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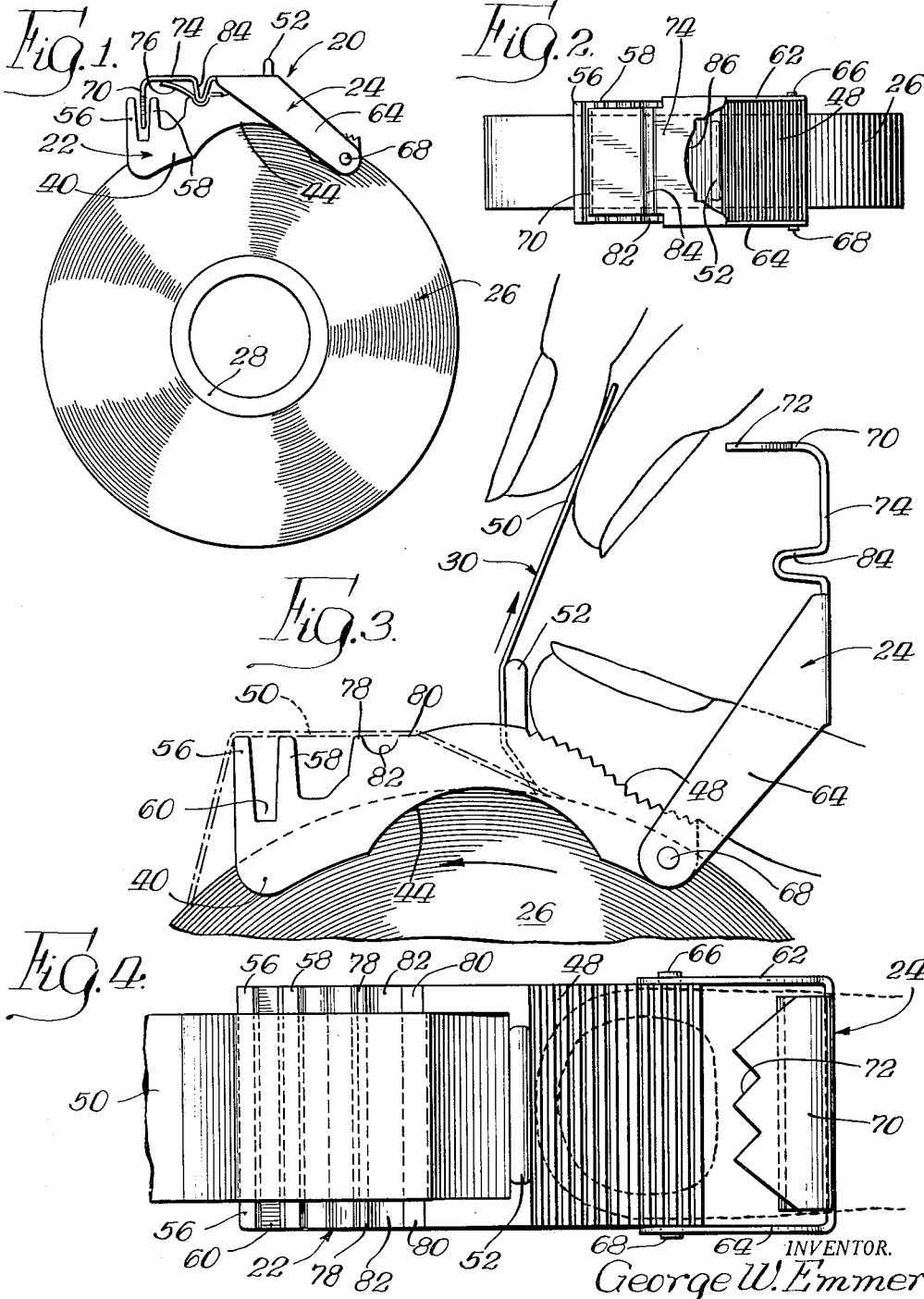
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2,999,313

