United States Patent [19]

Pearson

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[54] **TAPE APPLICATOR**

[75] Inventor: **Walter C. Pearson,** St. Paul, Minn.

[73] Assignee: **Minnesota Mining and Manufacturing Company,** St. Paul, Minn.

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[52] **U.S. Cl.** **156/523,** 156/577

[51] **Int. Cl.** **B32b 31/18**

[58] **Field of Search** 156/523, 577, 576, 574, 156/579, 522, 527

[56] **References Cited**

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Primary Examiner—Charles E. Van Horn

Assistant Examiner—M. G. Wityshyn

Attorney, Agent, or Firm—Alexander, Sell, Steldt & DeLaHunt

[57] **ABSTRACT**

A tape applicator for holding and applying adhesive tape and for applying random lengths of tape to a receiving surface and for severing the roll of tape from the tape applied.

The dispenser has a pressure actuated guard which is moved against a spring into the dispenser upon engaging the guard with the surface to receive the tape with sufficient force to move the guard. This movement of the guard retracts the knife and positions a tape applying roller to apply the free end of the tape supply to the receiving surface. After the predetermined length of tape has been applied pressure on the dispenser is relieved and the guard and knife return to their normal positions with the knife moving across the path of the tape between the applying member and the applied tape to sever the same as the dispenser was withdrawn.

