recycled.

[0011] In particular, the present disclosure is directed to a supply of slider devices, the slider devices each constructed and arranged for mounting on a zipper closure construction of a reclosable package for interlocking the first closure profile with the second closure profile when the slider device is moved in a first direction, and for disengaging the first closure profile from the second closure profile when the slider device is moved in a second opposite direction. The supply of slider devices is a plurality of slider devices mounted on an elongate, flexible continuous carrier tape.

Detailed Description

[0012] The addition of a slider device to a flexible package, such as a bag, is advantageous to aging or arthritic persons not having the physical ability to use just a zipper closure to reseal a bag. Additionally, the addition of a slider device to a flexible packaging facilitates the use of the bag by users of all ages and abilities. The inclusion of slider devices onto resealable packages is desired.

[0013] The processes described herein provide a supply of slider devices which are properly spaced and positioned for easy application to the zipper closure of the package being formed. In one embodiment, the process of manufacturing the packages is accomplished on a machine commonly referred to as a horizontal form, fill, and seal machine.

[0014] A flexible, reclosable package 10 is shown in FIG. 1. Package 10 has panel sections 12, 14 which are bounded on three edges (side edges 13, 15 and bottom edge 17) to define an interior 11. A zipper closure arrangement 20 having mating profiles to open and close (unseal and reseal) the mouth 21 of package 10 extends across the width of package 10. The zipper closure 20 can include a variety of configurations and structures, but typically has a first mating profile 22 and a second mating profile 24. Zipper closure 20 can be configured in any known manner, for example, such as disclosed in U.S. Patent Nos. 4,240,241; 4,246,288; and 4,437,293; each of which is incorporated by reference herein. First mating profile 22 and second mating profile 24 engage and disengage, as appropriate, to open and close package 10.

[0015] The first and second panel sections 12, 14 are made from a flexible, polymeric film. For some manufacturing applications, the first and second panel sections 12, 14 are heat-sealed together along the two edges 13, 15 and meet at a fold line in order to form a three-edged containment section for a product within the interior 11 of the package 10. The fold line comprises the bottom edge 17. In a different embodiment, first and second panel sections 12, 14 are heat-sealed together at side edge 13 and at bottom edge 17; the fold line comprises side edge 15. Alternatively, two separate panel sections 12, 14 of polymeric film may be used and heat-sealed together along the two edges 13, 15 and at the bottom 17. In yet another embodiment, a tube of material can be used for first and second panel sections 12, 14 so that each of edges 13, 15 comprise fold lines. Bottom edge 17 would be a heat-seal. It is understood that bottom edge 17 can include pleats or gussets, as desired.

[0016] A slider device 50 is mounted on zipper closure 20 to facilitate opening and closing of zipper closure 20. Slider devices and how they function to open and close zipper closures, in general, are taught, for example, in U.S. Patent Nos. 5,063,644; 5,301,394; 5,442,837, and 5,664,229, each of which is incorporated by reference herein. A preferred slider device is taught in U.S. patent applications 09/365,215 and 29/108,657, both filed July 30, 1999, and in provisional patent application 60/222,132, filed July 31, 2000, all which are incorporated herein by reference in their entirety.

[0017] A notch 23 is disposed within zipper closure 20. Notch 23 is designed to provide a "park place" into which slider device 50 settles when zipper closure 20 is sealed. Such a notch 23 may decrease any tendency for an incomplete interlock between first mating profile 22 and second mating profile 24.

[0018] Various modifications of reclosable, resealable packages are known throughout the art of resealable packaging. For example, the package can include an external or an internal tamper-evident structure, or both. A peel seal can be included to provide a hermetic barrier for the interior 11 either internal or external to zipper closure 20. A peel seal can be resealable; that is, it can be opened and resealed multiple times. Alternately, a peel seal can be a single use seal, which, once broken, cannot be resealed.

[0019] This package described and disclosed in FIG. 1 can be manufactured by any number of processes which are known; one such process is a horizontal form, fill and seal machine, such as depicted in FIG. 3, which includes a spool 55 of slider devices in accordance with this disclosure.

[0020] FIG. 2 shows a supply of slider devices 50 provided as a spool or roll 55. Slider devices 50 are evenly spaced on carrier ribbon 60 with each of the slider devices 50 oriented in the same direction. The extended length of carrier ribbon 60, with slider devices 50 mounted thereon, is depicted at 56. This slider supply 56 is

wound on core 58.

[0021] Referring again to FIG. 3, a horizontal form, fill and seal process, in accordance to the present disclosure, is shown at 100. As illustrated in FIG. 3, the process line progresses from left to right in the figure; that is, the final package is at the right side of the figure. In the process depicted in FIG. 3, the bag or package is manufactured in a upside-down orientation, with the bottom 17 (FIG. 1) of package 10 at the top of the package, so that the filling takes place through the bottom of the package.

[0022] Polymeric film 110, which will provide the side panels 12, 14 (FIG. 1), is provided on a roll. In another embodiment, film 110 may be extruded, cast or otherwise formed immediately before this process, thereby eliminating the step of winding the film after forming the film and then unwinding when the packages are made.

[0023] An extended length of zipper closure 20 (with first closure profile and second closure profile interlocked) is provided via spool 120. Notch 23 (FIG. 1) is punched into zipper closure 20 by an in-line punch 125 that may be a die, knife, stamp or other such process. Alternately, notch 23 can be punched into zipper closure 20 before zipper closure 20 is wound onto spool 120. In accordance with the present disclosure, slider device 50 is supplied to process 100 by spool 55. Spool 55 includes a plurality of slider device 50 mounted on carrier ribbon 60, which is wrapped on a core 58 (FIG. 2). The combination 56 of the slider devices and the carrier ribbon is brought into slider applicator 150, which positions slider device 50 either on, or in close proximity to, notch 23 in zipper closure 20.

[0024] Slider applicator 150 removes slider device 50 from carrier ribbon 60 and mounts slider device 50 onto zipper closure 20 to provide the combination 25 of zipper closure 20 and slider device 50 mounted thereon. Carrier ribbon 60, with slider devices 50 removed therefrom, is wound on spool 65. The combination 25 of zipper closure 20 and slider device 50 is combined with film 110 to form reclosable, resealable packages.

[0025] Various known methods can be used to form packages 10. Generally, the methods include forming the panels 12, 14 (FIG. 1) from film 110, attaching the combination 25 of zipper closure 20 and slider device 50 with panels 12, 14, forming side edges 13, 15 (typically by the application of heat and pressure), and optionally filling the package.

[0026] Referring again to FIG. 2, the present disclosure is directed to various modes of providing slider devices 50 to the processes of making packages 10. In particular, the disclosure is directed to providing slider devices 50 via spool 55. Slider devices 50 are mounted on a flexible carrier tape 60, the combination 56 of carrier tape 60 and slider devices 50 is wound on a core 58.

[0027] For typically all processes that apply a slider device onto a zipper closure, it is necessary that the slider device is applied in a certain orientation on the zipper closure in order for the slider device to properly seal and

unseal the zipper closure.

[0028] The combination 56 of slider devices 50 on carrier tape 60 assures proper alignment and positioning of slider devices 50 as they enter slider applicator 150 (FIG. 3). Each slider device 50 is oriented on carrier tape 60 in the position needed for application to the zipper closure by slider applicator 150. Use of the combination 56 of slider devices 50 on carrier tape 60 eliminates the need for a slider device feeder, such as a bowl feeder or other common feeder devices, in process 100 (FIG. 3) of the present disclosure. Problems associated with feeders, such as improper slider device orientation, too slow supply of slider devices to the applicator 150, and the like, are eliminated.

[0029] Carrier tape 60 is an elongate, flexible and continuous strip with a surface for mounting or otherwise receiving slider devices 50 thereon. Slider devices 50 are mounted onto a portion or surface of carrier tape 60, which can be any flexible material, such as polymeric film, paper, cloth, thin tapes of flexible metal, nonwoven materials, foams, and other flexible materials. The surface of carrier tape 60 can be planar, have a texture thereon, or be embossed or otherwise provided with a three dimensional surface that is designed to retain slider devices 50 thereon.

[0030] Slider devices 50 are removably mounted onto carrier tape 60; that is, slider devices 50 can be removed from carrier tape 60 without damage to slider devices 50, and preferably, without damage to carrier tape 60. Carrier tape 60 remains intact after slider devices 50 have been removed therefrom; that is, after the slider devices 50 are removed from carrier tape 60, carrier tape 60 still exists as an elongate, flexible and continuous strip, although it is understood that in some instances carrier tape 60 may tear, rip, break, or otherwise form defective or deformed regions.

[0031] Carrier tape 60 can include an adhesive thereon for attachment of the slider devices 50 thereon. The adhesive can cover the entire surface of the carrier tape 60 or can only cover a portion of the surface, typically the portion under the slider devices. The adhesive may be present as a continuous coating or as stripes, ribs, dots, or the like. One example of a carrier tape 60 having a continuous adhesive surface for mounting the slider devices 50 is a single sided, pressure sensitive tape.

[0032] Alternately, carrier tape 60 can include physical features that engage with or otherwise retain slider device 50 on carrier tape 60. For example, carrier tape 60 can be embossed with depressions adapted for fitting slider device 50 therein. Slider device 50 can be held by friction within the depression, by adhesive, by surface tension, static or other forces, or the like. In some embodiments, protrusions such as fingers can be present on the surface of the carrier tape 60 that retain slider device 50, for example, by its sides or corners.

[0033] Carrier tape 60 preferably retains its shape and structure after slider devices 50 are removed therefrom; that is, carrier tape 60 is not destroyed or altered after

having slider devices removed. Carrier tape 60 can be discarded (preferably the material can be recycled) or can be reused. Preferably, carrier tape 60 can be reused for mounting additionally slider devices 50. In one embodiment, carrier tape 60 from which slider devices 50 have been removed, is collected on a spool, such as spool 65 of FIG. 3.

[0034] In FIG. 4, a first embodiment of a combination 56 of slider devices 50 on carrier tape 60 is shown. Carrier tape 60, in particular carrier tape 81, has an adhesive surface 81a for attaching slider device 50 onto carrier tape 81. Carrier tape 81 includes a ratcheting structure 70 that can move carrier tape 81 in a longitudinal or machine direction, or that can position carrier tape 81 in relation to a desired reference point. Ratcheting structures 70 are designed to engage with gear teeth, pins, or other drive or positioning mechanisms to provide proper placement of carrier tape 81 as desired. In some embodiments, ratcheting structure 70 is referred to as a "tractor feed". As an example, ratcheting structures 70 can be used to unwind combination 56 from spool 55 (FIG. 3) and feed combination 56 into slider applicator 150 (FIG. 3).