TAPE DISPENSER

Filed July 22, 1957

3 Sheets-Sheet 1



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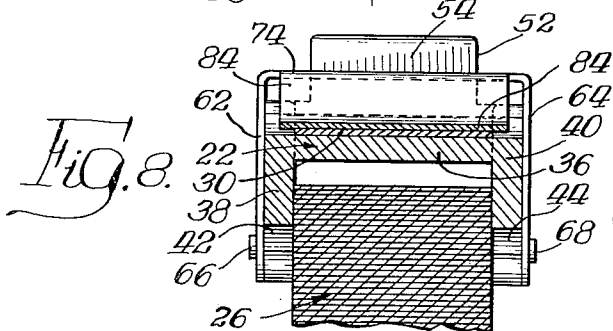
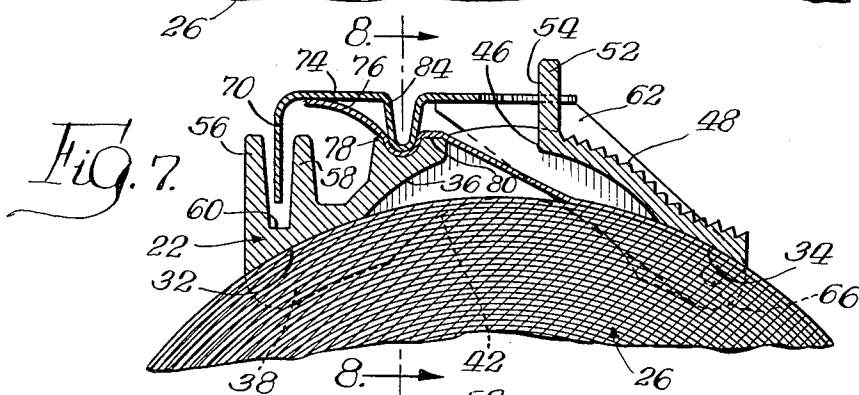
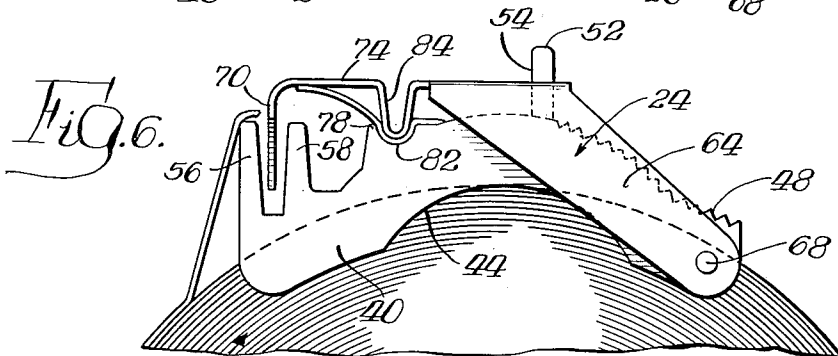
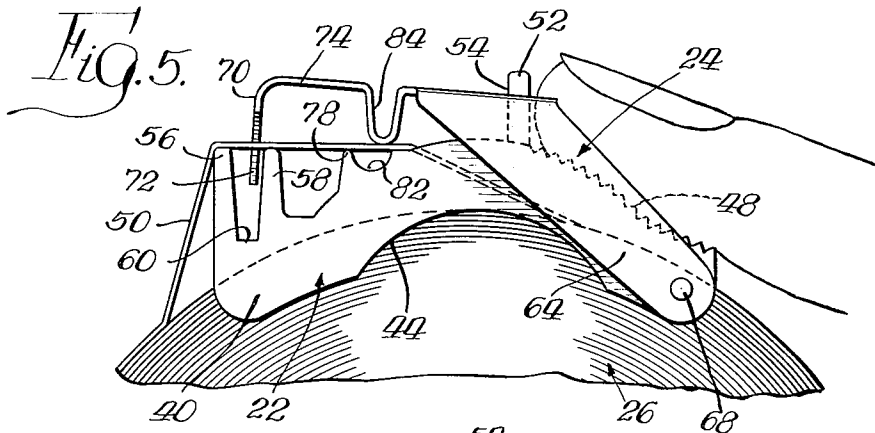
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TAPE DISPENSER

