July 24, 1956 C. W. VOGT 2,755,953

PISTOL GRIP TAPE APPLICATOR

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Fig. 1

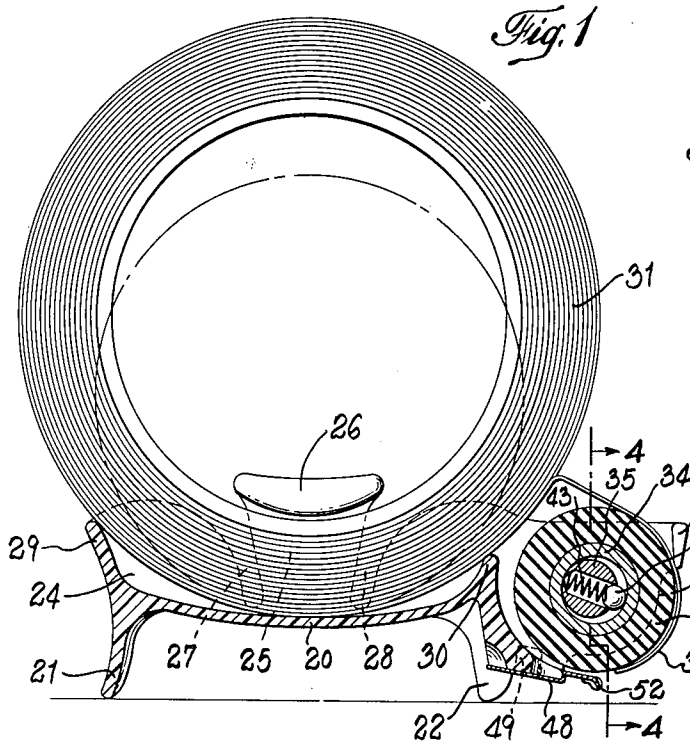
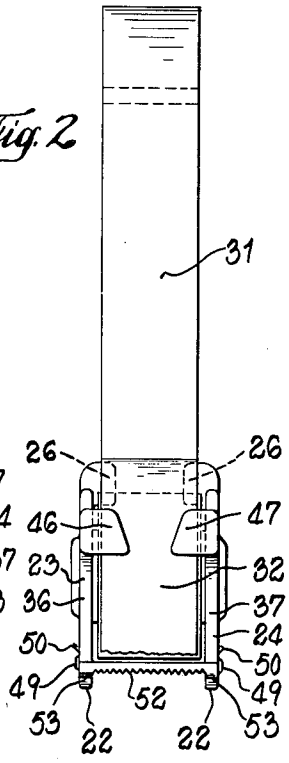