[0035] While a variety of working embodiments of ratcheting structure 70 are contemplated, in the particular embodiment illustrated in FIG. 4, ratcheting structure 70 includes a plurality of apertures 71 disposed along each side edge of carrier tape 81. Apertures 71 extend through the thickness of carrier tape 81, and each side of each square aperture 71 is bounded by carrier tape 81. Specifically, FIG. 4 shows square apertures 71. In alternate embodiments, ratcheting structure 70 is not bounded on all sides, but has at least one side unbounded. Typically, ratcheting structure 70 extends along, or at least near, an outer edge 62 of carrier tape 60. In the embodiment of FIG. 4, ratcheting structure 70 extends along first and second outer edges 62, 64.

[0036] In other embodiments, ratcheting structure 70 is a plurality of apertures of any shape extending through the carrier tape. In yet another embodiment, ratcheting structure 70 is a plurality of depressions receding into the surface of carrier tape 60, yet not extending through the carrier tape. Alternately, there can be a plurality of protrusions extending from the surface of carrier tape 60.

[0037] In FIG. 5, a second embodiment of a combination 56 of slider devices 50 on carrier tape 60 is shown. Carrier tape 60, in particular carrier tape 82, has a depression 92 in which a slider device 50 settles. Depression 92 is configured to provide a tight fit between carrier tape 82 and slider device 50; friction holds slider device 50 within depression 92 of carrier tape 82. Depression 92 can have straight edges, so that the overall shape of depression 92 is a rectangle. Alternately, depression 92 can be shaped so that the walls of depression 92 follow the shape of the outer edges of slider device 50; in such an embodiment, depression 92 will have a shape same as, or similar to, slider device 50. Depression 92 is gen-

erally deep enough to retain slider device 50 therein by friction, yet allow easy removal of slider device 50 when so desired. In some embodiments, it is desired that slider device 50 sits completely within depression 92, so that essentially no portion of slider device 50 extends above the surface of the carrier tape 60.

[0038] Carrier tape 82 also includes ratcheting structure 70, in particular, apertures 71, for moving carrier tape 82 as needed.

[0039] In FIG. 6, a third embodiment of a combination 56 of slider devices 50 on carrier tape 60 is shown. Carrier tape 60, in particular carrier tape 83, has depressed tray 93 in which slider device 50 settles. Depressed tray 93 is similar to depressed tray 92 of FIG. 5, except that the area of depressed tray 93 is larger than slider device 50 so that the walls 95 of depressed tray 93 do not contact slider device 50. Rather, slider device 50 sits on bottom surface 94 of depressed tray 93 and is held to bottom surface 94, for example, by an adhesive; in FIG. 5, slider device 50 was held in depressed tray 92 by friction between slider device 50 and the walls of depressed tray 92. Referring again to FIG. 6, to remove slider device 50 from bottom surface 94 when desired, a device can be inserted through or against removal aid 96 (FIG. 7) to urge slider device 50 off of bottom surface 94. The removal device used in conjunction with removal aid 96 can be a post, pin, or the like, which can urge slider device 50 off of bottom surface 94 and out of depressed tray 93. In FIG. 7, removal aid 96 is a circular aperture or hole that passes through carrier tape 83. Carrier tape 83 also includes ratcheting structure 70, in particular, apertures 71 along both side edges 62, 64, for moving carrier tape 83 as needed. Carrier tape 83 is illustrated in FIG. 7 without slider devices 50 to show removal hole 96.

[0040] The combination 56 depicted in FIG. 6 as carrier tape 83 with slider devices 50 mounted thereon is modified in FIG. 8 as combination 56', which is carrier tape 83 with slider devices 50 mounted thereon and further having a cover sheet 183 overlying carrier tape 83 and slider devices 50. Cover sheet 183 is present to provide protection to slider devices 50, for example, while wrapped on a core. Cover sheet 183 can be adhesively mounted onto carrier tape 83 or may be held on by static or simply by the pressure exerted by the adjacent wrap of carrier tape 83 when wound on a core. Apertures 71 of ratcheting structure 70 can also extend through cover sheet 183.

[0041] FIGS. 9, 10 and 11 show yet further embodiments of combinations 56 of slider devices 50 on carrier tapes 60. In FIG. 9, carrier tape 60, in particular carrier tape 84, has depression 92 in which slider device 50 settles. Depression 92 is configured to provide a tight fit between carrier tape 84 and slider device 50; friction holds slider device 50 within depression 92 of carrier tape 84. Carrier tape 84 differs from carrier tape 82 of FIG. 5 because carrier tape 84 includes ratcheting structure 70, in particular apertures 71, along only one side

edge 62 of carrier tape 84 for moving carrier tape 84 as needed. The second side edge 64 of carrier tape 84 is continuous and smooth, that is, without any ratcheting structure 70.

[0042] Carrier tape 85 of FIG. 10 is similar to carrier tape 84 of FIG. 9, except that carrier tape 85 does not include any ratcheting structure 70 along either side edge 62 or 64. Carrier tape 86 of FIG. 11 is also similar to carrier tape 84 of FIG. 9, except that carrier tape 86 has ratcheting structure 70 which comprises a plurality of teeth 72 along a second side edge 64 of carrier tape 86. Teeth 72 are not bounded on all sides by carrier tape 85; rather, teeth 72 are defined by areas not bounded by carrier tape 86. In the embodiment illustrated in FIG. 11, teeth 72 are triangular and are defined by a triangular portion lacking carrier tape material.

[0043] In FIG. 12, another embodiment of combination 56 of slider devices 50 on carrier tape 60 is shown. In FIG. 12, carrier tape 87 has a ladder-type structure, with longitudinal members 73 and transverse members 74, with areas 75 void of material between transverse members 74. Slider devices 50 are mounted on transverse members 74, for example, by adhesive or by some mechanical mechanism. For example, transverse member 74 can have a three-dimensional structure configured to engage with slider device 50. Alternately, slider device 50 can have a three-dimensional or other structure configured to engage with transverse member 74. Additionally, transverse members 74 act as ratcheting structure 70 to provide positioning of carrier tape 87 as needed. In some embodiments, slider devices 50 are mounted in areas 75 between transverse members 74.

[0044] Another embodiment of a spooled combination 56 of a carrier tape 60 having slider devices 50 mounted thereon is illustrated in FIG. 13. Carrier tape 88 with slider devices 50 mounted thereon is wound on core 58 to provide spool 55. Carrier tape 88 includes ratcheting structures 70 which are apertures 71, along each side edge. As the combination 56 is wrapped on core 58, the side of carrier tape 88 opposite from the surface on which the slider devices 50 are mounted can be seen. Carrier tape 88 includes removal aids 98 to facilitate the removal of slider devices 50 from carrier tape 88. In this embodiment, removal aids 98 are apertures extending through carrier tape 88 that provide access to the back of slider device 50.

[0045] The feature of having the slider devices 50 fixed in position on a carrier tape 60 is beneficial in processes such as process 100 of FIG. 3 where the slider device 50 is affixed to a zipper closure 20. Having the slider device 50 in a fixed, predetermined position eliminates the need for having slider positioning equipment, such as a bowl feeder, in the immediate process. FIG. 14 shows a portion of process 100 of FIG. 3. In particular, FIG. 14 depicts the combination 56 of carrier tape 60 and slider devices 50 being unwound from spool 55 and moved to slider applicator 150. At slider applicator 150, slider devices 50 are sequentially removed from

carrier tape 60 and mounted onto zipper closure 20 by profile clamp 200 and slider ram 210. Carrier tape 60, after the slider devices 50 are removed, is wound onto spool 65 and retained.

[0046] FIGS. 15 through 17 illustrate the sequence of positions of profile clamp 200 and slider ram 210 for mounting slider device 50 onto zipper closure 20. In FIG. 15, slider device 50 is brought into position in respect to slider ram 210 and zipper closure 20 is brought into position in respect to profile clamp 200. Slider ram 210 is engaged with slider device 50 to at least partially open slider device 50 for mounting onto zipper closure 20. In FIG. 16, profile clamp 200 has gripped zipper closure 20 to eliminate movement of zipper closure 20 during the mounting of slider device 50 thereon. In FIG. 17, slider device 50 is pushed onto and mounted on zipper closure 20.

Claims

1. A supply of slider devices (50), the slider devices each constructed and arranged for mounting on a closure construction of a reclosable package for interlocking the first closure profile with the second closure profile when the slider device is moved in a first direction, and for disengaging the first closure profile from the second closure profile when the slider device is moved in a second opposite direction, **characterized by:**

(a) a plurality of slider devices; each of the plurality of slider devices being removably mounted on an elongate, flexible continuous carrier tape (60).

2. The supply of slider devices according to claim 1, wherein the carrier tape is selected from the group consisting of polymeric films, paper, cloth, thin tapes of flexible metal, nonwoven materials, and foams.
3. The supply of slider devices according to claim 2, wherein the carrier tape is a polymeric film.
4. The supply of slider devices according to any of claims 1-3, wherein the carrier tape comprises a ratcheting structure (70) constructed and arranged to provide movement to the carrier tape.
5. The supply of slider devices according to claim 4, the ratcheting structure comprising a plurality of apertures extending through the carrier tape.
6. The supply of slider devices according to claim 5, wherein the apertures are square apertures.
7. The supply of slider devices according to any of

claims 4-6, wherein the carrier tape has a first side edge and a second side edge; the ratcheting structure comprising a plurality of teeth along the first side edge.

8. The supply of slider devices according to any of claims 4-7, wherein the carrier tape has a first side edge and a second side edge; the ratcheting structure extending along the first side edge.

9. The supply of slider devices according to any of claims 7-8, wherein the carrier tape has a second ratcheting structure extending along the second side edge.

10. The supply of slider devices according to any of claims 1-9, the slider devices being removably mounted on the carrier tape by an adhesive.

11. The supply of slider devices according to any of claims 1-10, wherein the carrier tape comprises a plurality of depressed portions (92, 93), each of the slider devices being removably mounted in one of the plurality of depressed portions.

12. The supply of slider device according to claim 11, wherein the plurality of depressed portions have an area greater than the area of the slider device mounted therein.