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3 Sheets-Sheet 2



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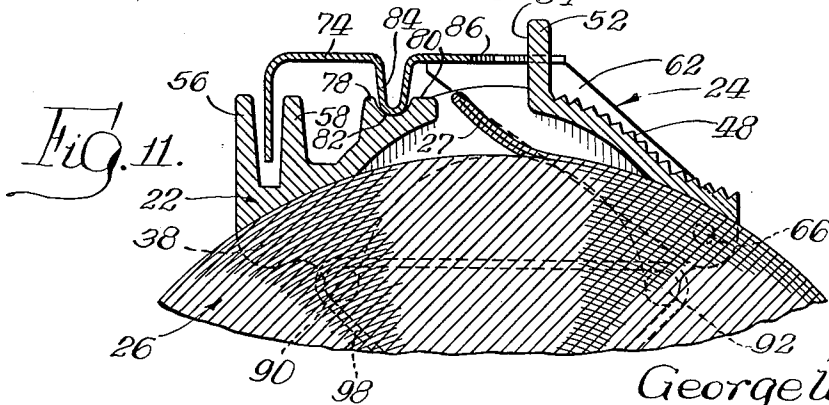
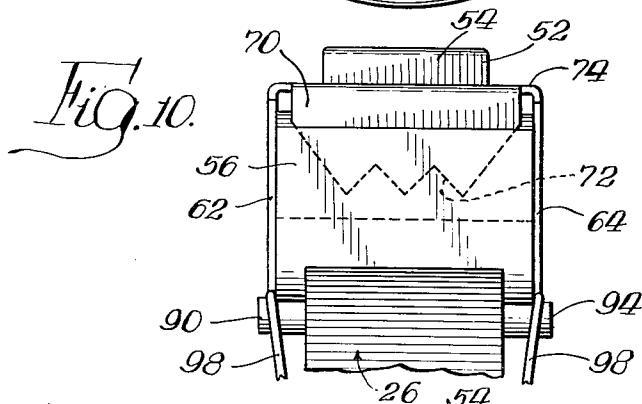
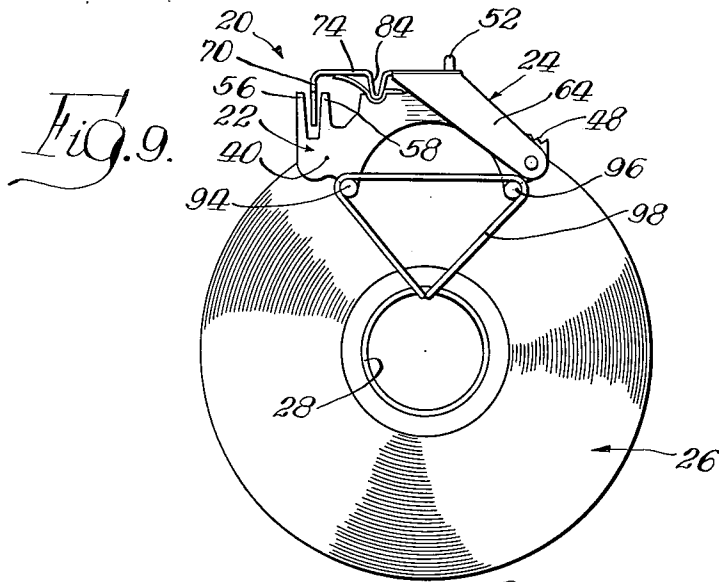
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TAPE DISPENSER

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3 Sheets-Sheet 3



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2,999,313

TAPE DISPENSER

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7 Claims. (Cl. 30-124)

This invention relates to dispensing devices for adhesive tapes and particularly to tape dispensers incorporating cutting devices therein.