Fig. 2



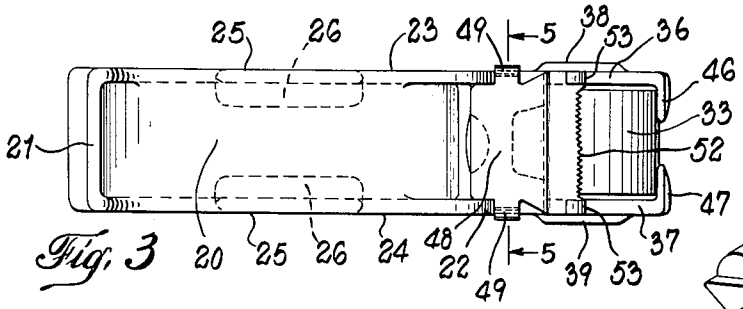


Fig. 3

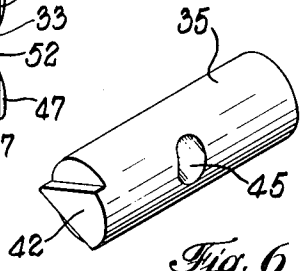


Fig. 6

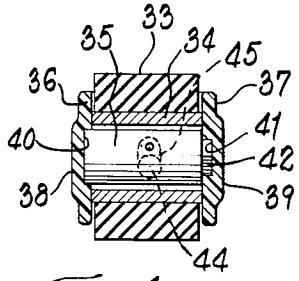


Fig. 4

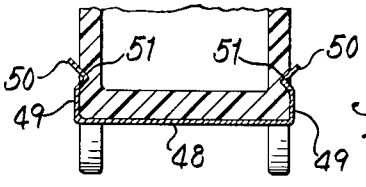


Fig. 5

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PISTOL GRIP TAPE APPLICATOR

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Fig. 7

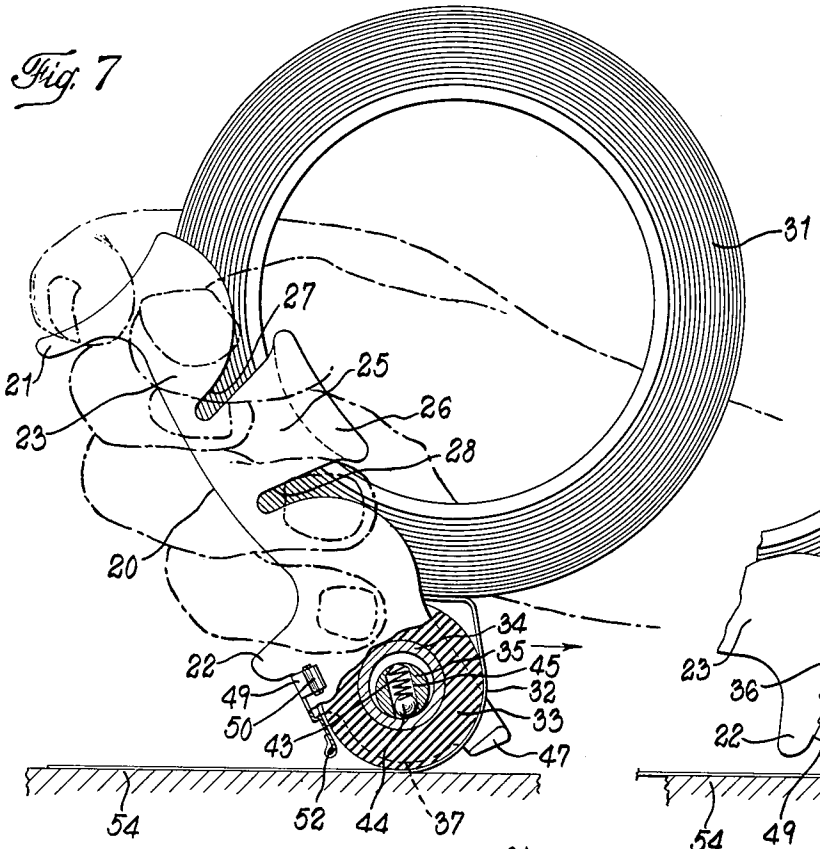


Fig. 8

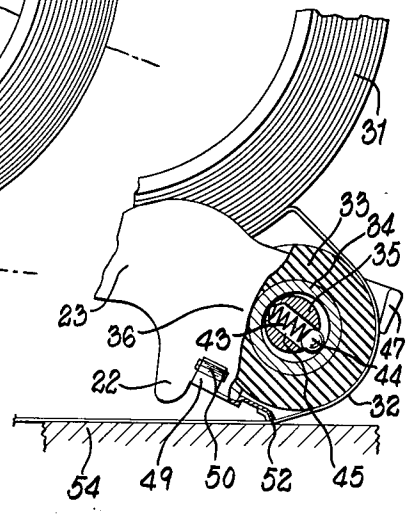


Fig. 9

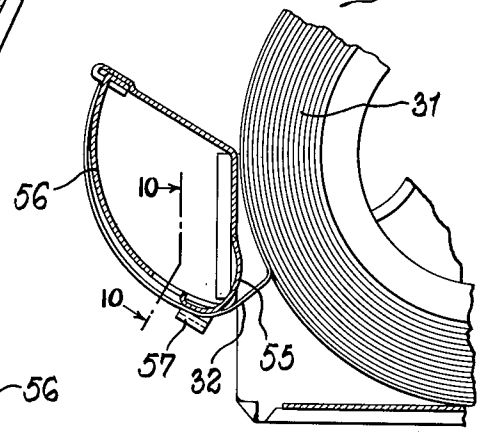


