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3,586,587

TAPE APPLICATOR

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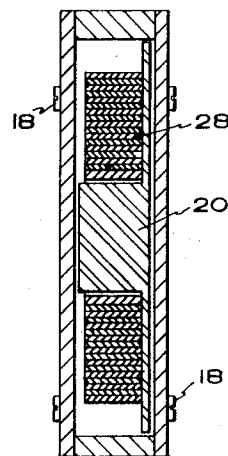
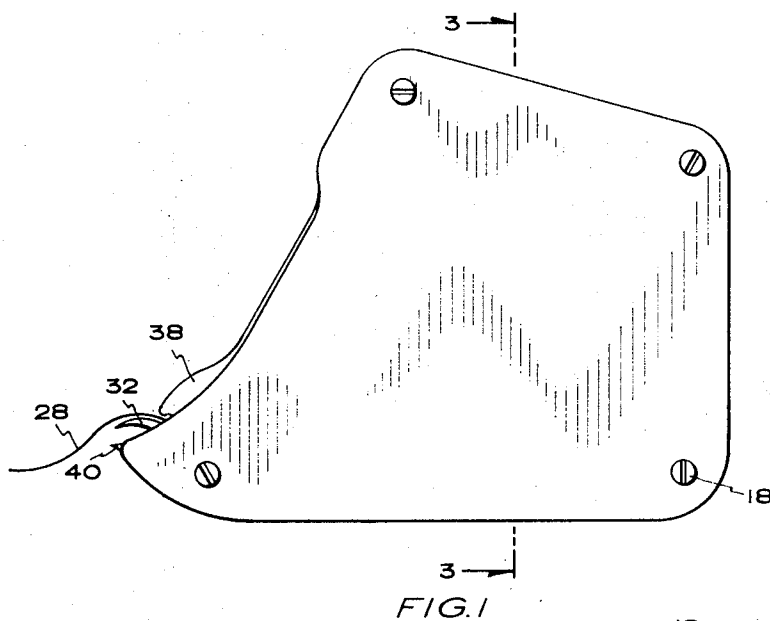