The tape dispenser of the present invention is of the type adapted for use with both domestic and industrial type tapes such as masking tape, friction tape, electrical tape and the like. Such tape is generally supplied in a continuous roll wound upon a core or spool. The dispenser of the present invention is of the type wherein the dispenser rides upon the surface of the tape roll with the tape being pulled through the dispenser and cut by a cutting device mounted on the dispenser.

One of the most difficult problems in the use of tape dispensers of the type set forth is to render the free end or tab of the roll of tape available for grasping by the fingers of the user for the next dispensing operation. Various devices have been provided heretofore to lift a section of the tape from the attached roll. Many of these have been incorporated with cutters wherein the free end of the tape is adhered to a portion of the cutting mechanism with a portion of the tape spaced from the free cut end separated from the roll but these prior devices did not leave the cut end of the tape free for grasping by the fingers of the user at a convenient point.

Accordingly, it is an important object of the present invention to provide a tape dispenser of the type set forth wherein the free end of the tape extends outwardly from the roll in position readily to be grasped by the fingers of the user.

In conjunction with the foregoing object it is another object of the invention to provide a tape dispenser including a cutting device wherein the free cut end of the tape is spaced outwardly from the roll and from the cutting device after a cutting operation in position readily to be grasped by the fingers of a user.

Still another object of the invention is to provide in a tape dispenser of the type set forth which is held on the roll of tape by engagement with a tape portion spaced from the outwardly extending free end of the tape.

Yet another object of the invention is to provide in a tape dispenser of the type set forth an improved tape cutter which facilitates the above objects.

A further object of the invention is to provide a tape dispenser which is easy to operate and inexpensive in construction.

A still further object of the invention is to provide in a tape dispenser of the type set forth means positively and resiliently to hold the dispenser on a tape roll.

A further object of the invention is to provide a tape dispenser of the type set forth for use on large diameter rolls, i.e., rolls having diameters several times the diameter of the spool.

These and other objects and advantages of the invention will be better understood from the following description when taken in conjunction with the accompanying drawings. In the drawings wherein like reference numerals have been utilized to designate like parts throughout:

FIGURE 1 is a side elevational view of a roll of tape with a dispenser made in accordance with and embodying the principles of the present invention mounted in operative position thereon;

FIGURE 2 is a top plan view of the roll and dispenser assembly of FIGURE 1 with the cutter in closed position;

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FIGURE 3 is an enlarged fragmentary side view of the assembly of FIGURE 1 with the cutter shown in the open position, the tape being illustrated in the position assumed during dispensing in solid lines and being shown in the position assumed during cutting in dashed lines;

FIGURE 4 is a plan view of the assembly of FIGURE 3 with the cutter in the open position and the tape shown in position for cutting;

FIGURE 5 is a side elevational view similar to FIGURE 3, the cutter being shown in an intermediate cutting position during the severing of the tape;

FIGURE 6 is a view similar to FIGURE 5 showing the cutter fully seated with the free tab end of the tape forced upwardly away from the cutting mechanism;

FIGURE 7 is a longitudinal view in vertical section through the assembly of FIGURE 6;

FIGURE 8 is a partial view in transverse section through the dispenser substantially as seen in the direction of the arrows along the line 8-8 of FIGURE 7;

FIGURE 9 is a side elevational view similar to FIGURE 1 and showing a modification of the tape dispenser of the present invention including means resiliently to hold the dispenser upon the tape roll;

FIGURE 10 is an enlarged front elevational view of the dispenser of FIGURE 9 and including a portion of the roll; and

FIGURE 11 is a longitudinal sectional view of the dispenser of FIGURES 9 and 10 and showing particularly the initial engagement between the dispenser and a new roll of tape and showing specifically the under folded tape end on a new roll of tape.