13. The supply of slider devices according to any of claims 11-12, the slider device being removably mounted in the depressed portion by adhesive.

14. The supply of slider devices according to any of claims 11-13, wherein the plurality of depressed portions have the same shape as the slider devices.

15. The supply of slider devices according to any of claims 11-14, wherein the plurality of depressed portions include a removal aid.

16. The supply of slider devices according to any of claims 1-15, further comprising a cover sheet (183) positioned over the slider devices, so that the slider devices are positioned between the cover sheet and the continuous carrier tape.

17. The supply of slider devices according to any of claims 1-16, further comprising a core (58); the carrier tape having the plurality of slider devices removably mounted thereon being oriented on the core.

18. A method of manufacturing a reclosable package comprising a zipper closure construction and a slider device, the method comprising:

(a) providing a closure construction having a

first closure profile and a second closure profile; and

(b) providing a continuous supply of slider devices, **characterized by:**

the continuous supply of slider devices according to any of claims 1-17.

19. The method according to claim 18, further comprising:

(a) removing the slider devices from the carrier tape;

(b) mounting the slider device onto the closure construction;

(c) collecting the carrier tape from which the slider devices have been removed; and

(d) incorporating the closure construction having the slider device mounted thereon in a package.

20. The method according to claim 19, wherein the step of collecting the carrier tape from which the slider devices have been removed comprises winding the carrier tape on a spool.

Patentansprüche

1. Zufuhrvorrichtung für Schiebeeinrichtungen (50), die jeweils zum Anbringen an einer Verschlusskonstruktion einer wiederverschließbaren Verpackung konstruiert und angeordnet sind, um das erste Verschlussprofil mit dem zweiten Verschlussprofil in Eingriff zu bringen, wenn die Schiebeeinrichtung in eine erste Richtung bewegt wird, und um das erste Verschlussprofil aus dem zweiten Verschlussprofil herauszuführen, wenn die Schiebeeinrichtung in eine zweite, entgegengesetzte Richtung bewegt wird, **gekennzeichnet durch**

(a) mehrere Schiebeeinrichtungen; wobei jede der mehreren Schiebeeinrichtungen abnehmbar auf einem länglichen, flexiblen kontinuierlichen Trägerband (60) angebracht sind.

2. Zufuhrvorrichtung für Schiebeeinrichtungen nach Anspruch 1, wobei das Trägerband aus einer Gruppe ausgewählt ist, die aus Polymerfolien, Papier, Stoff, dünnen Bändern aus flexiblem Metall, nicht gewebten Materialien und Schäumen ausgewählt wird.

3. Zufuhrvorrichtung für Schiebeeinrichtungen nach Anspruch 2, wobei das Trägerband eine Polymerfolie ist.

4. Zufuhrvorrichtung für Schiebeeinrichtungen nach

einem der Ansprüche 1 bis 3, wobei das Trägerband eine Sperrstruktur (70) umfasst, die konstruiert und angeordnet ist, um das Trägerband zu bewegen.

5. Zufuhrvorrichtung für Schiebeeinrichtungen nach Anspruch 4, wobei die Sperrstruktur mehrere Löcher umfasst, die sich durch das Trägerband erstrecken. 5
6. Zufuhrvorrichtung für Schiebeeinrichtungen nach Anspruch 5, wobei die Löcher als Quadratlöcher ausgebildet sind. 10
7. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 4 bis 6, wobei das Trägerband einen ersten Seitenrand und einen zweiten Seitenrand aufweist, und die Sperrstruktur mehrere Zähne entlang des ersten Seitenrandes umfasst. 15
8. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 4 bis 7, wobei das Trägerband einen ersten Seitenrand und einen zweiten Seitenrand aufweist; und die Sperrstruktur sich entlang des ersten Seitenrandes erstreckt. 20
9. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 7 bis 8, wobei das Trägerband eine zweite Sperrstruktur aufweist, die sich entlang des zweiten Seitenrandes erstreckt. 25
10. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 1 bis 9, wobei die Zufuhrvorrichtung abnehmbar auf dem Trägerband mittels eines Klebstoffes angebracht ist. 30
11. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 1 bis 10, wobei das Trägerband mehrere abgesenkte Abschnitte (92, 93) umfasst, und jede der Schiebeeinrichtungen abnehmbar in einem der mehreren abgesenkten Abschnitte angebracht ist. 40
12. Schiebeeinrichtung-Zufuhrvorrichtung nach Anspruch 11, wobei die mehreren abgesenkten Abschnitte eine Fläche aufweisen, die größer ist als die Fläche der Schiebeeinrichtung, die darin befestigt ist. 45
13. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 11 bis 12, wobei die Schiebeeinrichtung abnehmbar in dem abgesenkten Abschnitt mittels Klebstoffes angebracht ist. 50
14. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 11 bis 13, wobei die mehreren abgesenkten Abschnitte die selbe Form wie die Schiebeeinrichtungen aufweisen. 55

15. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 11 bis 14, wobei die mehreren abgesenkten Abschnitte eine Abnehmhilfe beinhalten.

16. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 1 bis 15, wobei die Zufuhrvorrichtung ferner eine Abdecklage (163) umfasst, die über den Schiebeeinrichtungen angeordnet ist, so dass die Schiebeeinrichtungen zwischen der Abdecklage und dem kontinuierlichen Trägerband angeordnet sind.

17. Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 1 bis 16, wobei die Zufuhrvorrichtung ferner einen Kern (58) umfasst, und das Trägerband die mehreren Schiebeeinrichtungen abnehmbar darauf unter Ausrichtung auf dem Kern angebracht sind.

18. Verfahren zum Herstellen einer wiederverschließbaren Verpackung, umfassend eine Reißverschlusskonstruktion und eine Schiebeeinrichtung, das Verfahren umfassend:

(a) Schaffen einer Verschlusskonstruktion, die ein erstes Verschlussprofil und ein zweites Verschlussprofil aufweist; und

(b) Schaffen einer kontinuierlichen Zufuhr von Schiebeeinrichtungen, **gekennzeichnet durch** die kontinuierliche Zufuhrvorrichtung für Schiebeeinrichtungen nach einem der Ansprüche 1 bis 17.

19. Verfahren nach Anspruch 18, ferner umfassend:

(a) Abnehmen der Schiebeeinrichtungen von dem Trägerband;

(b) Anbringen der Schiebeeinrichtung auf der Verschlusskonstruktion;

(c) Sammeln des Trägerbandes, von dem die Schiebeeinrichtungen abgenommen wurden; und

(d) Einbauen der Verschlusskonstruktion, an der die Schiebeeinrichtung angebracht ist, in eine Verpackung.

20. Verfahren nach Anspruch 19, wobei der Schritt des Sammelns des Trägerbandes, von dem die Schiebeeinrichtungen abgenommen sind, umfasst, das Trägerband auf eine Spule zu wickeln.

Revendications

1. Alimentation en dispositifs à curseur (50), chaque dispositif à curseur étant construit et agencé pour être monté sur une construction de fermeture d'un

emballage refermable afin de mettre en prise le premier profil de fermeture avec le second profil de fermeture lorsque le dispositif à curseur est déplacé dans une première direction et pour déboîter le premier profil de fermeture du second profil de fermeture lorsque le dispositif à curseur est déplacé dans une seconde direction opposée, **caractérisée par** :

(a) une pluralité de dispositifs à curseur ; chacun de ces nombreux dispositifs à curseur étant monté de façon amovible sur un ruban porteur continu, souple et allongé (60).

2. Alimentation en dispositifs à curseur selon la revendication 1, dans laquelle le ruban porteur est sélectionné dans le groupe composé des films polymériques, du papier, de la toile, des rubans fins en métal souple, des matériaux non tissés et des mousses.
3. Alimentation en dispositifs à curseur selon la revendication 2, dans laquelle le ruban porteur est un film polymérique.
4. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 1 à 3, dans laquelle le ruban porteur comprend une structure à engrenage (70) construite et agencée de manière à fournir le mouvement du ruban porteur.
5. Alimentation en dispositifs à curseur selon la revendication 4, la structure à engrenage comprenant une pluralité d'ouvertures s'étirant à travers le ruban porteur.
6. Alimentation en dispositifs à curseur selon la revendication 5, dans laquelle les ouvertures sont des ouvertures carrées.
7. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 4 à 6, dans laquelle le ruban porteur présente un premier bord latéral et un second bord latéral ; la structure à engrenage comprenant une pluralité de dents le long du premier bord latéral.
8. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 4 à 7, dans laquelle le ruban porteur présente un premier bord latéral et un second bord latéral ; la structure à engrenage s'étirant le long du premier bord latéral.
9. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 7 à 8, dans laquelle le ruban porteur présente une seconde structure à engrenage s'étirant le long du second bord latéral.
10. Alimentation en dispositifs à curseur selon l'une

quelconque des revendications 1 à 9, les dispositifs à curseur étant montés de manière amovible sur le ruban porteur par l'intermédiaire d'un adhésif.

11. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 1 à 10, dans laquelle le ruban porteur comprend une pluralité de portions encavées (92, 93), chaque dispositif à curseur étant monté de manière amovible dans l'une des nombreuses portions encavées.
12. Alimentation en dispositifs à curseur selon la revendication 11, dans laquelle les nombreuses portions encavées présentent une surface supérieure à celle du dispositif à curseur monté à l'intérieur.
13. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 11 à 12, le dispositif à curseur étant monté de manière amovible dans la portion encavée par l'intermédiaire d'un adhésif.
14. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 11 à 13, dans laquelle les nombreuses portions encavées présentent la même forme que les dispositifs à curseur.
15. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 11 à 14, dans laquelle les nombreuses portions encavées comprennent un dispositif d'aide au retrait.
16. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 1 à 15, comprenant en outre une feuille protectrice (183) placée sur les dispositifs à curseur de façon à ce que les dispositifs à curseur soient positionnés entre la feuille protectrice et le ruban porteur continu.
17. Alimentation en dispositifs à curseur selon l'une quelconque des revendications 1 à 16, comprenant en outre un mandrin (58) ; le ruban porteur, sur lequel la pluralité de dispositifs à curseur est montée de manière amovible, étant orienté sur le mandrin.
18. Procédé de fabrication d'un emballage refermable comprenant une construction de fermeture à glissière et un dispositif à curseur, le procédé comprenant :
 - (a) la fourniture d'une construction de fermeture ayant un premier profil de fermeture et un second profil de fermeture ; et
 - (b) la fourniture d'une alimentation continue en dispositifs à curseur, **caractérisé par** l'alimentation continue en dispositifs à curseur selon l'une quelconque des revendications 1 à 17.
19. Procédé selon la revendication 18, comprenant en

autre :

- (a) le retrait des dispositifs à curseur du ruban porteur ;
- (b) le montage du dispositif à curseur sur la construction de fermeture ; 5
- (c) le ramassage du ruban porteur duquel les dispositifs à curseur ont été retirés ; et
- (d) l'intégration de la construction de fermeture, sur laquelle est monté le dispositif à curseur, 10 dans un emballage.

