United States Patent

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[54] SLIDE FASTENER ADHESIVE TAPE APPLICATOR

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[73] Assignee: **Textron Inc.**

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[52] **U.S. Cl.** **156/527**, 156/523, 156/530, 156/574

[51] **Int. Cl.** **B32b 31/04**

[58] **Field of Search** 156/527, 523, 524, 525, 526, 156/574, 575, 576, 577, 530

[56] **References Cited**

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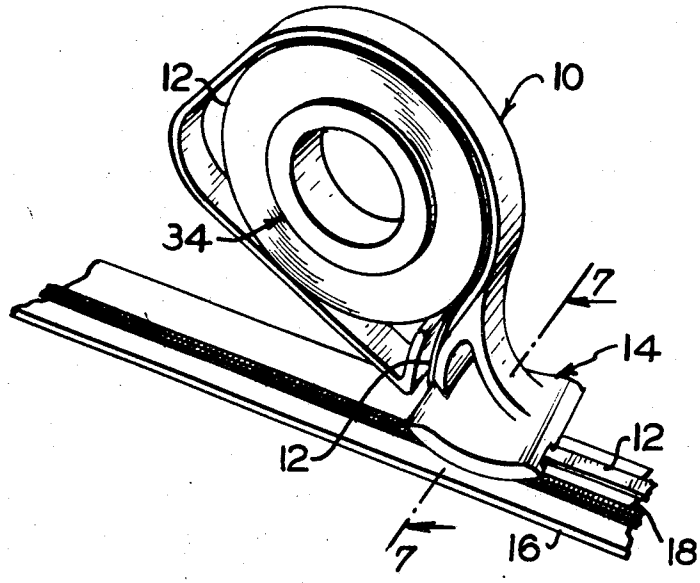
[57] **ABSTRACT**

An adhesive tape applicator for applying adhesive tape from a roll to a slide fastener tape in spaced relation to the meshing elements of the slide fastener including a compartment for rotatably supporting the roll of adhesive tape, and a pressure foot-receiving adhesive tape from the compartment through a passage and having a surface for pressing the adhesive tape onto the slide fastener tape and a guide channel laterally displaced from the surface for receiving the meshing elements of the slide fastener. The applicator is guided along the slide fastener by the engaging of the meshing elements with the guide channel to apply the adhesive tape to the slide fastener tape in spaced relation with the meshing elements.