FIG. 3

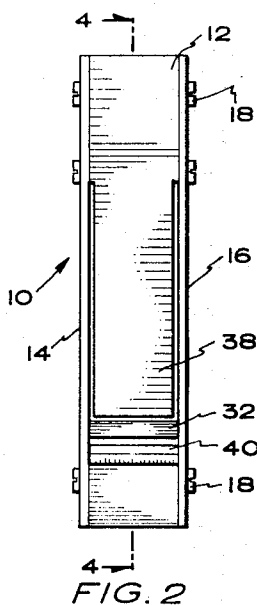


FIG. 2

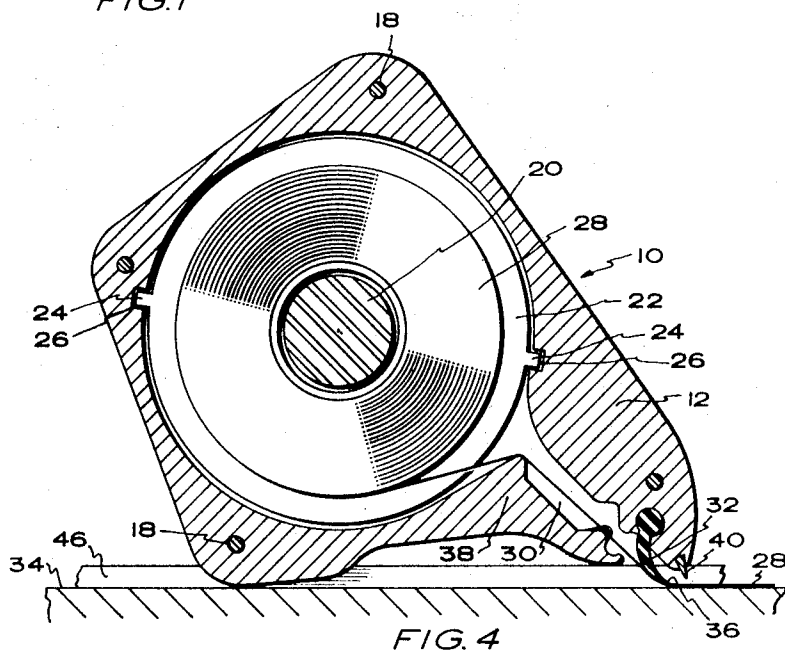


FIG. 4

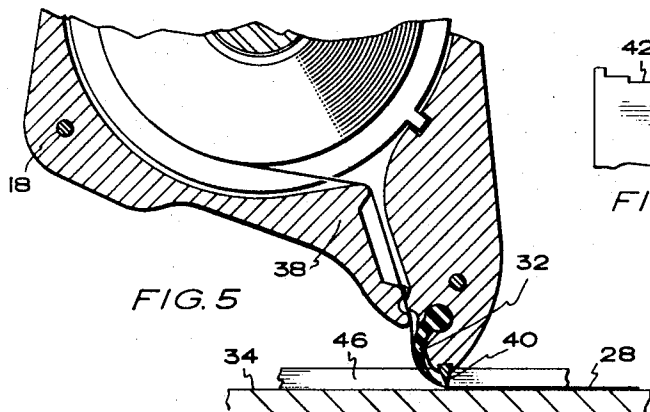


FIG. 5

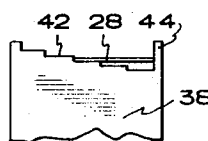


FIG. 6

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1

3,586,587

TAPE APPLICATOR

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11 Claims

ABSTRACT OF THE DISCLOSURE

A tape applicator which includes a housing, means for rotatably mounting a roll of pressure sensitive tape in the housing, a housing aperture for passing the free end of the tape from the housing to a work surface, a flexible applicator tongue affixed to the housing proximate the aperture, brake means mounted on the housing to brake the movement of the tape through the aperture, and a cutting blade connected to the housing proximate the end of the flexible tongue. Registers can be provided on the housing for running the applicator against a straight edge and a stepped aperture can be used for positioning the tape therein.

BACKGROUND OF THE INVENTION

This invention relates generally to an applicator for pressure sensitive tape.

In recent years pressure sensitive tapes have become popular for a myriad of uses. For example, in the electronics field, pressure sensitive conductive tapes are used to form electrical circuits. When used for this purpose a strip of tape is cut from its storage roll and laid along a straight edge or line and then carefully cut to form a proper juncture. Because of the precision required in laying out the tape substantial time is often required for this operation. Accordingly, a great need has arisen for an applicator which can be used to precisely dispense pressure sensitive tapes onto a work product and cut the dispensed tape at a predetermined juncture.

SUMMARY OF THE INVENTION

In its broadest form, the invention comprises a tape applicator having a housing with means for rotatably mounting a roll of pressure sensitive tape therein and an aperture for passing the free end of the tape through the housing; a flexible applicator tongue, affixed to the housing proximate the aperture, having a pressure end for pressing the tape passed through the aperture against a work surface; brake means affixed to the housing and coacting with said tape in the housing for restricting its movement through the aperture; and cutting means affixed to the housing proximate the pressure end of the flexible tongue for cutting the tape laid on the work surface.

In a preferred embodiment housing register means are provided on the housing for running the pressure end of the applicator tongue in a substantially straight line against the side of a straight edge.

In another preferred embodiment of the invention control means are used in the housing aperture for positioning the pressure sensitive tape as it is pulled through the aperture.

BRIEF DESCRIPTION OF THE DRAWINGS

So that the invention may be more readily understood and carried into effect, reference is made to the accompanying drawings which are offered by way of example only and are not to be taken as limiting the invention, the scope of which is defined by the appended claims which are intended to embrace equivalent structures.

FIG. 1 is a side view of the tape applicator of this inven-

2

tion with the free end of the pressure sensitive tape extending through the applicator's housing aperture.

FIG. 2 is an end view of the applicator particularly showing the relationship between the applicator's cutting blade, flexible tongue, and housing aperture.

FIG. 3 is a sectional view taken in the plane of line 3—3 of FIG. 1 looking in the direction of the arrows.

FIG. 4 is a sectional view taken in the plane of line 4—4 of FIG. 2 looking in the direction of the arrows.

FIG. 5 is a partial sectional view of the tape applicator particularly showing the relationship of the applicator's brake, flexible tongue, and cutting blade when the applicator is in a cutting position.

FIG. 6 is a partial plan view of a control aperture for positioning the pressure sensitive tape in the applicator's housing aperture.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings there is shown a tape applicator 10 having a housing 12 with side plates 14 and 16 secured to the opposite sides of the housing in a conventional fashion with screws 18. A removable rolled tape holder is mounted in the housing which consists of a mounting hub 20 secured to an end plate 22. At least one stay 24 is secured to the periphery of end plate 22 to coact with detent slot 26 in housing 12 for fixing the position of the tape holder within the housing. A roll of pressure sensitive tape 28 is mounted on hub 20 with the free end of the tape threaded through housing aperture 30.

A flexible applicator tongue 23 is secured to the applicator housing 12 substantially adjacent to the discharge end of aperture 30 to coact with tape 28 as it passes through the aperture and press it against a work surface such as surface 34 shown in FIGS. 4 and 5. The applicator tongue has a flattened pressure end 36 which rides over and presses the tape against surface 34. Preferably, tongue 32 is formed from a flexible resinous material such as nylon.

