This invention relates to a combination of a tape severing means and tabbing means for use with a dispenser adapted to dispense a pressure-sensitive adhesive tape comprising a stretchable backing having a pressure-sensitive adhesive coating on one or both sides of the tape with a liner of relatively inelastic or inextensible material covering the adhesive on one side or surface of the tape.

Tape dispensers are known in the art which are suitable for dispensing tapes having a liner secured to one surface of the tape. Generally these dispensers are provided with means for stripping and rewinding the liner as the tape is drawn from the supply roll and across a severing means. With these dispensers, however, the strip of tape which is drawn from the dispenser has one or both of the adhesive coated surfaces exposed, and contact with the coated surfaces by fingers will contaminate and decrease the effectiveness of the adhesive to some extent.

The present invention provides a dispenser whereby the tape may be drawn from the dispenser with the liner remaining on the severed length of tape but the severed length of tape has a portion of the liner separated from the adhesive coating on the backing to provide a tab which permits facile removal of the liner from the adhesive coating by the user.

The device of the present invention combines with a severing knife, means which will stretch the tape backing on one side of the knife during the cutting operation such that the tape backing will be stretched relative to the liner over a portion of its length to release the relatively inextensible liner from the end of the tape to form a tab. This tab will preferably comprise a strip of liner material creased to project away from the adhesive surface. The tab permits easy removal of the liner from the adhesive coated backing. In the preferred embodiment the tab is formed at the severed free end of the tape wound on the supply roll after a length of tape has been cut from the roll. Each subsequent severed length of tape thus has the tab formed on its leading end to permit removal of the liner.

The various features and advantages of the present invention will be more fully understood after reading the following detailed description of the invention which refers to the accompanying drawing wherein:

FIG. 1 is a perspective view of a dispenser constructed in accordance with the present invention;
FIG. 2 is a fragmentary vertical sectional view of the dispenser of FIG. 1; and
FIG. 3 is a fragmentary vertical sectional view of the dispenser similar to that of FIG. 2 but showing the same in an alternate severing position.

Referring now to the drawing, the dispenser comprises a base member 5 upon which is mounted a support 6 for a supply roll of tape 7. The tape 7 comprises a stretchable backing 8 coated on one side with a pressure-sensitive adhesive and an inextensible low-adhesion release liner 9 covering the adhesive coated side of the tape. The backing may, for example, be a soft, high-density compressible and stretchable polyurethane foam layer, and the liner may be treated paper.

The tape 7 is drawn from the supply roll beneath a roller 11 mounted on a shaft 12, which shaft is supported at and extends through upright flanges of a U-shaped bracket 13. The roller 11 and bracket 13 form a path for the tape leading downward along the base 5 to a first cutting element or cutter block 14 formed on the forward end of the base 5. The cutter block 14 is formed of a front plate 15 which is secured in spaced relation to an upright flange 16 of a U-shaped bracket 17 by means of a spacer plate 18. This assembly provides a slotted cutting element which receives in the slot thereof a second element to sever the tape.

The U-shaped bracket 17 has a second vertically disposed flange 19, which is parallel to the flange 16 and spaced to one side of the flange 16 with its upper edge lying in substantially the same plane as the upper surface of the cutter block 14 and transverse to the path of the tape 7. Flange 19 defines a pedestal across which the tape is drawn.

The upper edge of the pedestal 19 is covered by a strip 20 of relatively coarse sandpaper which is bent and folded about the upper edge of the pedestal 19 and secured to the flange as by a suitable adhesive. The pedestal 19 aids during the cutting operation in holding the tape taut to permit stretching of the backing on one side of the cutter block.

An arm 20 which is generally channel-shaped in cross-section is mounted for movement toward and away from the cutting block 14 and the pedestal 19. As disclosed in the drawing, the arm 20 is formed of an inverted channel-shaped member which is pivotally mounted adjacent one end on the extended ends of the shaft 12, which shaft extends through the downturned flanges of the arm 20. At the end of the arm 20 adjacent the shaft 12, the corners of the flanges are bent outwardly from the plane of the flanges to form outwardly extending abutments 23 which engage resilient stop members 24 supported on the base 5. Springs 26 and 27 are positioned at each side of the U-shaped bracket 13 and extend respectively between pins 28 and 29 and associated abutment members 23, below the axis of shaft 12, to urge the arm 20 to pivot in a clockwise direction (as shown in the drawing) about the shaft 12 to raise the free end of the flanges of the arm 20 and the abutment members 23 against the stop members 24.