Referring first to FIGURES 1 through 8 of the drawings there is shown one preferred embodiment of a tape dispenser made in accordance with and embodying the principles of the present invention. The dispenser is generally designated by the numeral 20 and includes in general a body 22 and a cutter 24. Dispenser 20 is shown mounted upon a tape roll designated by the numeral 26 and including a core or spool 28 about which is wound a continuous strip of tape 30. Tape 30 is of the type which is provided with an adhesive on the side thereof disposed toward the core 28 and is relatively free of adhesive on the side thereof disposed away from core 28. Preferably core 28 is substantially cylindrical in form and is not provided with radially extending flanges as are sometimes provided thereon. Accordingly, there is a substantial surface of the roll 26 which is made up of free unsupported edges of the tape 30. Roll 26 is a relatively large roll and the overall diameter thereof is several times the diameter of the core 28.

Dispenser 20 is of the type which is adapted to ride upon the outermost surface of roll 26 and to be supported thereon. To this end two spaced apart surfaces 32 and 34 are provided on the side of body 22 disposed toward roll 26. Surfaces 32 and 34 are preferably curved and have a radius of curvature substantially equal to the radius of curvature of a new or full tape roll 26. Intermediate surfaces 32 and 34 body 22 is curved upwardly along a surface 36 which has a radius of curvature substantially less than surfaces 32 and 34 and preferably a radius of curvature substantially equal to that of spool 28. Body 22 has a pair of flanges 38 and 40 which extend downwardly to engage on either side of roll 26. More specifically, the inner facing surfaces of flanges 38 and 40 are spaced apart a distance slightly greater than the width of roll 26. This construction is such that body 22 is readily supported by the roll 26 and is free to travel circumferentially therearound as tape is fed therefrom. In order to permit all the tape to be dispensed from roll 26, the flanges 38 and 40 are provided with part-circular cutouts 42 and 44, respectively, having radii of curvature equal to that of surface 36 and substantially equal to

that of spool 28. Due to this construction, the dispenser 20 can be used upon large rolls of tape, i.e., rolls of tape having a diameter several times the diameter of the spool 28.

Tape is dispensed from roll 26 by feeding the free end thereof through a dispensing aperture 46 formed in body 22. Preferably the user grasps roll 26 with the dispenser mounted thereon in one hand and places the thumb of that one hand upon a serrated or roughened holding surface 48 on body 22. The fingers of the other hand of the user grasp the free portion 50 of tape 30 and pull it upwardly through the dispensing aperture 46. Dispensing is facilitated by providing a guide member 52 formed integral with body 22 and having a guide surface 54 across which tape 30 is drawn. Upward pull of tape 30 in the direction of the arrow therealong by the user while holding the dispenser with the other hand causes roll 26 to rotate in a counter-clockwise direction indicated by the arrow as viewed in FIGURE 3 of the drawings.

After a strip of tape having the desired length has been removed from roll 26, the user will wish to cut the length of tape from roll 26. To facilitate cutting, a cutting mechanism has been provided. The cutting mechanism includes a pair of spaced apart tape supports 56 and 58 which extend transversely across body 22 and are spaced apart to provide a space or trough 60 therebetween. As is illustrated in the drawings, the tape supports 56 and 58 are preferably spaced away from the gripping surface 48.