Fig. 11

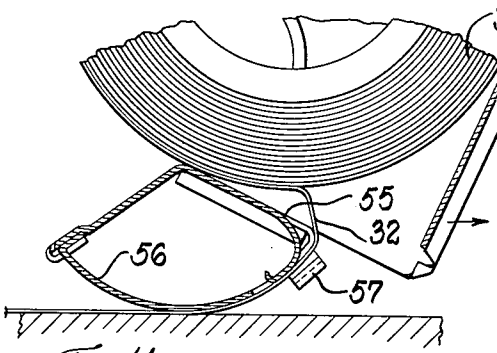
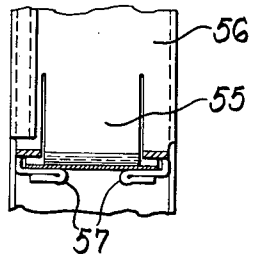


Fig. 10



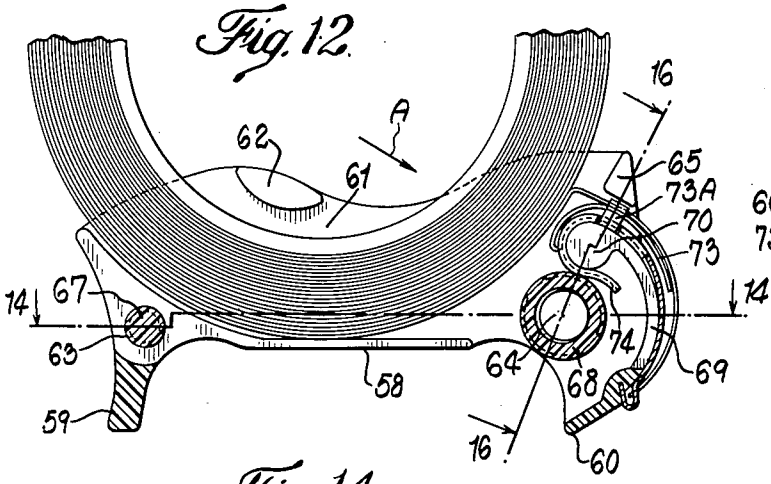
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PISTOL GRIP TAPE APPLICATOR

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Fig. 12.



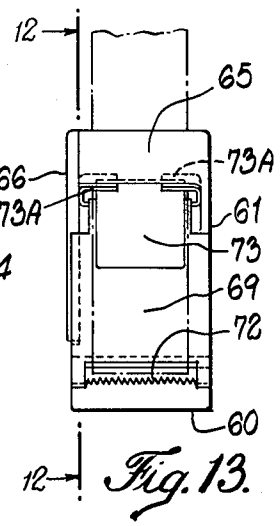


Fig. 13.

Fig. 14.

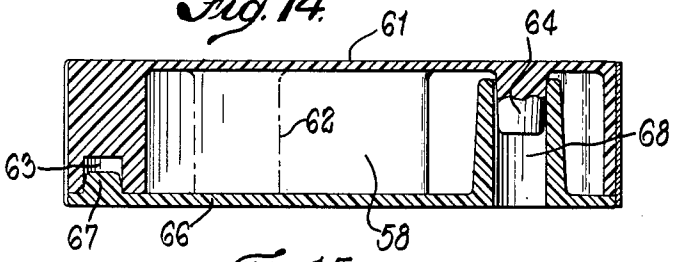


Fig. 15.

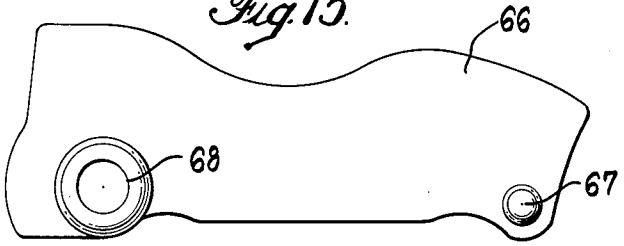
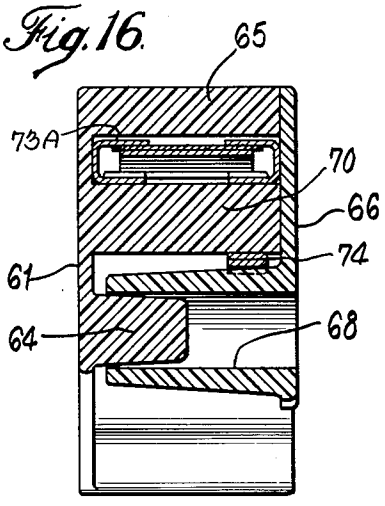


Fig. 16.