4 Claims, 5 Drawing Figures

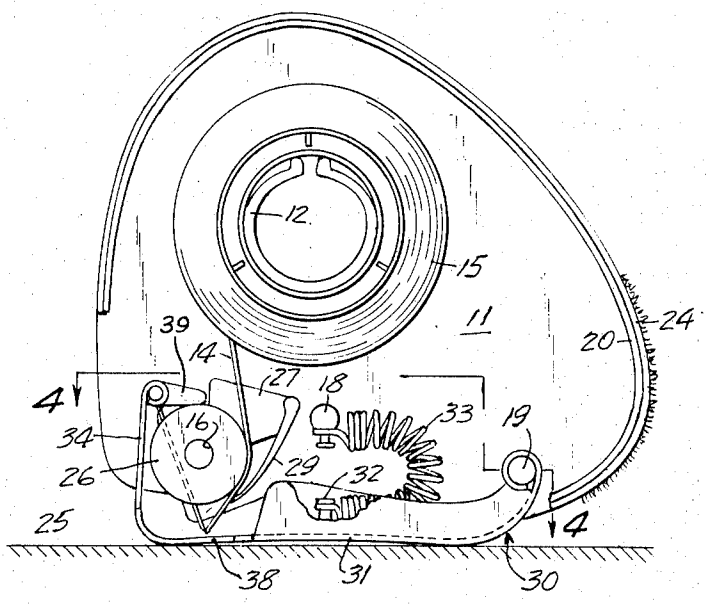


FIG. 1

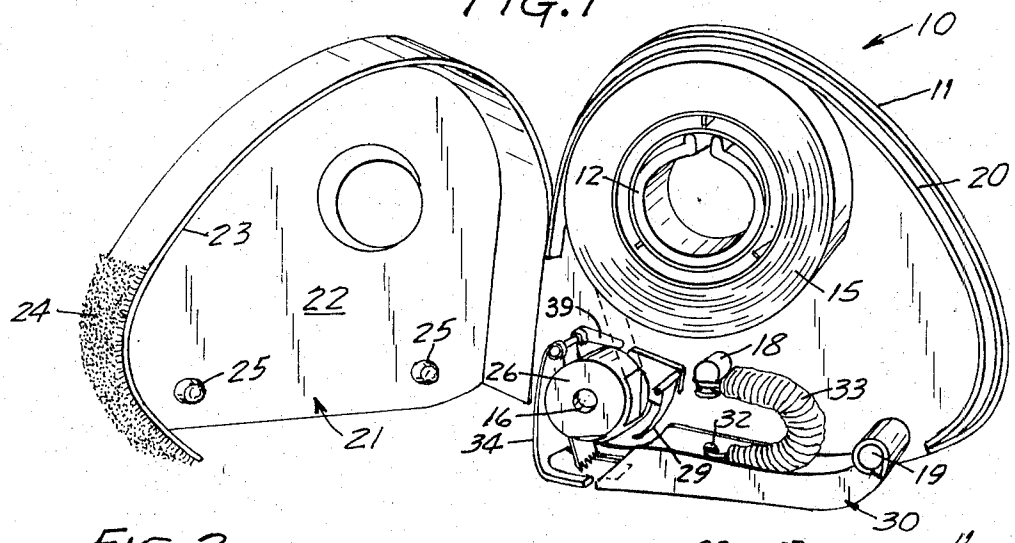
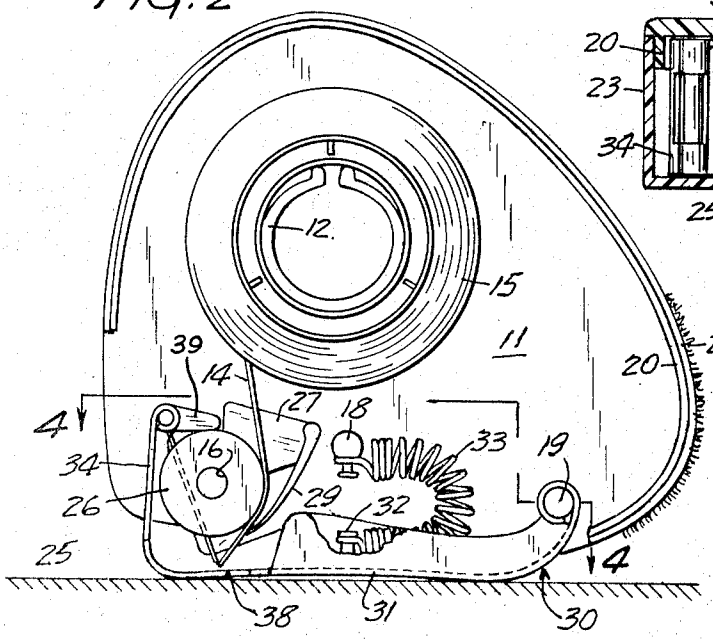


FIG. 2



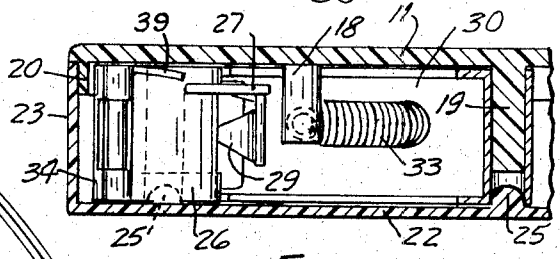


FIG. 4

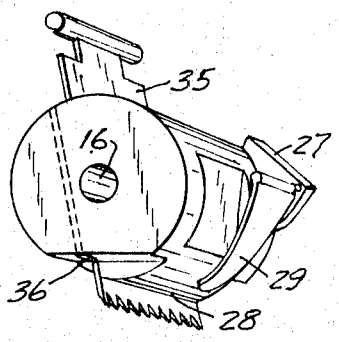
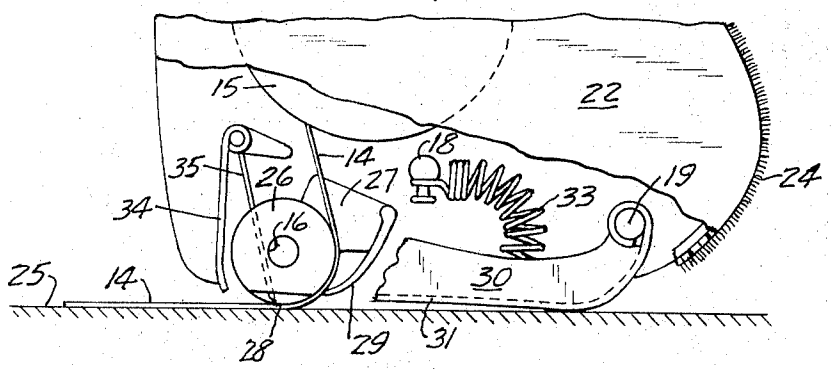


FIG. 5

FIG. 3



TAPE APPLICATOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a new and improved tape applicator for applying random lengths of pressure sensitive adhesive tape onto a surface without requiring the operator to grasp the free end of a length of tape and start the applying cycle. In one aspect this invention relates to a new hand held dispenser adapted for use with tapes having very aggressive adhesives such that it is not necessary for the operator to handle the tape during repeated applications.