Cooperating with the tape supports 56—58 is the cutter 24 which is effective when put in contact with a strip of tape bridged across the supports 56 and 58 to sever the tape. Cutter 24 includes a pair of support and attachment flanges 62 and 64 which are apertured adjacent the free ends thereof to receive cylindrical embossments 66 and 68 extending outwardly from body flanges 38 and 40, respectively. This provides a hinge connection between body 22 and cutter 24 whereby to permit cutter 24 to be swung from the position illustrated in FIGURE 1 to the position illustrated in FIGURE 3 and back again. There is provided on the forward edge of cutter 24 disposed away from flanges 62—64 a cutting flange 70 provided with a serrated cutting edge 72. Flange 70 is disposed substantially perpendicular to the main body 74 of cutter 24 and substantially perpendicular to a line interconnecting the upper ends of tape supports 56—58 when flange 70 is disposed in trough 60 therebetween as illustrated in FIGURE 6 of the drawings.

In order to cut a desired length of tape, the tape is positioned as indicated by dashed lines in FIGURE 3 of the drawings and by solid lines in FIGURES 4 and 5 of the drawings. Cutter 24 is then swung in a counter-clockwise direction as viewed in FIGURES 3, 5 and 6 whereby to press cutting edge 72 against the portion of the tape stretched between tape supports 56 and 58. The adhesive on the tape maintains the tape stretched taut between supports 56 and 58 during severing whereby to provide an efficient tape cutting operation.

Immediately after severing the strip 50 from roll 26, the free end of tape 30 attached to roll 26 is adhesively adhered to tape support 58. In accordance with the present invention means is provided to free the tape end 76 from support 58 and direct it upwardly and outwardly from tape roll 26 and the dispenser 20. To this end body 22 has a pair of spaced apart tape engaging surfaces 78 and 80 which are separated by a transverse cavity, void or trough 82. The upper ends of tape supports 56 and 58 are in substantial alignment with surfaces 78 and 80. Accordingly, tape is stretched across these four surfaces immediately prior to cutting as is indicated in dashed lines in FIGURE 3 and by solid lines in FIGURES 4 and 5.

In order to free tape end 76 from support 58, it is necessary to withdraw it therefrom upwardly or to the right as viewed in FIGURES 3 through 7. This is accomplished by means of substantially U-shaped depressor

member 84 formed in cutter body 74. Depressor 84 is directed from body 74 in the same direction as the cutting flange 70 and is positioned to enter the transverse trough 82 as is illustrated in FIGURES 5 through 7 of the drawings. Entry of depressor 84 into trough 82 is effective to pull tape end 76 away from support 58 and move or deflect it upwardly to the position indicated in FIGURES 1, 6 and 7. Tape end 76 is now in position to be grasped by the fingers of a user as soon as the cutter 24 is pivoted to the open position illustrated in FIGURES 3 and 4 of the drawings.

A complete dispensing cycle using depressor 20 is as follows. Assuming that a new roll 26 is being used, the underfolded free end 27 of the tape (see FIGURE 11) is passed upwardly through dispensing aperture 46 after dispenser 20 has been placed in suitable position upon roll 26. Cutter 24 is swung to the open position illustrated in FIGURE 3 and the user applies a thumb to gripping surface 48 while grasping the roll with the fingers of the same hand. It is to be noted that cutter body 74 is provided with a part-circular cutout 86 to facilitate opening of cutter 24 when a thumb of the user is in position.

The user then grasps the free end of the tape with the fingers of the other hand and pulls the tape upwardly across guide surface 54 as illustrated in FIGURE 3 whereby to produce a free tape portion 50 which it is desired to sever from roll 26. Tape portion 50 is then placed in the position illustrated by dashed lines in FIGURE 3 and by solid lines in FIGURES 4 and 5 of the drawings. In this position the adhesive coated side of tape 30 is pressed against surfaces 78 and 80 and against the upper ends of tape supports 56 and 58. For further convenience the tape also may be secured to roll 26 on the surface thereof disposed to the left as viewed in FIGURE 3 of the drawings.

Cutter 24 is then swung in a counter-clockwise direction to the position shown in FIGURE 5 of the drawings. The serrated cutting edge 72 serves to cut the tape between the upstanding tape supports 56 and 58. Tape 30 is sufficiently adhered to the upper ends of supports 56 and 58 and to surfaces 78 and 80 to hold the tape taut during severance.