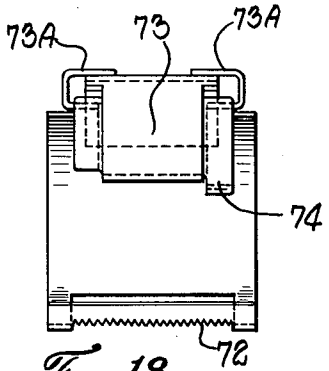


Fig. 18.

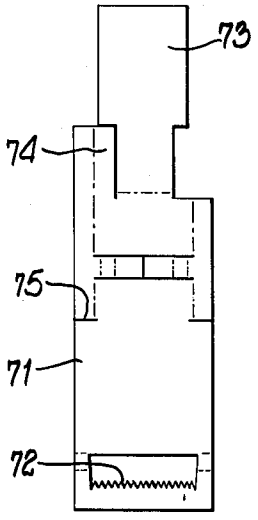


Fig. 17.

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United States Patent Office

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PISTOL GRIP TAPE APPLICATOR

Clarence W. Vogt, Norwalk, Conn.

Application August 9, 1952, Serial No. 303,587

12 Claims. (Cl. 216—33)

The present invention relates to devices for dispensing or applying tape material that is customarily available in roll form, including tape with or without adhesive material applied thereto.

In utilizing tape in roll form, it is desirable to facilitate the removal of desired lengths thereof when and as needed, and after severing such lengths from the tape remaining with the roll, to maintain the severed end of the roll in such position that continued removal of a length or lengths may be readily accomplished. Moreover (as explained in my application for United States Letters Patent Serial No. 305,229, filed August 19, 1952, now Patent 2,725,105 issued November 29, 1955, for "Roll of Tape with Cutter Blade") for tapes in roll form having adhesive applied thereto, it is desirable to facilitate the application of the adhesive side of the tape to a desired surface while insuring the continued availability of the remaining end of the roll for continued operations after desired lengths of tape have been severed from the roll.

An object of the invention, accordingly, is to provide a device by means of which tape in roll form may be dispensed in desired lengths which may be severed from the remaining tape on the roll while maintaining the severed end of the roll in such position that it is readily available for a further dispensing operation.

A further object of the invention is to provide a device of the above character wherein means is provided to apply the tape to a desired surface with facility and in such fashion that the tape may be readily severed as desired and the severed end remaining on the roll maintained in such position that it will be ready for subsequent applying operations.

Other and further objects, such as greater simplicity of structure and ease of manufacture, will be apparent as the invention is described in greater detail in connection with the accompanying drawings, wherein:

Figure 1 is a view in vertical central section showing one form of the invention;

Figure 2 is a view in front elevation showing the device of Figure 1;

Figure 3 is a bottom plan view (with tape removed) showing the device of Figure 1;

Figure 4 is a view in section, taken on line 4—4 of Figure 1, and looking in the direction of the arrows;

Figure 5 is an enlarged partial view in section taken on line 5—5 of Figure 3, and looking in the direction of the arrows;

Figure 6 is an enlarged perspective view showing the structure of the applicator roller supporting shaft of the device of Figures 1 to 5;

Figure 7 is a view in side elevation, partly broken away and in section, showing the manner in which the device of Figures 1 to 6 is used to apply tape to a desired surface;

Figure 8 is a partial view similar to Figure 7, showing the manner in which the applied tape is severed from the roll;

Figure 9 is a partial view in vertical central section showing a modified form of the invention;

Figure 10 is a partial view in section, taken on the broken line 10—10 of Figure 9, and looking in the direction of the arrows;

Figure 11 is a view similar to Figure 9, showing the manner in which the mechanism is utilized to apply tape to a desired surface;