Adjacent the free end of the arm 20 is mounted the second cutting element cooperable with the first cutting element. The second element includes a severing knife in the form of a serrated blade 31 having a plurality of tapered teeth. The teeth have a length such that the liner is severed after the point of the teeth penetrate the backing 8. The blade 31 could, however, have a straight edge with a sharp cutting edge. The blade 31 is mounted to the under surface of the arm 20 between the flanges thereof by means of an angle bracket 32. The blade 31 is so positioned on the arm 20 that, when the arm 20 is moved in the counterclockwise direction, the blade 31 will strike the tape 7 above and between plate 15 and flange 16 of the cutter block. Upon movement of the blade 31 into the slot formed between the plate 15 and the flange 16, the blade will sever the tape.

An end plate 33 encloses the outer open end of the channel-like arm 20 to protect the blade 31 and to help prevent the operator from being cut by the blade 31. Stretching means for stretching a portion of the tape backing after, or during and after, the severing of the liner are also mounted within the flanges of the arm 20. In the illustrated dispenser the stretching means comprises a U-shaped frame 36 having elongate leg portions 37 extending laterally from adjacent the extension end of the arm 20.
and a bight portion 38. The leg portions 37 are pivotally mounted adjacent their free ends on extended ends of the shaft 12 and are disposed between the flanges of the bracket 13 and the downturned flanges of the arm 20. The legs 37 terminate in beveled end portions which extend beyond the shaft 12 toward the end of the arm 20. A tab bracket, by means of one or more bolts 40, to the bight portion 38 of the frame 36. The tabber attachment comprises an angle bracket or shoe which has one leg 41 secured against the bight portion 38 and the other leg 42 extending generally normal thereto to assume a generally horizontal position upon movement of the arm 20 toward the cutter block 14. Secured to the shoe and extending rearwardly therefrom is a broad tempered leaf spring 43 which has a turned free end portion 44. The spring 43 may be attached to the leg 42 by any suitable fastening means such as a pair of spaced bolts 46 which are held by threaded openings in the leg 42 or by separate threaded nuts. Slotted openings are provided in the spring 43 to receive the bolts 46 and permit adjustment of the spring. The edge of the tabber attachment next to the cutting block should be thin, as defined by the edge of the spring 43, or present a sharp corner as provided by the edge of leg 42. The frame 36 is movable relative to the arm 20 to release the tape 7 from the blade 31 upon completion of a cutting and tabbing cycle should there be a tendency for the tape to adhere to the blade and to depend below the blade 31 in the inoperative position and protect the user.

In operation, the length of tape desired is drawn from the supply roll forwardly of the dispenser across the pedestal 19 and the cutter block 14. The free end of the arm 20 is then pressed downward against the bias of the springs 26 and 27 to bring the blade 31 to a position where it cuts the liner 9 and begins to cut the backing 8. At the same time, the frame 36 and the spring 43 are free to move toward the tape 7, and the shoe and blade are in about the same plane. The downward pressure on arm 20 places the curved portion 44 of the spring 43 to engage the tape 7 which is positioned above the strip 21 of sandpaper on the pedestal 19. This spring 43 then forms brake means between the cutter block and supply roll 7 to hold the tape at one side of the cutter block 14.

Further, downward movement of the arm 20 brings the blade 31 through the backing 8. While the backing 8 is held by the cutting elements and the brake means during the severing action, the arm 20 forces the frame 36 and the leg 42 of the tabbing shoe downwardly between the flange 16 and the pedal 19, stretching the backing 8. The spacing between flange 16 and the shoe forces the tape downward along one side of the cutter block 14. With thick backings the bending of the backing about the flange 16 stretches the backing at the surface next to the liner to release it or, when using tapes with thinner backings, the stretching of the backing between the flange 16 and pedestal 19 releases the free end of the liner between the flange 16 and the shoe. Where the backing 8 is stretched, the bond between the liner 9 and the adhesive-coated surface of the backing 8 is broken, and the edge of the shoe adjacent the cutting elements creases the liner 9 to form a tab 47 from the free end of the liner.

Upon releasing the arm 20, after severing the tape, the tape backing 8 contracts to its original position, and the tape is generally straight between the flange 16 and the pedestal 19 as shown in FIGS. 2, with the created portion of the liner forming the tab 47 projecting at an angle from the adhesive-coated surface of the tape. A subsequent dispensing and severing of a length of tape thus provides a strip 48 having a tab 47 formed at one end as is illustrated in FIG. 3.

When using the illustrated dispenser with double coated tape, i.e., tape having a pressure-sensitive adhesive coating on both sides of the backing, it is desirable to position a pair of springs (see FIGS. 1 and 2) between the vertical flanges of the bracket 13, which springs will extend transversely below the tape path preventing the tape from sticking to the bight portion of the bracket 13 and the base 5.