It becomes necessary to brake the movement of tape 28 in aperture 30 when the applicator of this invention is in use. For this reason, a brake wall 38 of housing 12 is positioned to be urged against the tape in aperture 30 to restrict its movement therein, i.e., the brake wall 38 closes aperture 30 wherein the wall acts as a friction brake on tape being pulled through the aperture. Preferably, the brake wall 38 is positioned and shaped so that aperture 30 is normally open thereby requiring the wall to be bent into braking contact with the tape in the aperture. This can be done by constructing brake wall 38 from a flexible plastic material which allows it to be bent into its braking position. Optionally, the brake wall 38 can be pivotally mounted to housing 12 and biasing means, such as conventional springs, can be affixed to the housing and the wall 38 to urge the wall away from its coacting brake wall so that the aperture 30 is normally open.

A cutting blade 40 is mounted on housing 12 in a position which allows it to be urged against the pressure sensitive tape 28 layed out on surface 34. Preferably, the blade is positioned on the housing proximate the pressure end 36 of flexible tongue 32 when the tongue is urged towards the blade. By positioning the blade in this fashion the exact position of the tape cut can be determined before the blade is moved into contact with the tape to be cut and after the tape is cut the flexible tongue brakes the minimal tape bond between the cutting blade and the tongue.

As illustrated in FIG. 6 the wall 42 over which tape 28 rides as it is pulled from its roll through aperture 30 is preferably stepped to control the position of the tape in the aperture. The tape will move to the deepest possible recess in the stepped sidewall so that no matter what size

3

tape is used in the aperture it will work towards register wall 44.

The applicator of this invention is adapted to be slid against a straight edge 46 on two spaced registers for applying tape 28 in a substantially straight line. Most preferably, one of the registers is proximate the applicator's flexible tongue 32 and the other register is at the base of brake member 38.

To operate the applicator of this invention, the end of tape 28 protruding from aperture 30 is pressed against surface 34 with the pressure end 36 of flexible tongue 32 which rides over the tape dispensed from the roller onto the surface. When a predetermined length of tape has been applied to the surface the applicator's brake is applied by depressing brake member 38 to close aperture 30. The applicator housing 12 is then rotated to move blade 40 into contact with the tape thereby severing the same at a position proximate the pressure end 36 of the flexible tongue as illustrated in FIG. 5. The brake is then released for applying a second strip of tape to the surface.

To place a new roll of tape, or a different sized tape, in the applicator, side piece 14 is removed by withdrawing the connecting screws 18 and the tape holder is withdrawn from the housing. A replacement tape roll is then remounted on hub 20 whereupon the tape holder's end plate 22 is reinserted into the housing and the loose end of tape 28 is threaded through aperture 30. The side piece 14 is then replaced and the applicator is again ready for operation.

Whereas there is here illustrated and specifically described a certain preferred construction which is presently regarded as the best mode of carrying out the invention, it should be understood that various changes can be made and other construction adopted without departing from the inventive subject matter particularly pointed out and claimed.

What is claimed is:

1. A tape applicator which comprises a housing; means affixed to said housing for rotatably mounting a roll of tape on said housing; an aperture in said housing for passing an end of said tape through said housing and against a work surface; an applicator tongue having a first end affixed to said housing proximate said aperture and an opposite pressure end for pressing tape passed through said aperture against said working surface; and a cutting blade affixed to said housing at a position spaced from said first end of said tongue such that said tape held against said working surface is cut with said cutting blade proximate the pressure end of said applicator tongue

4

by urging said applicator tongue against said working surface until said cutting blade contacts said tape positioned on said surface.

2. The tape applicator of claim 1 wherein register means are affixed to said housing for running said pressure end of said flexible applicator tongue in a substantially straight line along the side of a straight edge.

3. The tape applicator of claim 2 wherein control means are positioned in said aperture for positioning said tape in said aperture in a predetermined position.

4. The tape applicator of claim 3 wherein said control means comprises a stepped surface over which said tape rides.

5. The tape applicator of claim 1 wherein brake means are affixed to said housing which coact with said tape for restricting the movement of said tape in said aperture.

6. The tape applicator of claim 5 wherein said brake means is a wall member of said housing positioned to be urged into contact with said tape in said aperture and act as a friction brake.

7. The tape applicator of claim 5 wherein said wall member is a flexible member positioned to be bent into contact with said tape.

8. The tape applicator of claim 6 wherein said means connected to said housing for rotatably mounting a roll of tape in said housing is a removable mounting hub.

9. The tape applicator of claim 8 wherein register means are affixed to said housing for running said pressure end of said flexible applicator tongue in a substantially straight line along the side of a straight edge.

10. The tape applicator of claim 9 wherein control means are positioned in said aperture for positioning said tape in said aperture in a predetermined position.

11. The tape applicator of claim 10 wherein said control means comprises a stepped surface over which the tape rides.

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