Immediately after severance of the tape, depressor 84 moves downwardly into trough 82. This serves to pull the free tab end 76 of the tape out of adhesive contact with support 58 and turns the free end of the tape upwardly to the position illustrated in FIGURES 1, 6 and 7 of the drawings. Tab end 76 is now in position to be readily grasped by the fingers of a user when cutter 24 is swung to the open position.

The adhesive adherence of tape 30 to surface 80 and the surface of trough 82 is sufficient to hold dispenser 20 upon the outer periphery of tape roll 26. Dispenser 20 travels circumferentially around tape roll 26 under the impetus of tape being unwound from the roll. The support surfaces 32 and 34 in cooperation with the surface 36 permit dispenser 20 to be firmly seated upon tape roll 26 as tape is dispensed therefrom. When substantially all the tape has been removed from roll 26, the curved surfaces 42 and 44 on flanges 38 and 40 will rest against core 28 and the dispenser will remain in this position with respect to core 28 until all tape has been dispensed from roll 26.

There is shown in FIGURES 9, 10 and 11 of the drawings a modification of tape dispenser 20. In this form of the invention body flange 38 is provided with a pair of laterally extending bosses 90 and 92 and flange 40 is provided with a similar pair of bosses 94 and 96. An endless rubber band 98 engages at one end thereof the bosses 90 and 92, passes through the opening in spool 28 and engages bosses 94 and 96. The length of band 90 is such that it is under tension when applied as viewed in FIGURES 9, 10 and 11. Furthermore the length of rubber band 98 is so chosen that it will still be under tension when all of the tape upon roll 26 has been removed there-

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from. It will be seen that rubber band 98 will serve firmly to seat dispenser 20 upon roll 26 at all times.

Preferably dispenser body 22 is formed of a material such that the surfaces thereof which engage roll 26 can easily ride therealong. One preferred type of material of construction of body 22 is synthetic organic plastics and a specific preferred type of plastic is molded polystyrene plastic. The cutter 24 must be made of a material which can provide a good cutting edge 72. A preferred material of construction for cutter 24 is metal. The spool 28 may be formed of metal or cardboard or even a synthetic organic plastic. Although band 98 has been disclosed specifically as having been made of rubber it is to be understood that any other suitable elastomer and specifically any suitable synthetic organic elastomer may be used in the place of rubber band 98.

It will be seen that there has been provided a dispenser which fulfills all of the objects and advantages set forth above. Although two preferred forms of the invention have been shown in the drawings for purposes of illustration, it is to be understood that various changes and modifications can be made therein without departing from the spirit and scope of the invention. Accordingly, the invention is to be limited only as set forth in the following claims.

I claim:

1. A dispenser for adhesive tape wound in an annular roll and adapted to be supported by the roll and to travel circumferentially around the roll under impetus of the tape being unwound from the roll, comprising a body having a surface adapted to bear on the outer peripheral surface of the roll, said body having a dispensing aperture therein to pass the free end of the tape therethrough, a first tape support formed on said body and spaced from said dispensing aperture, spaced apart second tape support surfaces formed on said body and disposed between said dispensing aperture and said first tape support, said second tape support surfaces having a void therebetween, a cutter mounted on said body and movable to a tape cutting position adjacent said first tape support for severing the tape while the tape is in contact with said first tape support, and a depressor mounted on said body for movement in a direction toward said second tape support surfaces and into engagement with the tape between said second tape support surfaces to move the tape into the void between said second tape support surfaces and toward the roll to free the severed end of the tape from said first tape support and direct it outwardly away from the periphery of the roll.