Figure 12 is a view similar to Figure 1 showing a further modified form of the invention;

Figure 13 is a detail view in elevation showing the cover plate of the structure shown in Figure 12;

Figure 14 is a view in section, taken on line 14—14 of Figure 13, and looking in the direction of the arrows;

Figure 15 is a view in front elevation showing the side plate of Figure 14;

Figure 16 is a view in section taken along the broken line 16—16 of Figure 12 and looking in direction of the arrows;

Figure 17 is plan view of a blank from which the cutting and snubbing element of Figure 12 may be formed; and

Figure 18 is a detail view of the back face of the cutting and snubbing element as it would appear when viewed in the direction of the arrow A in Figure 12.

Referring to the device of Figures 1 to 8, inclusive, the invention will be seen to be embodied in a device having a frame formed with a curved bottom 20 having spaced legs 21 and 22 and side plates 23 and 24. Each side plate may be formed with central plates 25 upon which inwardly projecting roll retaining lugs 26 are formed. In order that the central plates may be provided with sufficient flexibility to permit a roll to be inserted therebetween (as illustrated in Figures 1 and 2), the side plates are cut away at 27 and 28, the frame being formed with end plates 29 and 30 to facilitate locating rolls of tape such as shown at 31 in the frame.

The end portion 32 of the roll 31 is directed forwardly over an applicator roller 33 which, if desired, may be formed of a yielding material such as rubber or the like and, if so formed, the roller is preferably provided with a central core 34 which is mounted upon a supporting shaft 35.

In order that the shaft 35 may be properly mounted on the frame, the side plates are formed with spaced forward extensions 36 and 37 having enlarged hub portions 38 and 39 within recesses 40 and 41 of which the ends of the shaft 35 are received. Correct positioning of the shaft 35 is assured by providing a pie-shaped projection 42 on one end thereof which is adapted to be received in recess 41 shaped correspondingly.

As will be seen in Figure 1, the core 34 is larger than the shaft 35 to permit lateral movement of the roller with respect to the shaft. Such movement is yieldingly accomplished by a spring 43 and ball 44, the spring being seated in the bottom of a recess 45 formed in the shaft 35 and the ball engaging the inner surface of the core 34.

The side wall extensions 36 and 37 are formed with inwardly projecting snubbing ears 46 and 47 against which the roller 33 is normally urged by the spring-pressed ball 44, as shown in Figure 1. When the end 32 of the tape is passed beneath these ears, it is held thereagainst by the roller.

To facilitate cutting a desired length of the tape from the roll, a cutter plate 48 is provided having lateral arms 49 terminating in ears 50 that are adapted to snap into recesses 51 formed in the respective extensions 36 and 37. The forward end of the cutter plate is formed with a serrated cutting edge 52, the lateral ends of which terminate in projections 53 which, as described in my

co-pending application above identified, serve to protect the surfaces upon which the tape has been applied from the cutting edge **52**.

In operation the device is preferably grasped, as illustrated in Figure 7, with the thumb passing through the core of the roll of tape and with the second, third and little fingers between the legs **21** and **22**, and living against the bottom **20**. The first finger preferably lies outside of the leg **21**, the grip thus resulting resembling the manner in which a pistol is gripped. Thus grasped, the device is applied to the surface of a desired object **54** to apply the adhesive side of the tape thereagainst to adhere it thereto, and the device then is drawn to the right as viewed in Figure 7, until the desired length of tape has been applied. In this operation the roller **33** is moved away from the snubbing ears **46** and **47** and the tape is then readily drawn from the roll.

After the desired length of tape has been applied, the device is pivoted about the roller **33** until the cutting edge **52** engages the tape, and the tape is severed, as illustrated in Figure 8. At this point the spring-pressed ball **44** moves the roller **33** against the snubbing ears to hold the severed end of the roll and prevent the return of the end **32** to the roll **31**, thus holding the end of the tape ready for a further applying operation.

After completion of the foregoing operation and if no further immediate applications of the tape are required, the operator simply returns the device to a supporting surface and rests the legs **21** and **22** thereon, after which he withdraws the fingers beneath the mechanism and his thumb from inside the core. It will be observed that the operation of the device requires no particular manipulation of the fingers or, in fact, of anything except one hand, leaving the other hand free for other movements.