- 20.** Procédé selon la revendication 19, dans lequel l'étape de ramassage du ruban porteur, duquel les dispositifs à curseur ont été retirés, comprend l'enroulement du ruban porteur sur une bobine. 15

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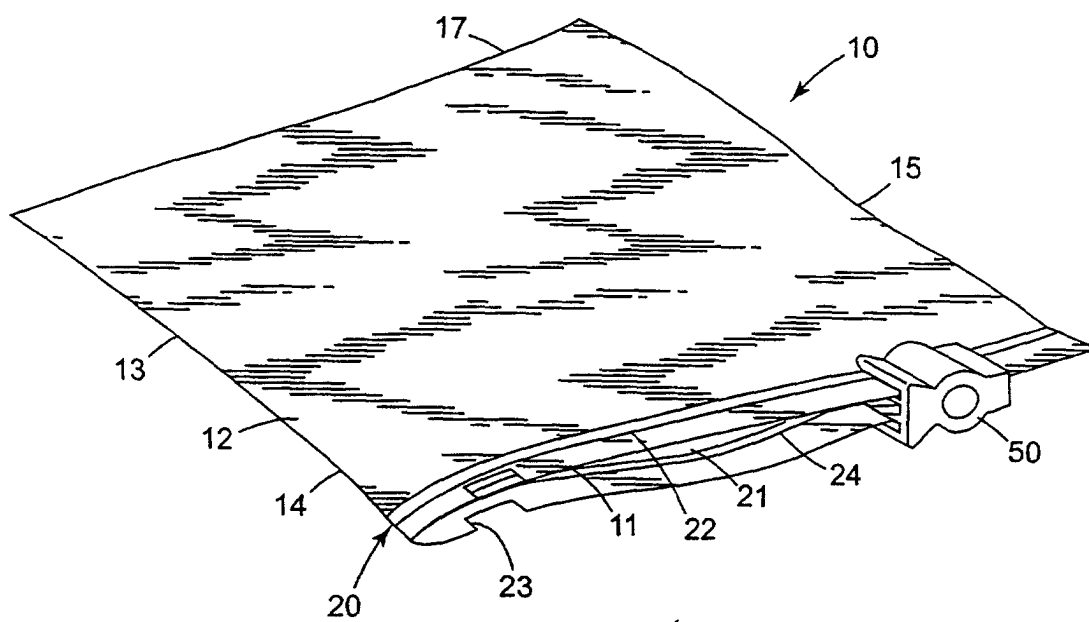


Fig. 1

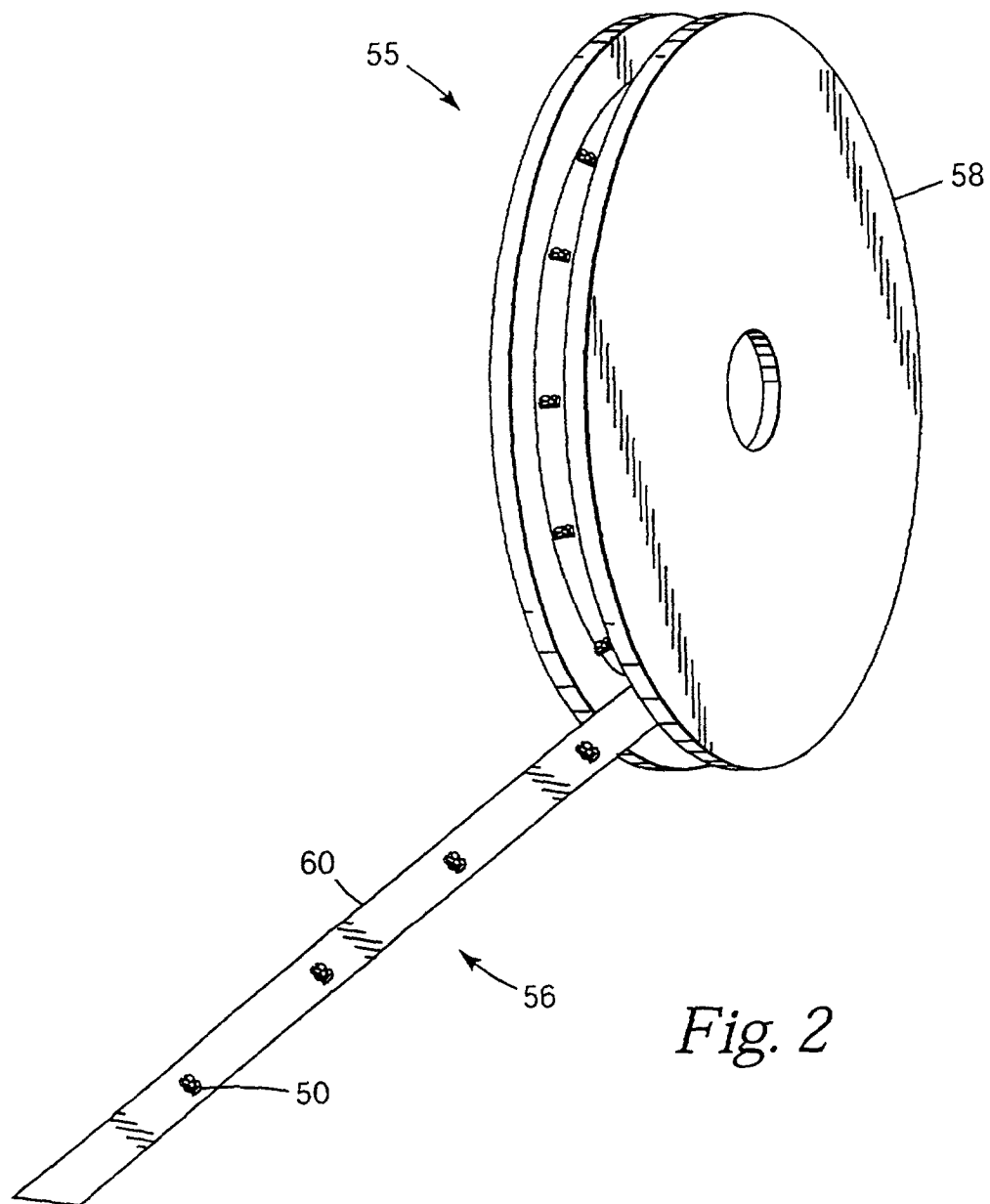
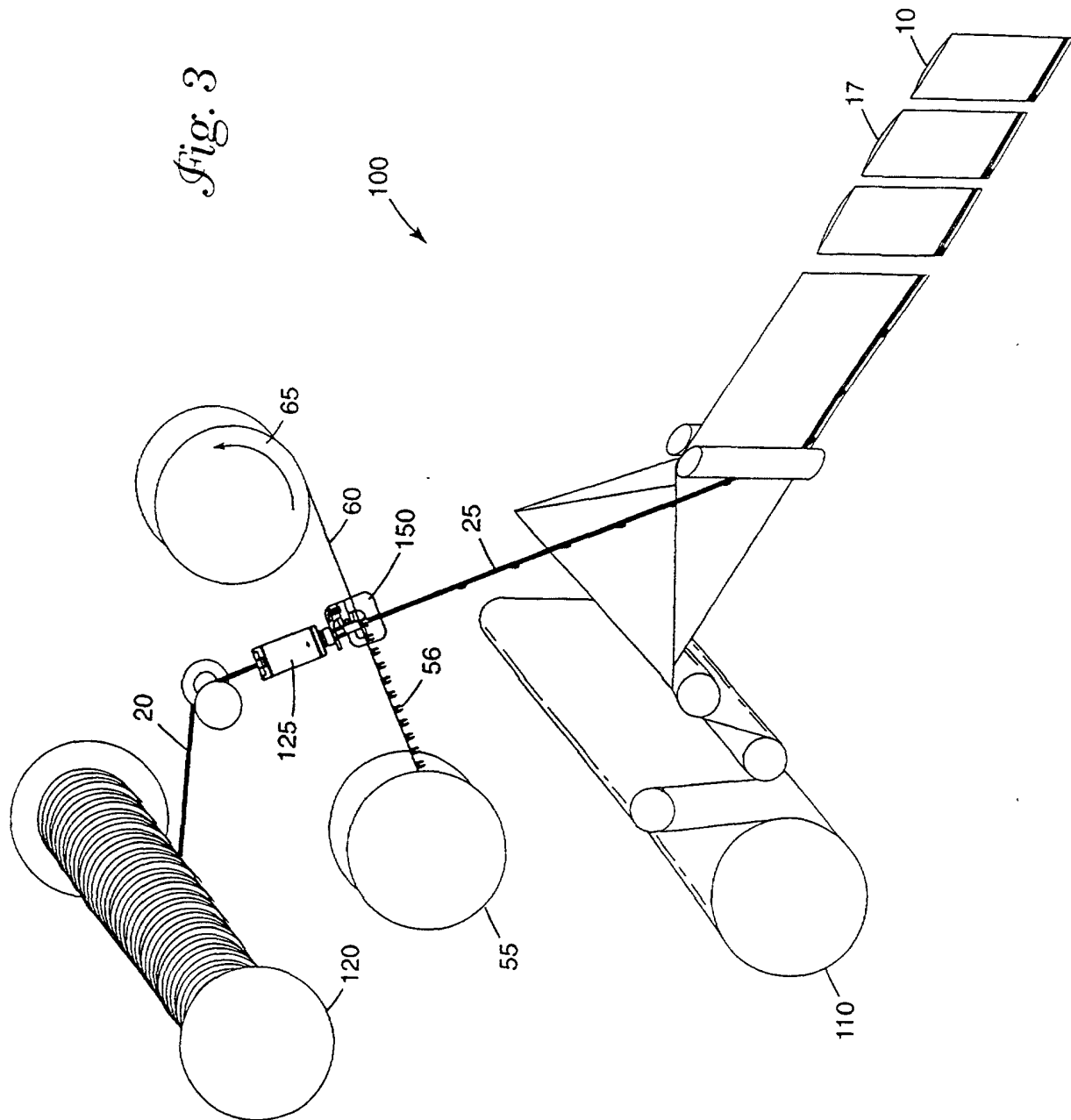