1 Claims, 8 Drawing Figures



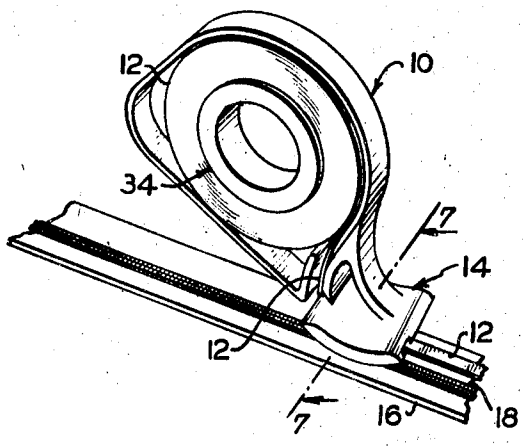


Fig. 1

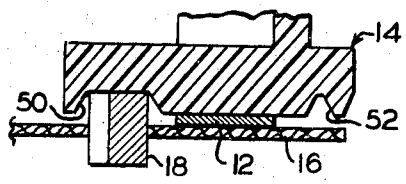


Fig. 7

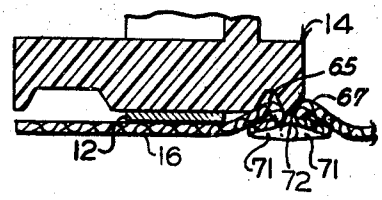


Fig. 8

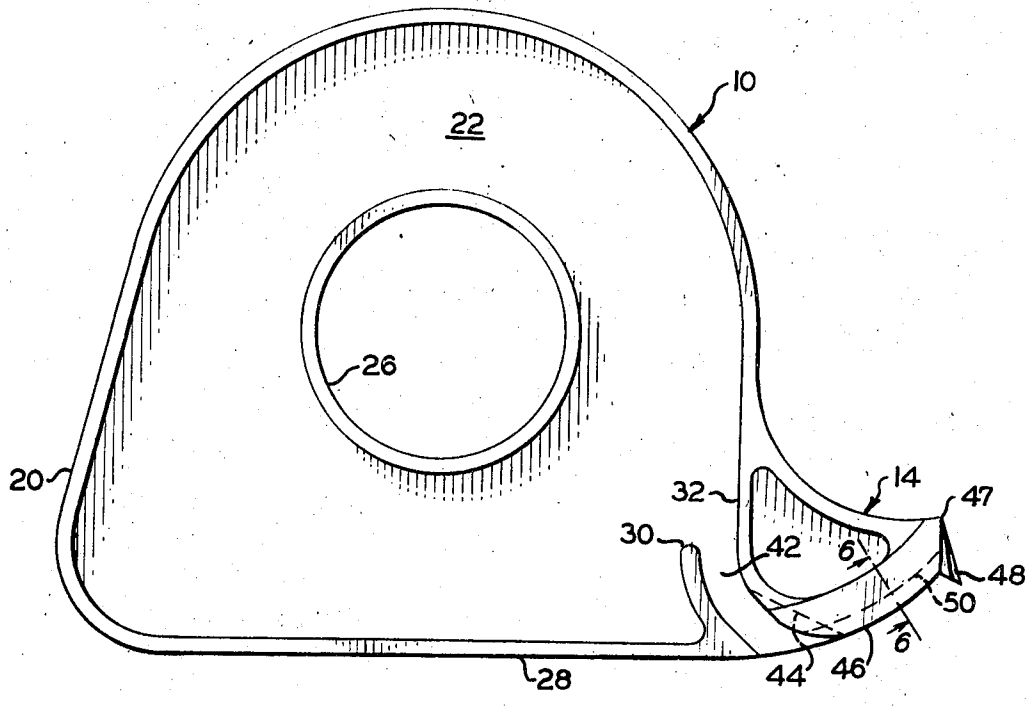


Fig. 2

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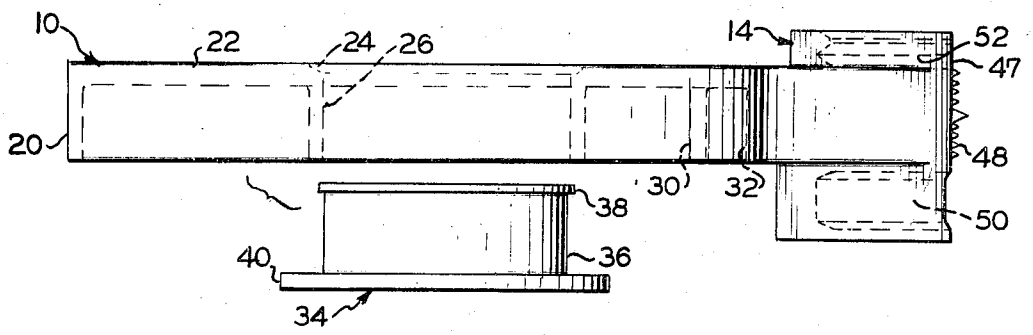