Referring to the form of the invention illustrated in Figures 9, 10, and 11, the frame structure may be similar to that described in my co-pending application for United States Letters Patent Serial No. 297,459, filed July 7, 1952, now Patent 2,722,331 issued November 1, 1955, for "Tape Applicator," particularly as shown in Figures 13 to 17, inclusive. Into this structure, however, snubbing mechanism is preferably incorporated in the form of a tongue **55** formed out of the material of a curved pressure plate **56** that corresponds to the pressure plate **87** of the device shown and described in applicant's above-identified copending application. Tabs **57** are also formed out of the material of the frame, or in any other suitable fashion and extend inwardly in opposite directions to overlie the tongue **55** as illustrated in Figure 10. The normal position of the tongue is illustrated in Figure 9 wherein its natural resiliency holds the tape material at the end of the roll **32** against the tabs **57**, thus snubbing the tape and preventing withdrawal of the material from its position as illustrated in the drawings, wherein it overlies the arcuate pressure plate **56**.

It is to be understood that the surface of the pressure plate **56** is preferably coated with Teflon or the like, as described in applicant's co-pending application Serial No. 297,459 above-identified, such surface providing a relatively low coefficient of friction and thus reducing to a minimum the drag occasioned by the movement of the tape over the pressure surface during the applying operation.

Referring to the form of the invention illustrated in Figures 12 to 17, inclusive, the frame will be seen to include a bottom **58**, legs **59** and **60**, and a side wall or plate **61**, all preferably formed integrally as a casting of, for example, a plastic or the like. The stationary wall plate **61** is provided with an inwardly projecting lug **62** which serves to retain the roll of tape within the frame as described in connection with the elements **26** shown in Figure 1. A recess **63** is formed in the material of the frame adjacent the leg **59** and, adjacent the leg **60**, a stud **64** is provided. In like fashion a guard lug **65** is provided at the forward end of the plate **61**, this lug serving as a protection to snubbing ears **73A** which together with tongue **73** serve to restrain the free end of the tape, as will presently be described.

A movable side plate **66** is provided of form and outline similar to the plate **61** and is formed with a relatively short pin or stud **67** which is adapted to removably engage the recess **63**. The side plate is also formed with a sleeve **68** which is adapted to fit over the stud **64** and serves as a pivot point about which the movable side wall **66** swings when a new roll of tape is to be inserted or threaded through the snubber and presser mechanism.

Also formed upon the housing structure, including the fixed wall **61**, is a curved pressure plate **69** having an inwardly extending projection **70** and over which a resilient cutting and snubbing mechanism is adapted to be fitted as illustrated in Figures 12 and 16. The cutting and snubbing members are shown in plan view in Figure 17 and include a plate **71** preferably of spring steel, having near its lower end a cutting edge **72** which may be similar to the structure illustrated in Figure 3. Out of the material of the plate **71** a tongue **73** is formed in such fashion that it normally lies outside of the plane of the plate **71**. A remote end portion **74** of the plate **71** may be slit and turned inwardly, as illustrated at **75**, to engage the inward projection **70** of the pressure plate **69** and thus removably hold the plate **71** in the position illustrated in Figure 12. As will be seen in Figure 12, the end portion **74** of the plate **71** engages the annular hub member **68** to serve to retain the spring plate in its assembled position and due to the taper of the hub **68** the end is urged counter-clockwise or upward, when the cover plate is pressed into its full assembled position, thus increasing the gripping action between tongue **73** and ears **73A**.

It will be seen that the tongue **73** normally urges the end **32** of the roll of tape against the ears **73A** to grip (or engage) it until a subsequent applying or dispensing operation is commenced. Also as above mentioned, the tongue **73** is preferably coated with Teflon or the like to reduce the frictional drag during operation of the mechanism.

Pivotal movement of the side wall **66** about the axis of the annular hub member **68**, as above described, not only permits inserting a new roll of tape into the apparatus, but also facilitates the threading of the end of the roll through the channel between the assembled spring plate elements **71** inasmuch as this pivotal element exposes the channel to ready access.