2. Description of the Prior Art

The tape dispenser art is replete with various tape dispenser constructions for applying tape, particularly when the acceptance of pressure sensitive adhesive tapes for many uses is increasing. Many of these prior dispensing devices however have required operator manipulation to effectively apply the free end of the tape without having to seek out the end of the tape after the preceding application. Also, it has been necessary to manipulate some mechanism during or after application of the tape such that the tape will be severed or that the free end would be retained in position for the subsequent application. Examples of applicators of the type mentioned are U.S. Pat. No. 3,523,053, issued Aug. 4, 1970 to Zbinden et al. and U.S. Pat. No. 3,539,418, issued Nov. 10, 1970 to Combs. The shortcomings of these dispensers like other dispensers of the prior art is that some operator manipulation is necessary other than the normal positioning, pressing and linear movement, and should this manipulation not be carried out as prescribed, premature cutting or contact of the adhesive side of the tape with the dispensing elements occurs.

SUMMARY OF THE INVENTION

The dispenser of the present invention provides for the facile application of random lengths of tape to a receptor surface. The tape supply roll is supported within a shell or frame adapted to fit easily in the hand. A guard member projects from the lower tape edge of the dispenser to avoid contact with the free end of the tape or with the cutting blade. When applying tape the operator positions the dispenser over the receiving surface and depresses the dispenser causing the free end of the tape to adhere to the receiving surface. This is accomplished by a guard member pivoting into the dispenser to expose the tape applying and buffing surface. Simultaneously the knife is retracted from its position defined by suitable guide wall members adjacent the buffing surface. Upon application of the desired length of tape the dispenser is withdrawn and the guard is returned under the bias of a spring to its normal position simultaneously returning the knife to the severing position. Movement of the dispenser severs the supply roll from the applied length of tape. The movable guard member which retracts the knife causes the simultaneous rotational movement of the cylindrical applying member having the buffing surface for projecting the free end of the tape toward the receiving surface and moving the buffing surface toward said receiving surface to assure the application of the free end of the tape thereto. A finger aids to hold the tape end at the buffing surface.

DESCRIPTION OF THE DRAWING

The various features and advantages of the present invention will be further described in the following detailed description which refers to the accompanying drawing wherein:

FIG. 1 is a perspective view of the tape dispenser in an open position showing the interior thereof;

FIG. 2 is a vertical sectional view of the dispenser;

FIG. 3 is a fragmentary sectional view of the dispenser with the parts thereof in operative applying position;

FIG. 4 is a detail sectional view taken along the lines 4—4 of FIG. 2; and

FIg. 5 is a perspective view of the applying member and knife.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings there is shown in FIG. 1 a tape applying dispenser generally designated by the reference numeral **10** comprising a support plate **11** from which extends an arcuate wall member **12** forming a supporting hub for a tape core **13** upon which is wound convolutely a supply of tape **14** in a roll **15.** Also extending from the plate **11** on axes parallel to that of the arcuate member **12** is a pin **16** for supporting a tape applying member, a pin **18** to which a biasing means is secured and a pivot pin **19** pivotally supporting a guard member as will hereinafter be described. Also projecting from the plate **11** is a flange **20** which aids in securing a cover **21** over the tape roll for aesthetic purposes and to provide an easy dispenser to be hand held by the user.

The cover **21** comprises a support wall **22** from which extends a flange **23.** The flange **23** is positioned about the periphery of the wall **22** except along the bottom edge thereof to define an open lower portion. Protrusions are formed on the inside of the wall **22** aligned with the hub and shafts or pins **16** and **19** so the cover aids to support the tape roll and operating members. Secured to the cover on the flange **23** is a fibrous pad **24** which may be used to buff the applied severed length of tape.