Fig. 2



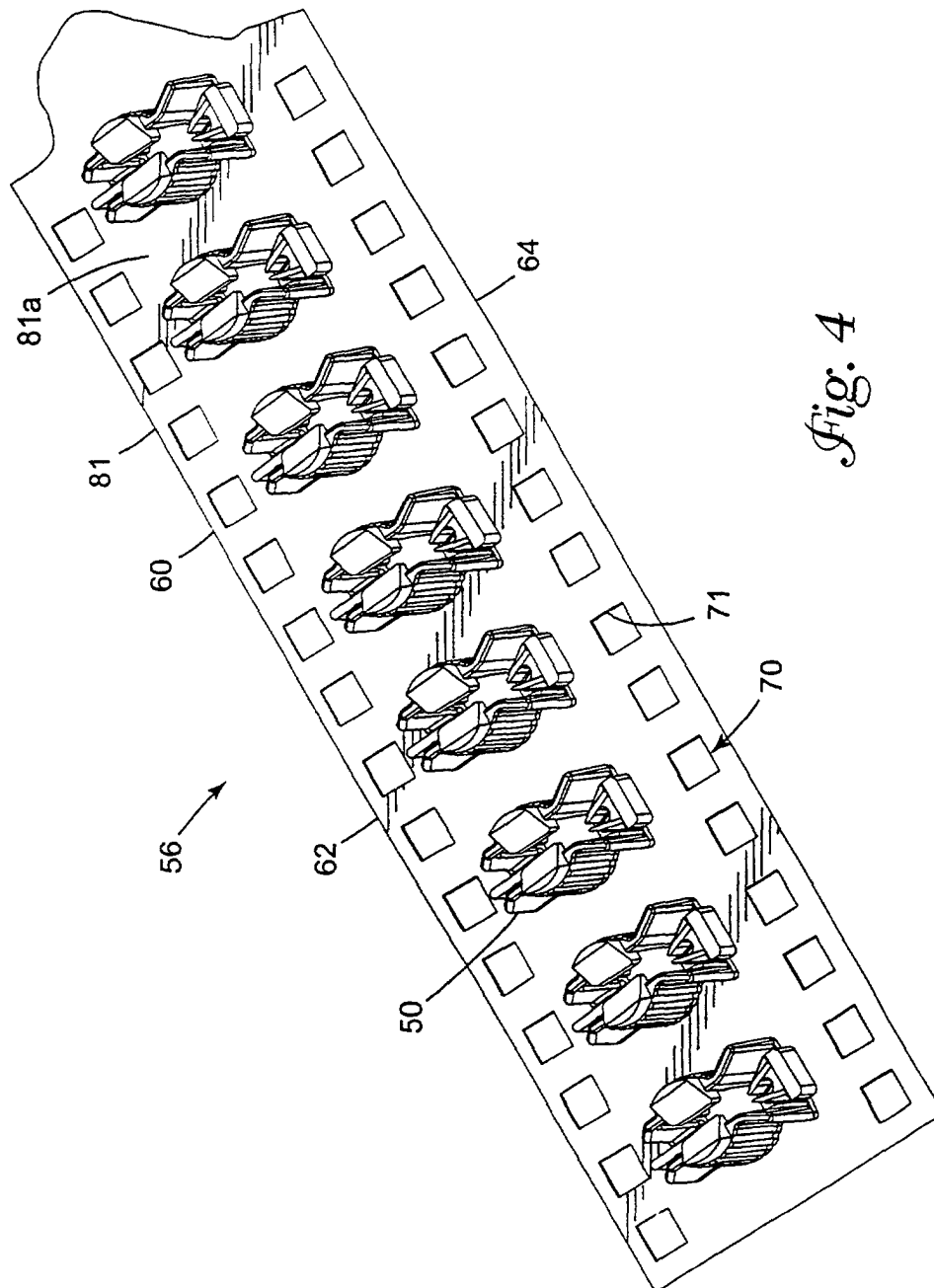
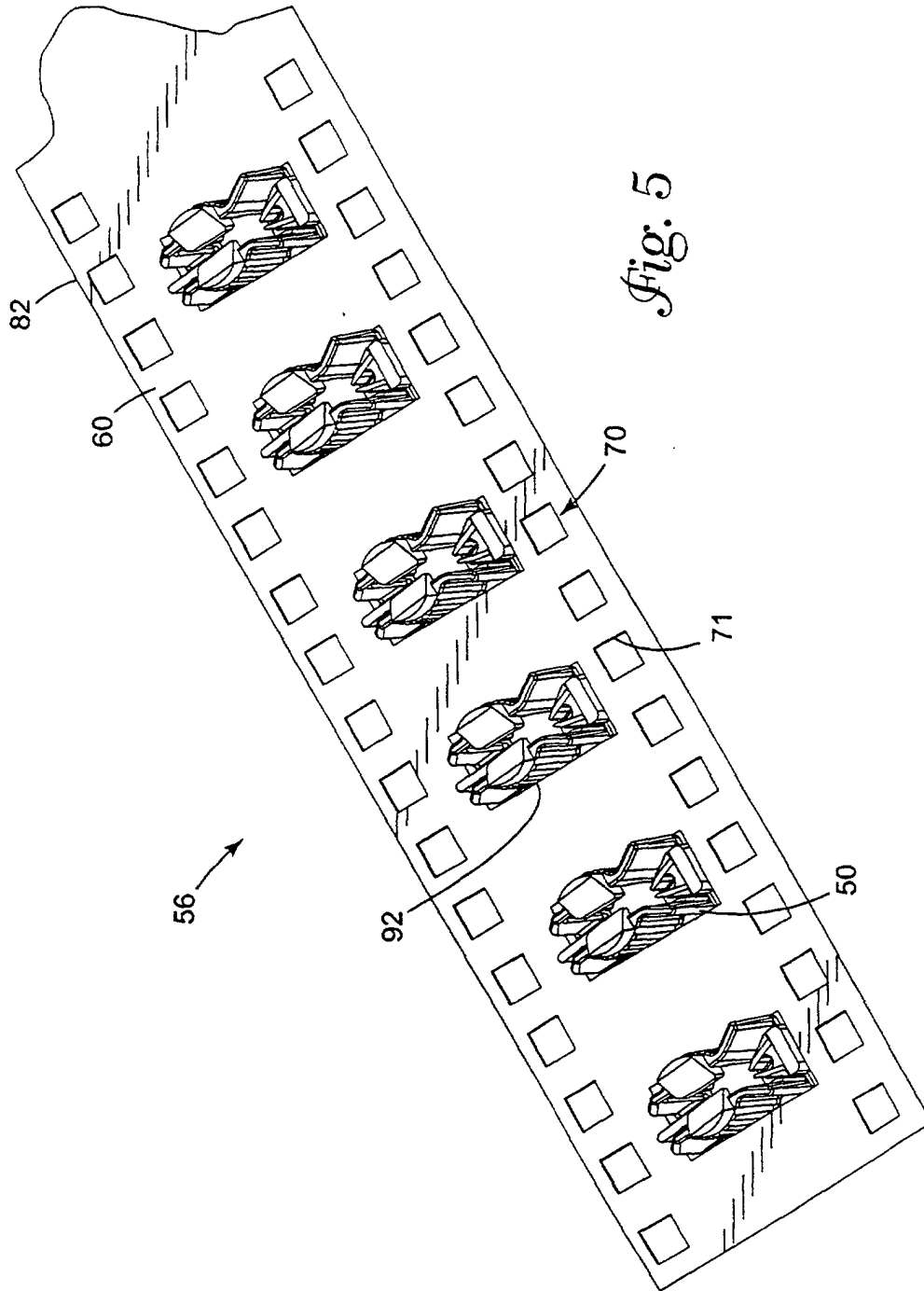