Fig. 3

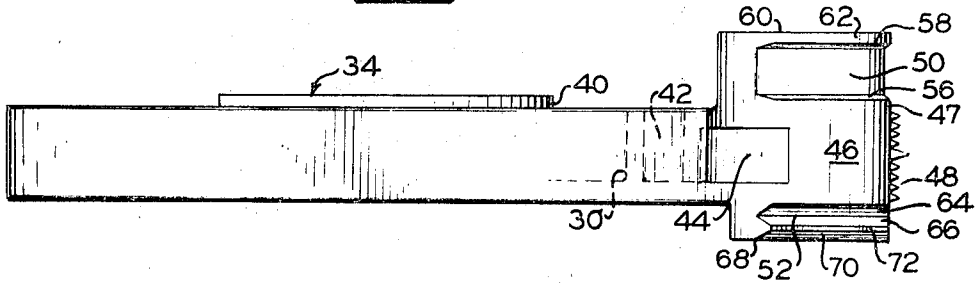

Fig. 4

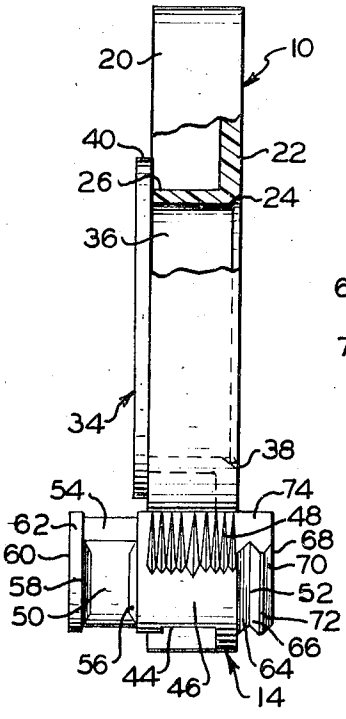

Fig. 5

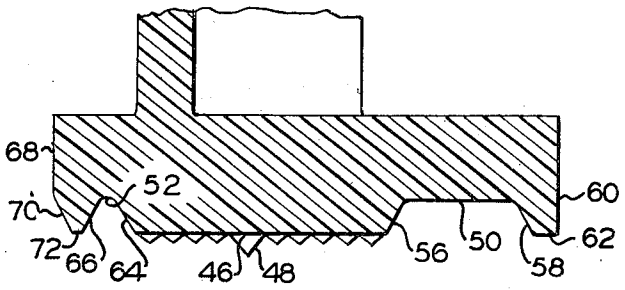

Fig. 6

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SLIDE FASTENER ADHESIVE TAPE APPLICATOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention pertains to adhesive tape applicators and, more particularly, to such applicators for applying adhesive tape to a slide fastener tape.

2. Description of the Prior Art

Recently, the basting operation normally required when sewing a slide fastener to a garment has been eliminated by the use of adhesive tape having adhesive material on both sides thereof. The adhesive tape is applied to the slide fastener tape in spaced relation with the meshing elements of the slide fastener, and the garment material is then positioned above the adhesive tape and pressed thereon such that the garment material is secured to the slide fastener tape. The garment material and the slide fastener tape are then sewn together by means such as a sewing machine.

In the past in order to properly position the adhesive tape on the slide fastener tape, it was conventional to provide the adhesive tape with an overlapping release backing, and the free edge of the backing was aligned in abutting relationship with the meshing elements of the slide fastener such that the once the backing was removed the adhesive tape would be spaced from the meshing elements. This method of applying adhesive tape to the slide fastener tape is cumbersome, inaccurate and aesthetically undesirable. One of the advantages of the use of adhesive tape to eliminate basting is that the adhesive tape remains sandwiched between the garment material and the slide fastener tape after sewing; and, accordingly, inaccurately applied and spaced adhesive tape may be observable after completion of the sewing operation thereby destroying the desired final appearance.

SUMMARY OF THE INVENTION

The present invention is summarized in an applicator for applying adhesive tape from a roll to a slide fastener tape in spaced relation with meshing elements of the slide fastener including a storage compartment for rotatably supporting the roll of adhesive tape, a pressure foot including a surface for pressing the adhesive tape onto the slide fastener tape, and a passage for supplying the adhesive tape from the roll to the surface, the pressure foot further including a guide laterally displaced from the surface for receiving the meshing elements of the slide fastener whereby the applicator may be moved along the length of the slide fastener to apply the adhesive tape to the slide fastener tape in spaced relation with the meshing elements.

It is an object of the present invention to construct an applicator for applying adhesive tape to slide fastener tape in spaced relation with the meshing elements of the slide fastener.

Another object of the present invention is to utilize a guide channel to engage meshing elements of a slide fastener and guide movement of an adhesive tape applicator along the slide fastener, the guide channel being laterally displaced from a surface for applying the adhesive tape.

A further object of the present invention is to laterally displace a pair of guide channels on either side of a surface for applying an adhesive tape in an adhesive tape applicator.

The present invention has another object in that a slide fastener adhesive tape applicator is inexpensively formed with no moving parts to accurately space an adhesive tape from the meshing elements of a slide fastener.

Some of the advantages of the adhesive tape applicator of the present invention over the prior art are that adhesive tape may be accurately spaced from the meshing elements of a slide fastener to obviate the basting step in sewing a slide fastener to garment, and the adhesive tape applicator may be inexpensively produced.

Further objects and advantages of the present invention will become apparent from the following description of the preferred embodiment taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an adhesive tape applicator according to the present invention.

FIG. 2 is a side elevation of the adhesive tape applicator of FIG. 1.

FIG. 3 is an exploded top view of the adhesive tape applicator of FIG. 2.

FIG. 4 is a bottom view of the adhesive tape applicator of FIG. 2.

FIG. 5 is a front elevation of the adhesive tape applicator of FIG. 2.

FIG. 6 is a sectional view taken along line 6—6 of FIG. 2.