Having thus described the invention with reference to the illustrated embodiment, it is contemplated that various changes and modifications may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed:

1. A combination tape severing and liner tabbing device for use in a dispenser for cutting and forming a tab on the liner of a pressure-sensitive adhesive tape, which tape comprises a stretchable backing, coated on one or both sides with a pressure-sensitive adhesive, and a low-adhesion liner formed of relatively inextensible material which covers the adhesive coating on one side of the backing, said combination comprising:

   a. cooperatively moveable cutting element means between which a length of tape may be drawn for holding the tape and for cutting the tape by first severing the liner and then the backing, and

   b. means for stretching a tape backing adjacent a severed end of the liner to release a portion of the liner from the backing to form a tab from the liner adjacent a severed end of the tape.

2. A combination tape severing and liner tabbing device for use in a dispenser for cutting and forming a tab on the liner of a pressure-sensitive adhesive tape, which tape comprises a stretchable backing, coated on one or both sides with a pressure-sensitive adhesive, and a low-adhesion liner formed of relatively inextensible material which covers the adhesive coating on one side of the backing, said combination comprising:

   a. cooperatively moveable cutting element means between which a length of tape may be drawn for holding the tape and for cutting the tape by first severing the liner and then the backing, and

   b. means for stretching a tape backing adjacent a severed end of the liner to release a portion of the liner from the backing to form a tab from the liner adjacent a severed end of the tape.

3. The combination of claim 2 wherein said cutting element means comprises a movable blade, and

4. The combination of claim 3 wherein said movable blade has a serrated cutting edge.

5. A combination tape severing and liner tabber for use in a dispenser for cutting and forming a tab on the tape from the liner of a pressure-sensitive adhesive tape, which tape comprises a stretchable backing, coated on one or both sides with a pressure-sensitive adhesive, and a low-adhesion liner formed of relatively inextensible material which covers the adhesive coating on one side of the backing, said combination comprising:

   a. cooperatively moveable cutting element means for holding a tape and for cutting a length from the tape which has been drawn therepast, and

   b. means for engaging the tape on one side of said cutting element means during the severing of a length of the tape, and

   c. means for engaging the tape on said one side of said cutting element means between said cutting element means and where the tape is held for applying pressure on said tape for stretching the backing after said liner is severed to separate a length of the liner adjacent said cutting element means from the adhesive on the backing during severing of the backing, to release said length of liner from the backing and to cease the separated portion of the liner forming an angularly projecting tab from the liner.

6. A tape dispenser for use in dispensing a pressure-sensitive adhesive tape, which tape comprises a stretch-
able backing, coated on one or both sides with a pressure-sensitive adhesive, and a liner formed of relatively inextensible material which covers the adhesive on one side of the tape, said dispenser comprising in combination means defining a cutting block across which a length of tape may be drawn with the liner away from said cutting block,
means for holding the tape on one side of said cutting block during cutting action on the tape,
a knife movable toward and away from said cutting block for severing the liner and then the backing across its width to sever the tape at said cutting block, and
means for engaging the liner on said one side of said cutting block where the tape is held for depressing the tape below the level of the cutting block to stretch the backing when said liner is severed to separate a length of the liner adjacent said cutting block from the adhesive on the backing during severing of the backing to form a tab by the separated length of liner which is free from the adhesive upon completion of said severing action,
7. The dispenser of claim 6 wherein said means for holding the tape comprises
a pedestal spaced from said cutting block which extends transversely to the path of the tape, and
means engageable with the tape for holding the tape on said pedestal during the severing action of the tape.

8. The dispenser of claim 7 wherein said pedestal is positioned between said cutting block and means for supporting a supply of said tape to said dispenser.
9. The dispenser of claim 7 wherein said means engageable with the tape comprises a spring movable with the knife to press the tape against said pedestal, said spring being secured to the means for engaging the liner and tape to form the tab.
10. The dispenser of claim 6 wherein the means for engaging the liner and tape comprises a shoe mounted for movement with the knife, which shoe is positioned adjacent said knife and is moved below the surface of said cutting block and adjacent said one side thereof to stretch the tape and to crease the liner to dispose the released portion of the liner at an angle relative to the tape backing upon movement of the knife away from said cutting block.

References Cited
UNITED STATES PATENTS
2,742,282 4/1956 Ervin et al. 270—61
2,948,177 8/1960 Arvidson 83—175 X
2,999,313 9/1961 Emmert 83—611

EUGENE R. CAPOZIO, Primary Examiner
P. V. WILLIAMS, Assistant Examiner

U.S. Cl. X.R.
83—175, 385