Fig. 4



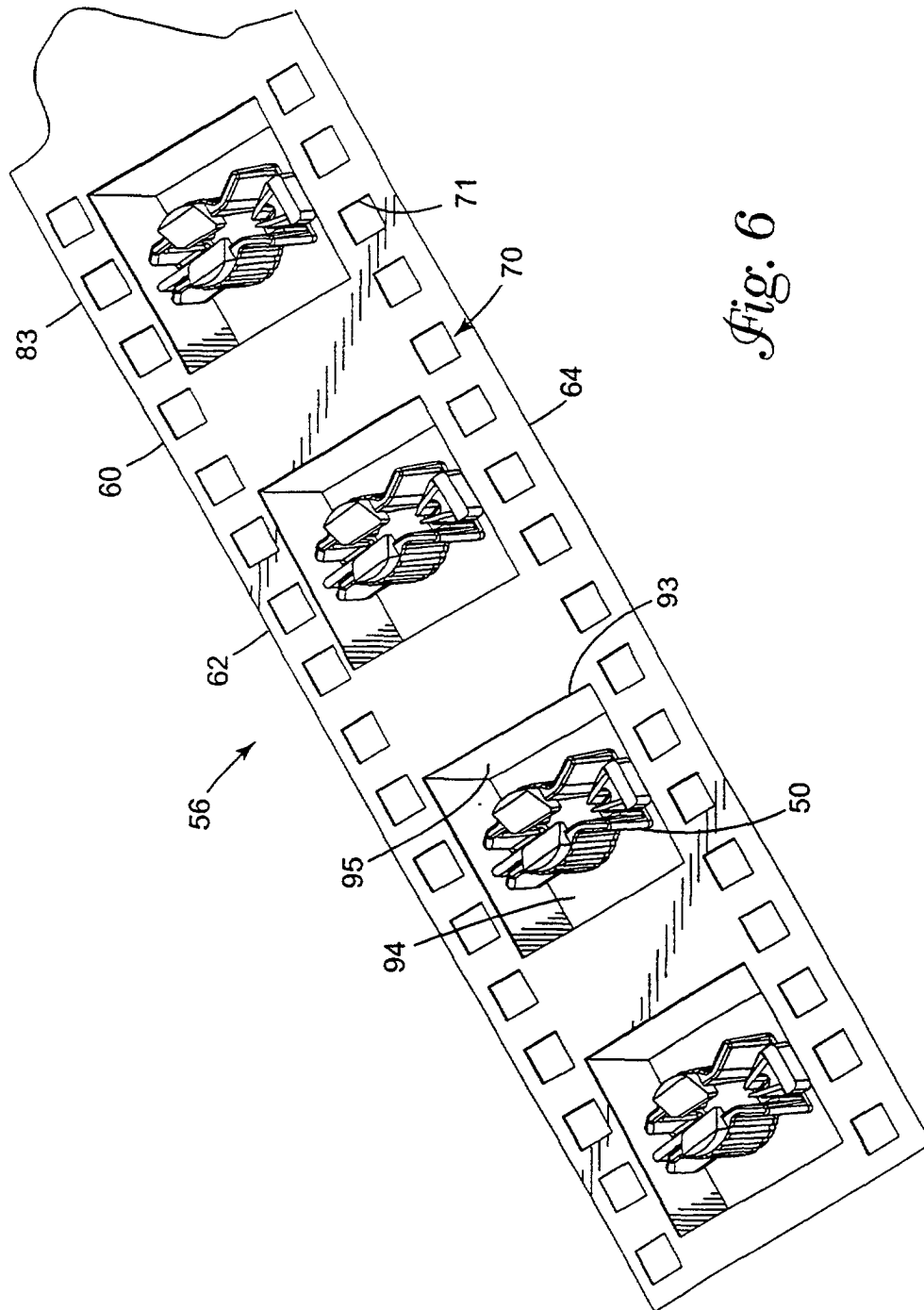
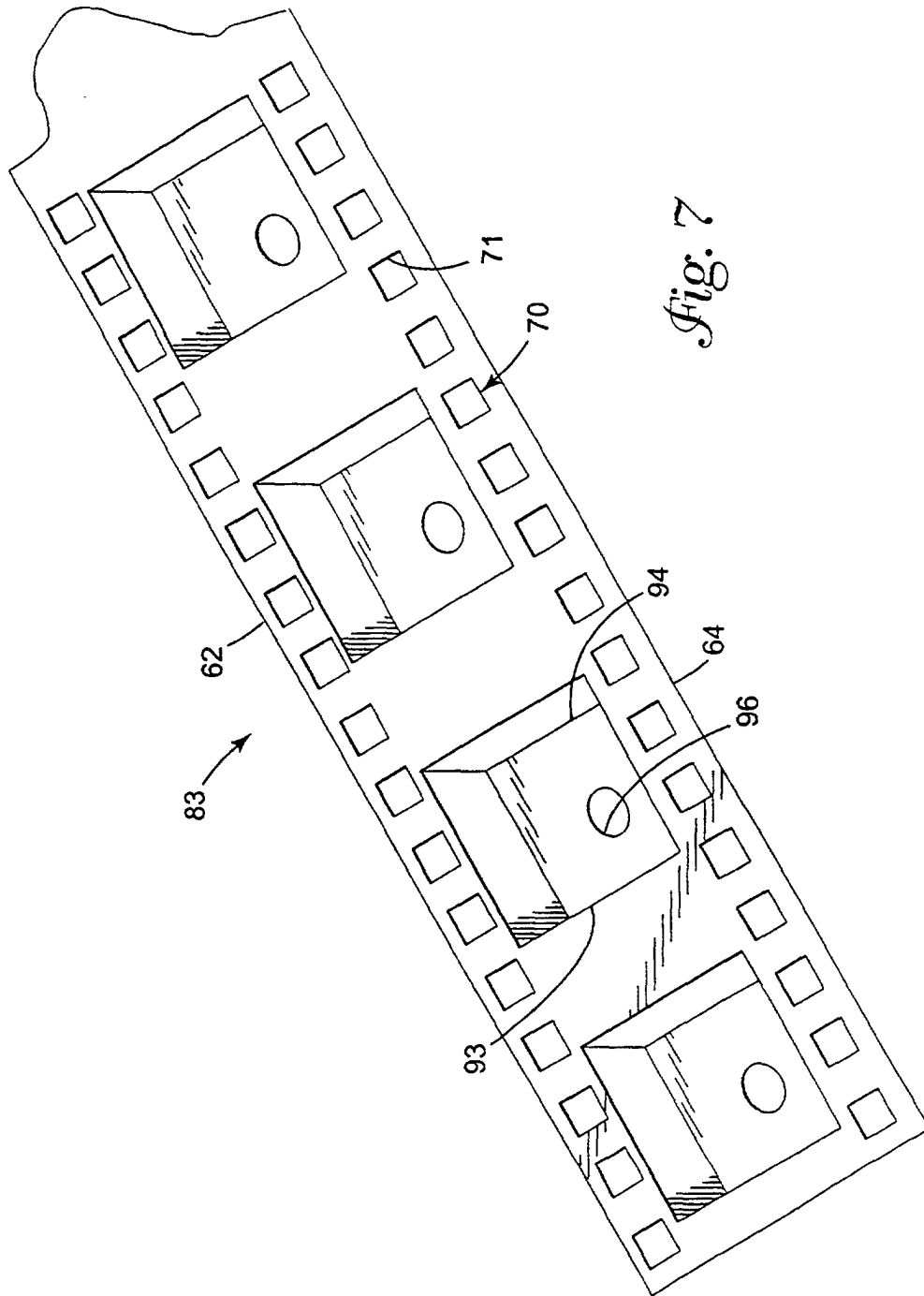


Fig. 6



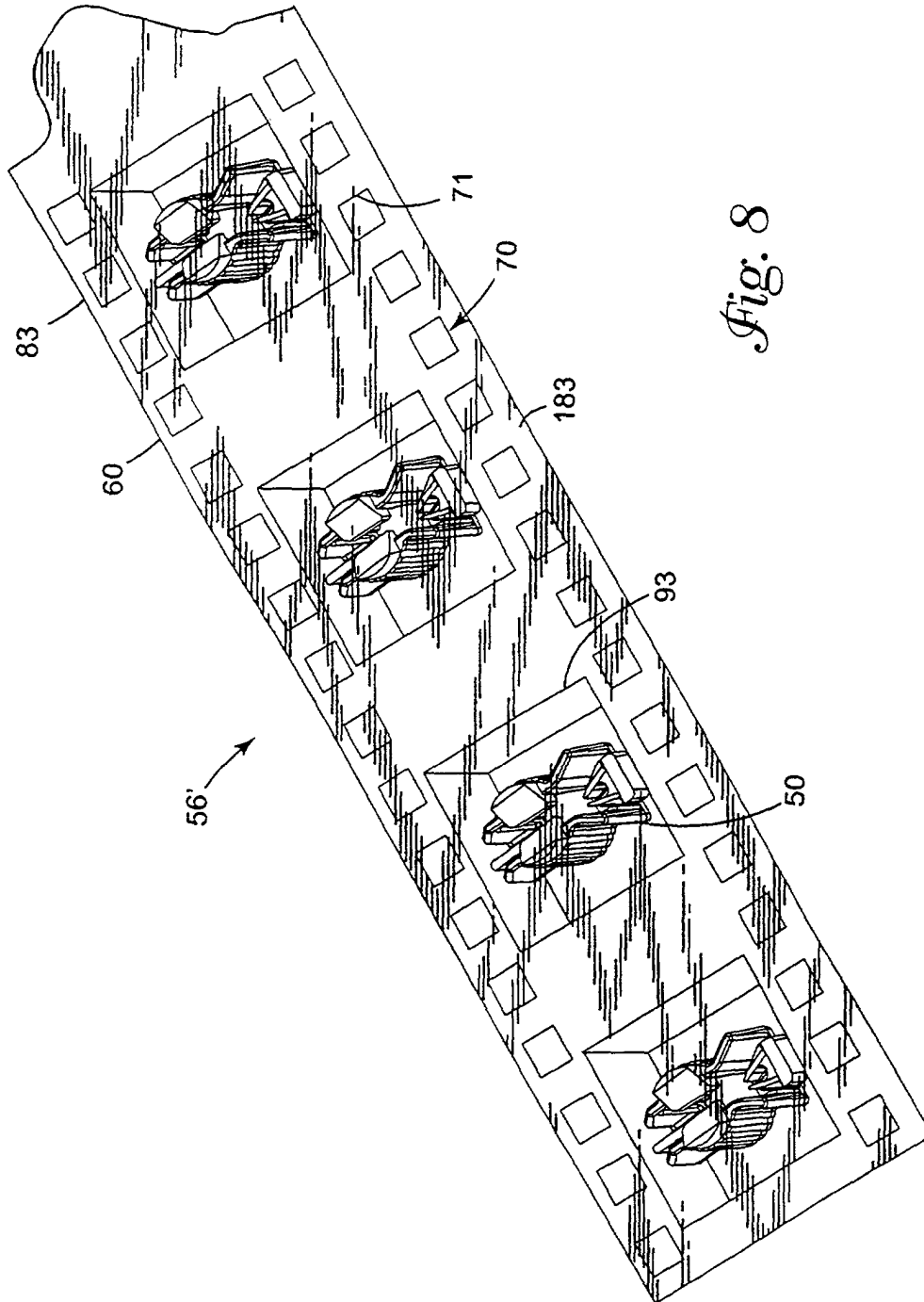
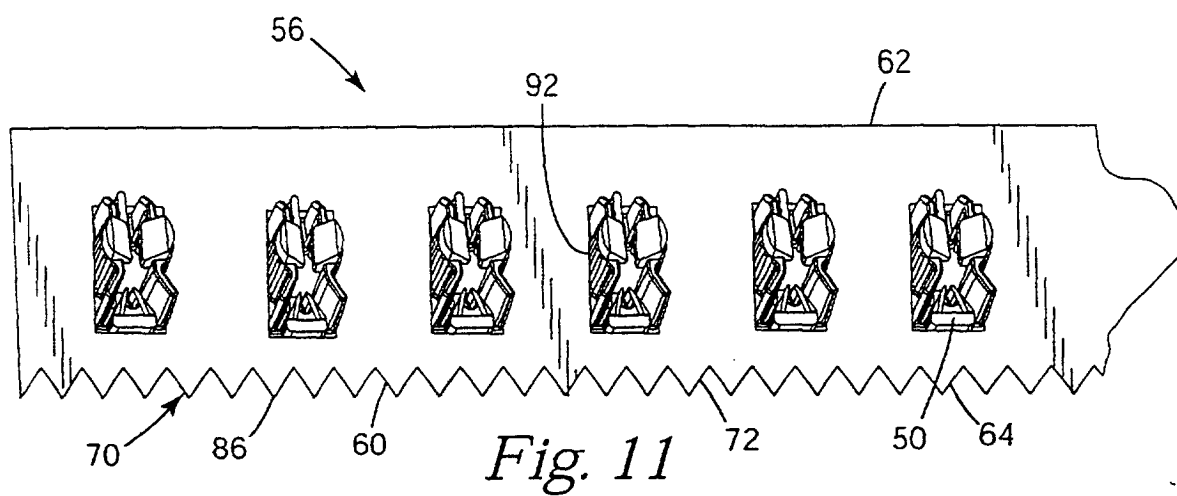
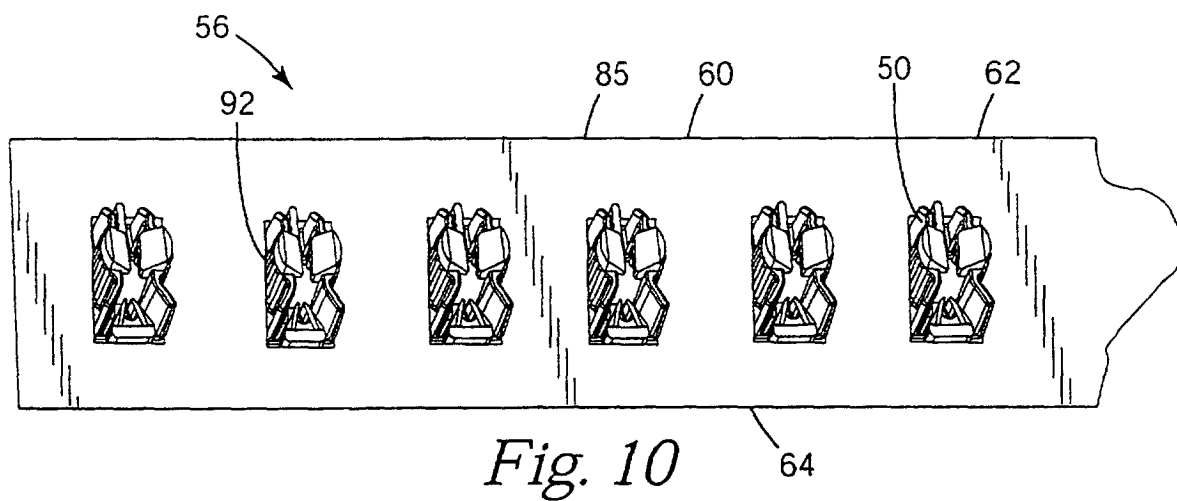
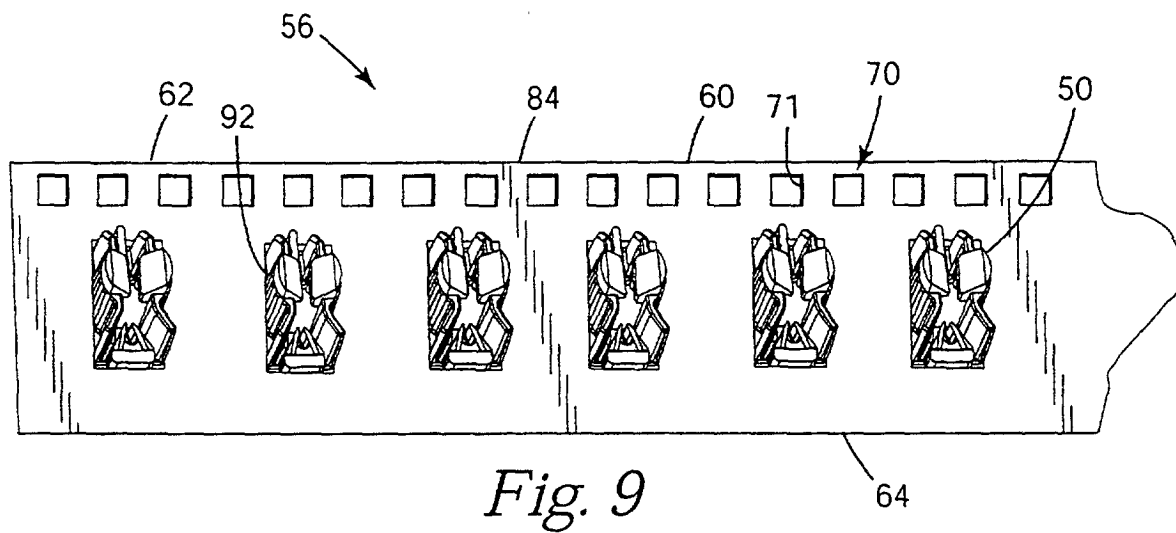