2. A dispenser for adhesive tape comprising a body having a dispensing aperture therein to pass the free end of a tape therethrough in withdrawing a length of tape from the periphery of an associated roll of tape, a first tape support formed on said body and spaced from said dispensing aperture, spaced apart second tape support surfaces formed on said body and disposed between said dispensing aperture and said first tape support, said second tape support surfaces having a void therebetween, a cutter mounted on said body and movable to a tape cutting position adjacent said first tape support for severing the tape while the tape is in contact with said first tape support, and a depressor mounted on said body for movement in a direction toward said second tape support surfaces and into engagement with the tape between said second tape support surfaces to move the tape into the void between said second tape support surfaces and toward the associated roll to free the severed end of the tape from said first tape support and direct it outwardly away from the periphery of the associated roll.

3. A dispenser for adhesive tape comprising a body having a dispensing aperture therein to pass the free end of a tape therethrough in withdrawing a length of tape from the periphery of an associated roll of tape, a tape support formed on said body and spaced from said dispensing aperture, a trough formed in said body and dis-

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posed transversely with respect to the longitudinal axis of the length of tape and positioned between said dispensing aperture and said tape support, a cutter mounted on said body and movable to a position to sever tape adjacent said tape support, and a depressor mounted on said cutter and shaped complementary to said trough to move tape into the trough to free the severed end of the tape from said tape support and direct it outwardly away from said trough.

4. In a tape dispenser structure adapted to be supported upon the circumferential surface of a roll of convoluted pressure-sensitive tape and to be moved therealong by the forces exerted thereon by a length of tape being unwound from the roll preparatory to severing such lengths therefrom, the combination comprising a dispenser body defining an opening through which the free end of the tape passes in unwinding a length of tape from such roll, a tape support provided by said dispenser body in spaced relation with said opening for supporting such unwound length of tape along a line for severance thereof from such roll, a trough provided by said dispenser body intermediate said opening and tape support and extending transversely of the direction of movement of such length of tape during the unwinding thereof, a blade-equipped cutter movably carried by said dispenser body for engaging the blade adjacent said tape support with such unwound length of tape to sever the same from such roll, and a depressor provided by said cutter and being insertable into said trough for engagement with the length of tape remaining after such severance to depress the same into said trough and thereby withdraw the severed end from said tape support and cause that end to move outwardly from the circumferential surface of the roll.

5. A tape dispenser according to claim 4 in which said tape support and trough are spaced from the circumferential surface of such roll and arcuately spaced from each other along such surface, and in which said dispenser body is provided with a recess intermediate said tape support and trough.

6. A dispenser for adhesive tape, comprising a body over which unwound tape may be withdrawn in a predetermined path from the circumference of an associated roll of tape, means for severing the unwound tape at a predetermined transverse line along said path, spaced apart tape support surfaces on said body for supporting the unwound tape along said path intermediate said transverse line and the circumference of the roll of tape, said tape support surfaces having a void therebetween bridged by a portion of the unwound tape, and depressor means adapted to contact the surface of the tape opposite that surface contacted by said tape support surfaces for depressing the bridging portion of tape into said void subsequent to the severing of the tape, thereby to direct the severed end of the tape outwardly from said body into a position wherein such end may be readily grasped by the fingers preparatory to withdrawal of another length of tape from the roll.

7. A dispenser for adhesive tape, comprising a body over which unwound tape may be withdrawn in a predetermined path from the circumference of an associated roll of tape, cutting means movably carried by said dispenser body for severing the unwound tape at a predetermined transverse line along said path, spaced apart tape support surfaces on said body for supporting the unwound tape along said path intermediate said transverse line and the circumference of the roll of tape, said tape support surfaces having a void therebetween bridged by a portion of the unwound tape, and depressor means movably carried by said dispenser body and adapted to contact the surface of the tape opposite that surface contacted by said tape support surfaces for depressing the bridging portion of tape into said void subsequent to the severing of a length of tape, thereby to direct the severed end of the tape outwardly from said body into a position

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wherein such end may be readily grasped by the fingers preparatory to withdrawal of another length of tape from the roll thereof.

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