FIG. 7 is a sectional view taken along line 7—7 of FIG. 1.

FIG. 8 is a sectional view similar to that of FIG. 7 illustrating the use of another guide channel in the adhesive tape applicator of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

An adhesive tape applicator according to the present invention is illustrated as used to apply adhesive tape to a slide fastener tape in FIG. 1. The applicator is desirably made of a plastic material and includes, as basic elements, a compartment **10** for storing a roll of adhesive tape **12** and a pressure foot **14** for applying the adhesive tape to a slide fastener tape **16** attached to the meshing elements **18** of a slide fastener. The adhesive tape **12** has adhesive on both sides with the adhesive on the top side being protected by a release backing.

As best shown in FIGS. 2, 3 and 5, compartment **10** is cup-shaped with an outer wall **20** extending transversely from a planar sidewall **22** confining the roll of adhesive tape **12**. The central portion of sidewall **22** has a rounded annular shoulder **24** therein which terminates in a transversely extending cylindrical wall forming a hollow spindle **26** for supporting the roll of adhesive tape **12**. Outer wall **20** has a flat base portion **28** terminating in an upwardly extending, arcuate guide wall **30** which protrudes into the adhesive tape storage compartment in a generally concentric manner with a tangential side portion **32** of outer wall **20** to form an exit from compartment **10** for the adhesive tape.

A retaining sleeve **34** has a cylindrical wall **36** which has an outwardly extending annular bead **38** on one end thereof and a transversely extending annular flange **40** at the other end thereof. Sleeve **34** is inserted in hollow spindle **26** once the roll of adhesive tape **12** is positioned on the spindle such that bead **38** snaps into engagement with shoulder **24** and the roll of adhesive tape is captured between sidewall **22** and flange **40**.

Walls **30** and **32** form an exit passage **42** to deliver the adhesive tape from the roll to pressure foot **14** for application to the slide fastener tape. Exit passage **42** communicates with an alignment slot **44** in the lower portion of foot **14**, which alignment slot **44** tapers gradually into a smooth bottom surface **46**. Bottom surface **46** smoothly curves longitudinally to the distal end **47** of pressure foot **14** which has a plurality of cutting teeth **48** arranged laterally thereacross. The width of bottom surface **46** is substantially greater than the width of the adhesive tape, and on either side of bottom surface **46** are laterally displaced, curved guide channels **50** and **52**, respectively.

Guide channel **50** has a trapezoidal cross section with an angled front face **54** extending down to the channel and beveled sides **56** and **58** which are oriented to provide a greater space at the open portion of the channel than at the closed portion of the channel. A sidewall **60** abuts beveled side **58** and has a smooth-curved surface **62** aligned with bottom surface **46**, as best shown in FIG. 6. Guide channel **50** extends from distal end **47** of pressure foot **14** to a position near the rear end of pressure foot **14** where sides **56** and **58** taper to meet bottom surface **46**.

Guide channel **52** has a generally triangular cross section formed by angled sides **64** and **66**, and a sidewall **68** of pressure foot **14** has a beveled end **70** cooperating with angled side **66** to form a tapered guide edge having a smooth-curved surface **72** aligned with bottom surface **46** and surface **62**. Guide channel **52** extends from an angled front face **74** at distal nd

47 of pressure foot 14 to a position near the rear end of pressure foot 14 where sides 64 and 66 taper to meet bottom surface 46.

In operation, the applicator is gripped with the top of compartment 10 in the heel of the hand and the base portion 28 held by the fingers. The applicator is tilted, as shown in FIG. 1, such that the adhesive tape is pressed against the slide fastener tape 16 by bottom surface 46 as it is fed from compartment 10 through exit passage 42 and alignment slot 44. If the meshing elements 18 are of the exposed scoop variety, the applicator is positioned such that the meshing elements are received in guide channel 50 as shown in FIG. 7. The applicator is moved along the slide fastener while applying pressure on foot 14 to press the adhesive tape 12 onto the slide fastener tape 16 and to maintain meshing elements 18 in guide channel 50. The roll of adhesive tape will rotate on spindle 26 as the applicator is moved along the slide fastener, and the adhesive tape is supplied to bottom surface 46 through exit passage 42 and guide slot 44. Adhesive tape 12 will adhere to slide fastener tape 16 in spaced relation with meshing elements 18 due to the lateral displacement of guide channel 50 from the portion of bottom surface 46 utilized to press the adhesive tape 12 onto the slide fastener tape 16. The space between meshing elements 18 and the applied adhesive tape 12 is designated A in FIG. 7; and, or course, the space A may be varied by changing the lateral displacement of guide channel 50 from bottom surface 46.