Fig. 8



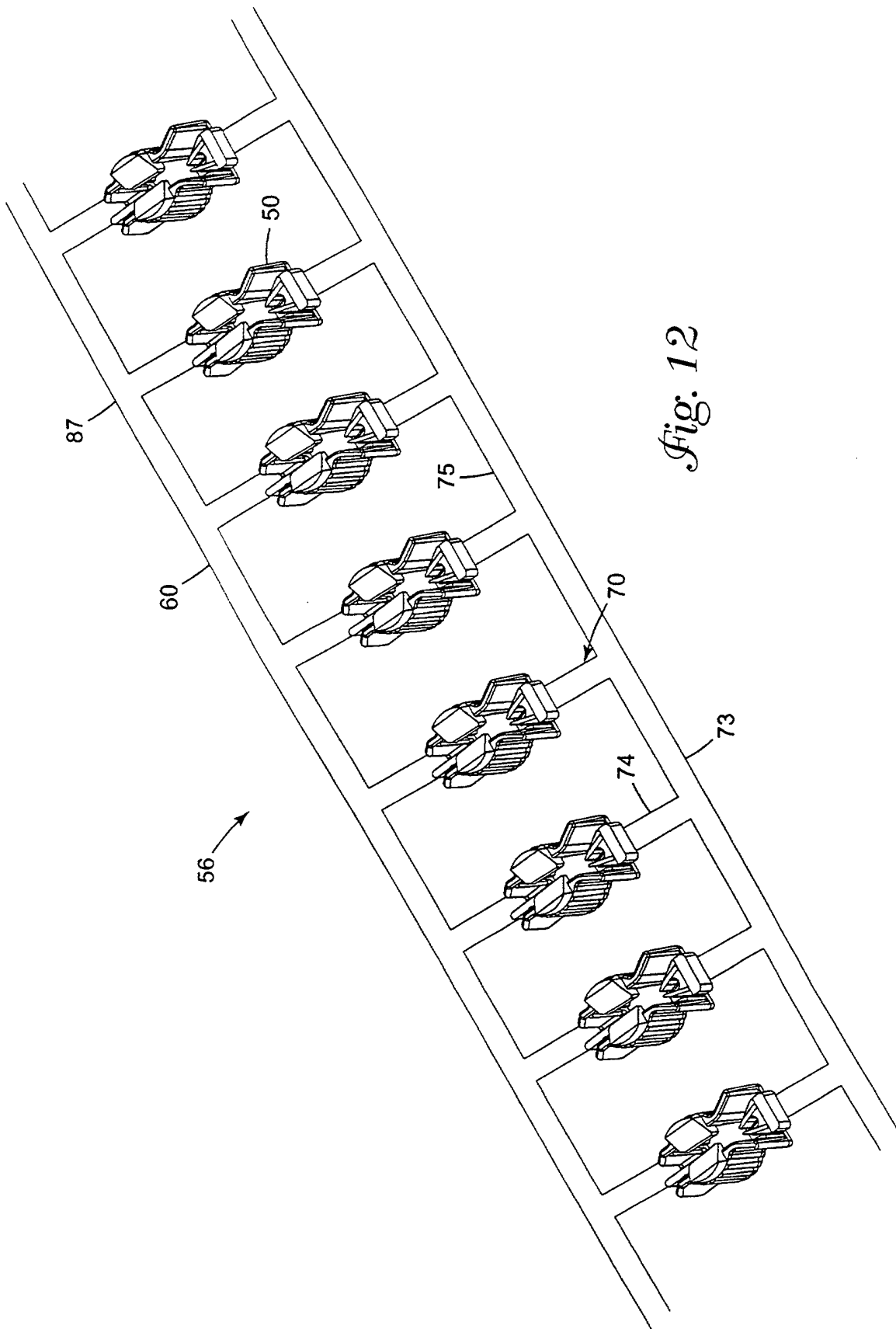
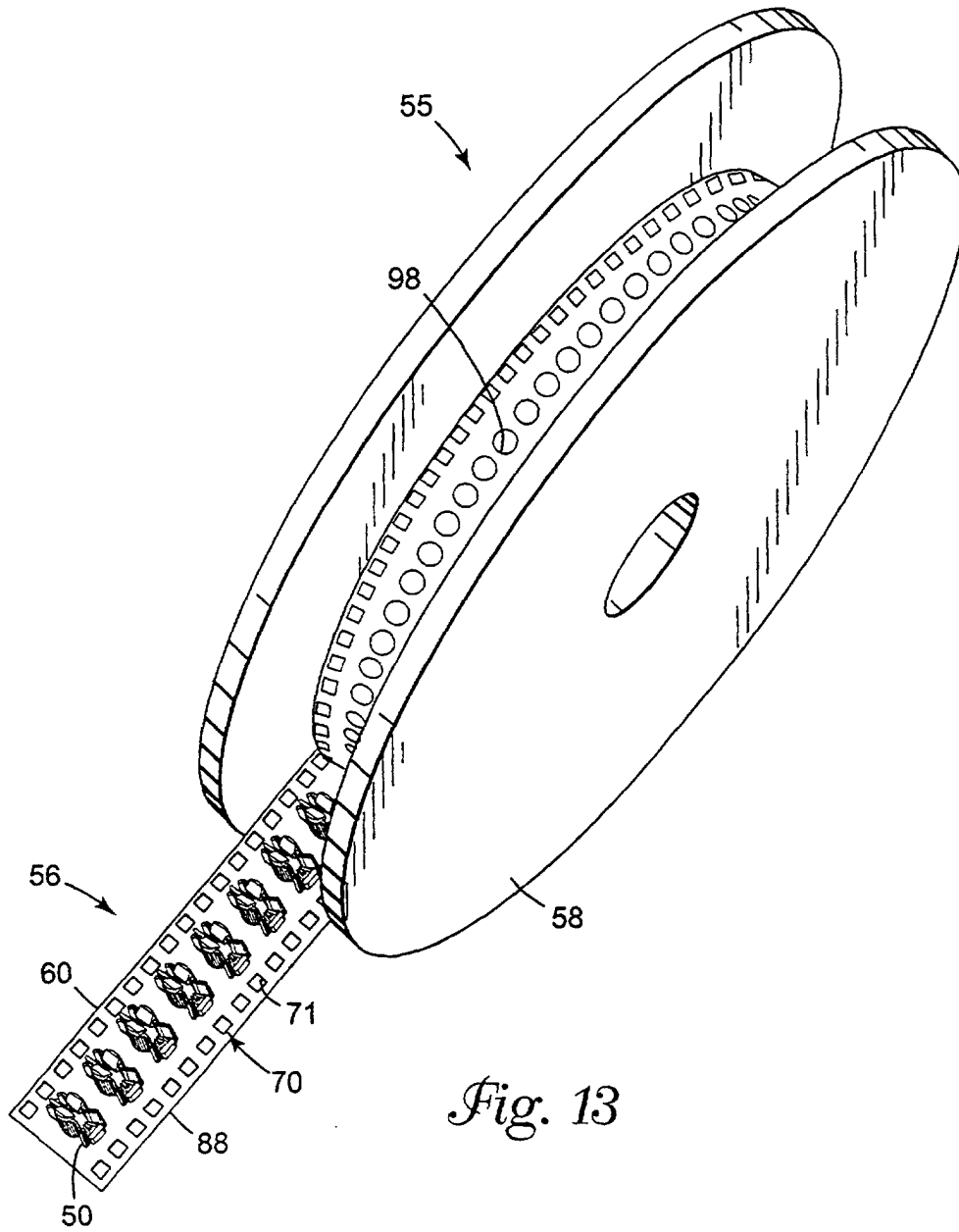