A tape applying assembly is supported within the dispenser for applying the tape **14** to a receptor surface **25.** This assembly comprises a movable member **26** supported on the shaft **16** for movement with respect to the shaft. The member **16** is generally cylindrical and has secured thereto an arm **27** supporting a resilient finger **29** which extends from the arm **27** to a position to engage the surface of the applying member **26** in advance of its lowermost applying and buffing surface **28.** The finger **29** presses the tape **14** against the applying member **26** and is tapered from the end thereof connected to the arm **27** to terminate substantially at a point which engages the adhesive surface of the tape. The applying member **26** and the finger **29** are formed of a polymeric material having a lubricated feel to the touch, for example, an acetal resin such as sold under the tradename "Delrin" by E. I. du Pont de Nemours & Co. of Wilmington, Del., so as to restrict their affinity for the adhesive. The applying member **26** has shoulders formed adjacent the axially opposite edges of the buffing surface **28** of the same to permit movement of a guard member **30** into close proximity thereto. A

flattened tape guiding surface may be positioned near the finger **29.**

The guard member **30** is pivotally supported at one end on the pin **19** and has a generally channel shape with a smooth bottom surface **31** from which extends vertically a pin **32** receiving one end of a spring **33** which is also connected to the pin **18** in such a manner as to urge the guard member **30** away from the pin **18** and outwardly through the opening in the dispenser to a normal position. An opposite end **34** of the guard member **30** is bent from the surface **31** and is pivotally connected to one end of a blade member **35.** The blade member **35** is supported by guide means in the form of a slot **36** formed on a chord and extending through the applicating member **26** on the side of the axis thereof opposite the pivot pin **19.** The guide means directs the blade **35** to a position closely adjacent to the applying and buffing surface **28** of the applying assembly **26.** An opening **38** in the surface **31** exposes the buffing surface **28** to the receiving surface.

It will be noticed in comparing figures of the drawing that the operator places the dispenser **10** on the receiving surface **25** and by applying force onto the cover **21** and the plate **10,** the guard member **30** is moved from an outer normal protective position to an operating position closely adjacent the applying member **26.** As the guard member **30** is so moved to the operating position by the force of the receiving surface thereagainst, the end **34** of the guard **30** withdraws the blade **35** from a position extending from adjacent the buffing surface **28** into the applying assembly such that the tape can be applied without interference from said blade. The dispenser is illustrated in the applying position in FIG. **3.** Upon interruption of the application of the tape **14,** pressure is removed from the dispenser **11** causing the spring **33** to move the guard **30** outwardly of the opening in the dispenser and the knife **35** to be guided by the slot **36** toward and into the path of the tape between the supply roll and the receptor surface **25.** The knife **35** preferably has sharpened teeth extending therefrom which will pierce the tape causing the same to be severed upon continued movement of the dispenser **11** in relationship to the receiving surface. When the guard member **30** reaches its normal position under the force of spring **33,** the applying member **26** tends to retract the free end of the tape roll. The finger **29** holds the tape on the applying member and guard member **30** protects the free end from contact with another surface until such is intended. The spring **33** moves the guard member to a predetermined position defined by a stop **39** on the guard member **30** which contacts the applying member **26.**

Having thus described the present invention with reference to a preferred embodiment, it will be appreciated that modifications can be made without departing from this invention as claimed in the appended claims.

What is claimed is:

1. In a dispenser for pressure-sensitive adhesive tape comprising in combination

an applying and buffing member having a buffing surface,

a blade movable to and out of a severing position relative to said buffing surface,

guide means for positioning the blade adjacent the buffing surface,

a guard member movable relative to said buffing surface to an operative position adjacent to said buffing surface to expose said buffing surface to an adjacent tape receiving surface from a normal position spaced from said buffing surface when said buffing surface is spaced from a said receiving surface, and

means connecting said blade to said guard member to move said knife in said guide means from said severing position when said guard member is moved to said operative position adjacent said buffing surface and to said severing position when said guard member is returned to said normal position.

2. In a dispenser according to claim **1** comprising spring means for biasing said guard member to said normal position.

3. In a dispenser according to claim **1** wherein said buffing member is movable on an axis and said guide means is defined by a slot in said buffing member extending along a chord intersecting said buffing member surface adjacent said buffing surface, and said guard member is pivoted on an axis parallel to the axis of said buffing member and on the side of said axis of said buffing member opposite said slot.

4. In a dispenser according to claim **2** wherein said guard member is movable to said operative position when engaged by a receiving surface applying a force thereto opposite the bias of said spring means, and wherein said buffing member is movably mounted on an axis for movement about said axis upon said guard member being moved to said operative position to place said buffing surface in position adjacent a tape receiving surface.

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