After the adhesive tape 12 is applied the length of the slide fastener tape 16, the applicator is tilted up on distal end 47 of pressure foot 14 such that cutting teeth 48 engage the adhesive tape. The adhesive tape is then severed by twisting movement of the applicator.

Once the adhesive tape 12 has been applied to the slide fastener tape 16 on either side of the meshing elements 18, the release backing is removed from the applied adhesive tape to expose the adhesive on the top side thereof. The material of the garment is then pressed against the exposed side of the adhesive tape, and the final sewing operation is performed. Of course, the final sewing step may be dispensed with if an adhesive tape is utilized that has sufficient strength and permanence to adhere to the material without more and withstand the normal forces on a slide fastener.

Guide channel 52 is adapted for use in applying adhesive tape 12 to the tape of a concealed slide fastener, as illustrated in FIG. 8. The meshing elements 71 on either side of the concealed slide fastener are secured to folds 65 and 67 in the slide fastener tape 16 such that the meshing elements are not visible when the slide fastener is closed due to the abutment of folds 65 and 67. Guide channel 52 receives fold 65 of the slide fastener tape, and curved surface 72 of the tapered guide edge is inserted between folds 65 and 67 such that angled side 66 contacts fold 65 and beveled end 70 contacts fold 67. The applicator is moved along the concealed slide fastener to apply adhesive tape 12 to slide fastener tape 16 in spaced relation to meshing element 71 in the same manner as previously described with respect to guide channel 50. Guide channel 52 may also be used to engage the cord sometimes used to secure meshing elements of a slide fastener to a slide fastener tape.

The angular, inward orientation of sides 56 and 58 of guide channel 50 and sides 64 and 66 of guide channel 52 serve to center the meshing elements therein to increase the accuracy of the spacing of the adhesive tape from the meshing elements. Exit passage 42 and guide slot 44 assure the adhesive tape 12 is accurately aligned as it is supplied to bottom surface 46 to further increase spacing accuracy.

It may be seen that the applicator of the present invention accurately spaces the adhesive tape from the meshing elements of a slide fastener due to the lateral displacement of the guide channels from the pressing surface used to press the adhesive tape onto the slide fastener tape. Furthermore, the adhesive tape may be easily and quickly positioned since the meshing elements will not slip out of the guide channels during the application of pressure and the applicator may be quickly moved along the length of the slide fastener.

The outer dimensions of the applicator of the present invention are such as to easily fit in a hand; and the spacing between the pressing surface used to apply the adhesive tape and the guide channels may be varied for use with various width slide fastener tapes. The width and shape of the guide channels may also be varied to accommodate meshing elements of various shapes and sizes.

Inasmuch as the present invention is subject to many variations, modifications and changes in detail, it is intended that all matter contained in the foregoing description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. An applicator for applying adhesive tape from a roll to a slide tape in spaced relation with meshing elements of a slide fastener comprising

a storage compartment for the roll of adhesive tape having therein means for rotatably supporting the roll of adhesive tape;

said means for rotatably supporting the roll of adhesive tape comprising a hollow spindle and cylindrical retaining sleeve having a transversely extending flange, said retaining sleeve engaging in said hollow spindle to capture the roll of adhesive tape between said flange and a wall of said compartment;

a pressure foot integral with said compartment and having a pressing surface for pressing the adhesive tape onto the slide fastener tape and cutting means formed at the outer end of said pressing surface; and

passage means communicating with said storage compartment and said pressure foot for supplying the adhesive tape from the roll to said surface;

said passage means comprising a guide slot to properly align the adhesive tape on said pressing surface;

said pressure foot further comprising a bottom surface coinciding with said pressing surface and guide means comprising a first channel in said bottom surface laterally displaced a fixed distance to one side of said pressing surface and a second channel in said bottom surface laterally displaced a fixed distance to the other side of said pressing surface, said first and second channels each having inwardly, angularly oriented sides adapted to center the meshing elements of the slide fastener; said first channel having a trapezoidal shape in cross section and said second channel having a triangular shape in cross section,

whereby the meshing elements of the slide fastener are received by one of said guide means so that the applicator may be moved along the length of the slide fastener to apply the adhesive tape to the slide fastener tape in fixed spaced relation with the meshing elements.

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