Fig. 12



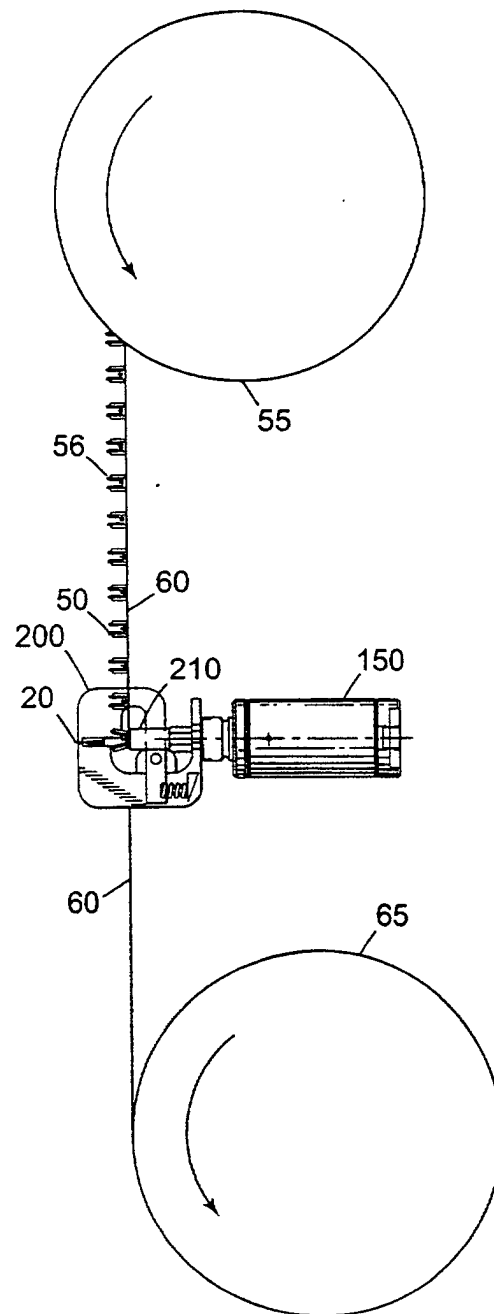


Fig. 14

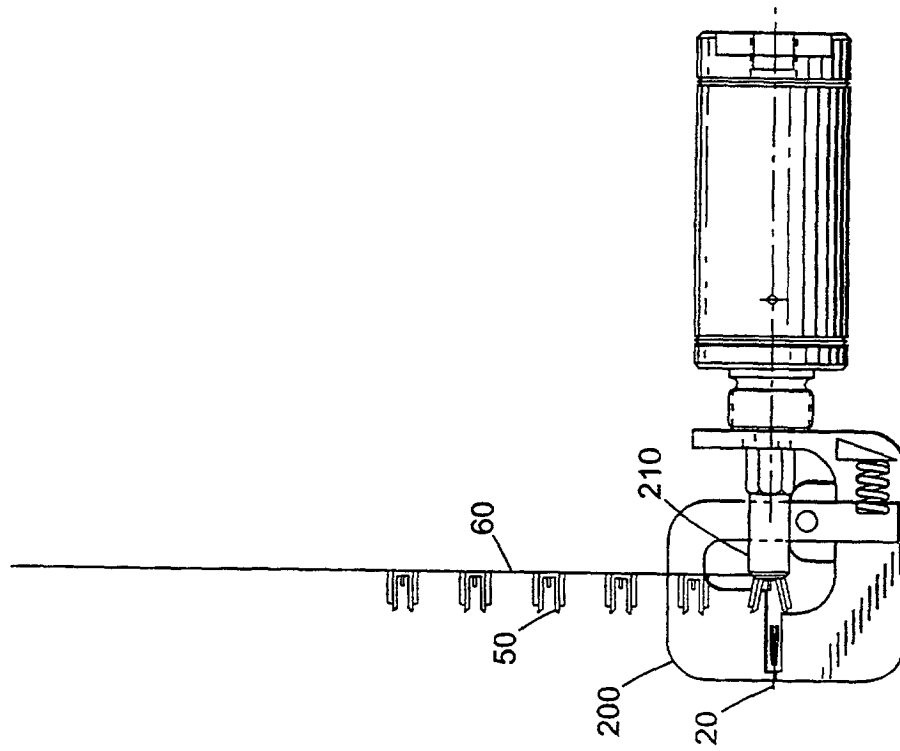


Fig. 16

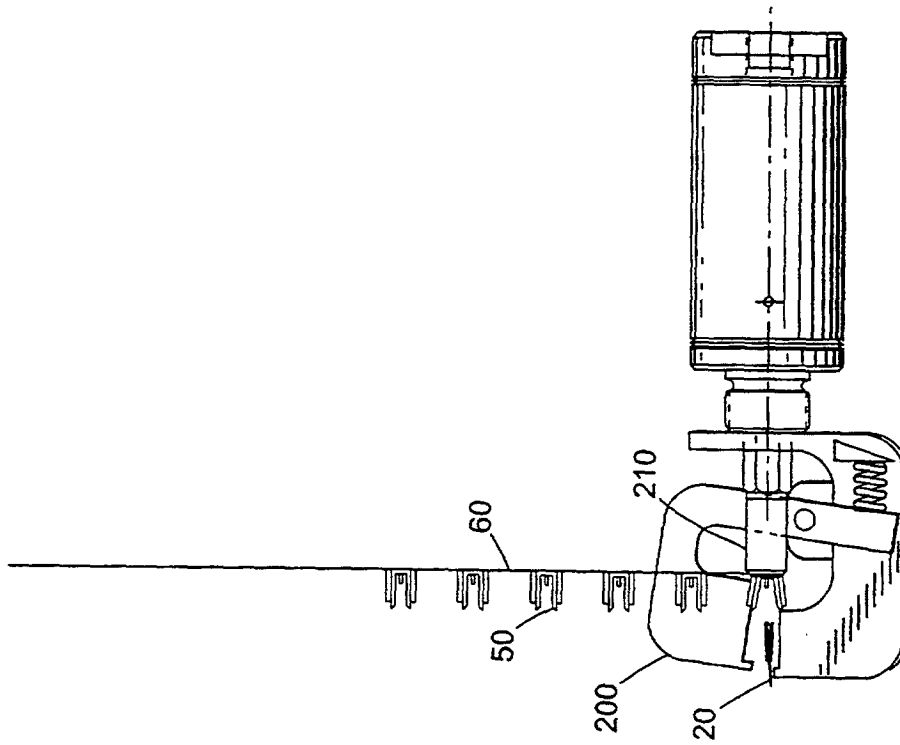


Fig. 15

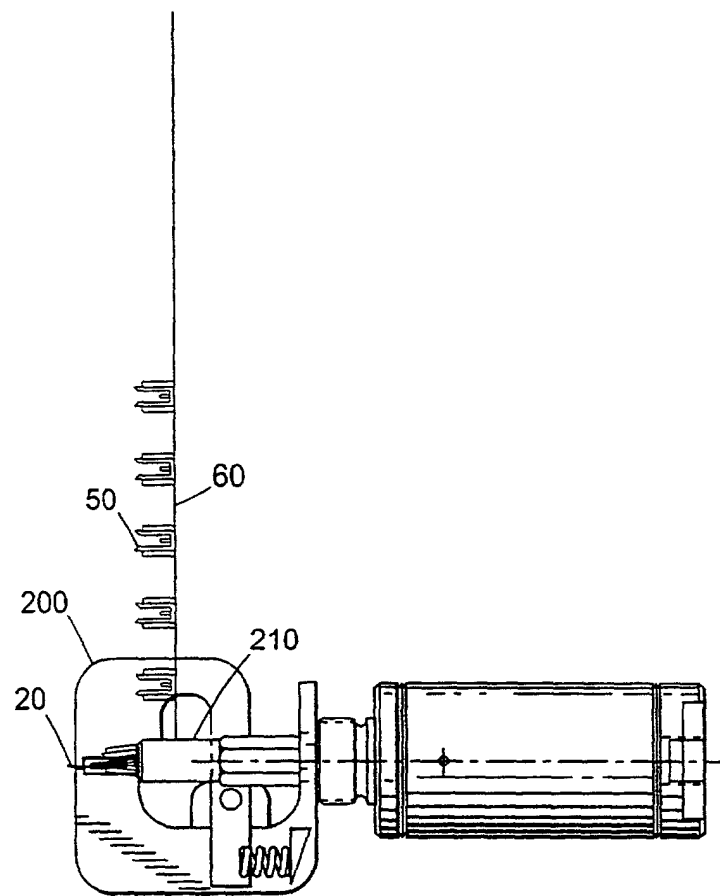


Fig. 17