From the foregoing it will be seen that there has been provided a device that not only serves effectively as an applicator for adhesive tapes, the use of which requires only the convenient manipulation of one hand, but the invention also provides an improved form of tape dispensing mechanism wherein the length of tape **32** removed from the roll and standing idle between dispensing or applicating applications is reduced to a minimum. This length or any portion thereof can easily be withdrawn from the device and returned to the roll, or the rolls changed by applying slight tension to the tape and, after the spring tongue **73** has been depressed, sliding it back through the channel between the tongue **73** and the ears **73A**. If the cutter head becomes dull and thus exerts too great a pull on the roll, the roll may be gripped more securely simply by squeezing the roll and frame more firmly.

While the invention has been described with specific reference to the accompanying drawings, it is not to be limited save as defined in the appended claims.

I claim:

1. Apparatus for dispensing tape in roll form, comprising a frame member formed as an elongated grip member having a channel on one side to receive a portion only of the periphery of a roll of tape and a curved opposite surface disposed outside the periphery of the roll

to be gripped by the fingers, means on the frame member to sever the tape material, and spaced legs at opposite ends of the curved opposite surface of the frame member to support the latter above a supporting surface and to permit grasping of the grip member by the hand.

2. A device according to claim 1 wherein the means to receive a roll of tape material comprises an elongated hollow roll receiving frame portion and means thereon adapted to lie within the core of a roll of tape material to retain the roll therein.

3. The apparatus set forth in claim 1 comprising a curved applicator surface, means spaced from the last named surface to provide a restraining surface, and a yielding tongue shaped element spaced from the applicator surface to press the tape against the restraining surface.

4. The apparatus set forth in claim 1 comprising a means on the frame member forming a curved applicator surface, means spaced from the last named surface to provide a restraining surface and a flexible plate member carried by the applicator surface and spaced therefrom and over which the tape moves as it is applied to a desired surface, said flexible plate member urging the tape material against the restraining surface.

5. The apparatus set forth in claim 1 comprising means on the frame member forming a curved applicator surface, means spaced from the last named surface to provide a restraining surface, and a flexible plate member carried by the applicator surface formed out of the material of the plate member and spaced therefrom and over which the tape moves as it is applied to a desired surface, said flexible plate member urging the tape material against the restraining surface.

6. The apparatus set forth in claim 1 comprising means between said channel and the severing means to grip the tape material and prevent return thereof to the roll, and a tongue on said gripping means to facilitate actuation thereof by a finger of the operator.

7. The apparatus set forth in claim 1 comprising yielding means between said channel and the severing means to grip the tape material and prevent return thereof to the roll, and a tongue on said yielding means movable with respect to the severing means to facilitate actuation thereof by a finger of the operator.

8. The apparatus set forth in claim 1 comprising applicator means on the frame member to apply the tape material to a desired surface, means spaced from the applicator means to provide a restraining surface, yielding means to urge the tape against the last named restraining surface, and a tongue on the yielding means extending beyond the restraining surface to facilitate actuation of the tongue by the operator to release the tape.

9. Apparatus for dispensing tape in roll form, comprising a frame member, means thereon to receive a roll of tape material, means having a hollow core, a shaft on the frame of a diameter smaller than the hollow core and mounting the rotatable applicator on the frame to apply the tape material to a desired surface, means spaced from the applicator means to provide a restraining surface, and yielding means on the frame to urge the applicator against the last named restraining surface.

10. Apparatus for dispensing tape in roll form, comprising a frame member, means thereon to receive a roll of tape material, rotatable applicator means having a hollow core, a shaft on the frame of a diameter smaller than the hollow core and mounting the rotatable applicator on the frame to apply the tape material to a desired surface, means spaced from the applicator means to provide a restraining surface, and yielding means on the shaft to urge the applicator against the last named restraining surface.

11. A device according to claim 10 wherein the yielding means comprises a spring pressed ball engaging the inner surface of the hollow core.

12. Apparatus for dispensing tape from a hollow roll thereof, comprising an elongated frame member adapted to be gripped in the hand and having a channel portion to receive a portion only of the periphery of said roll therein, said frame member having an outer surface at the bottom of the channel to be engaged with the fingers and retaining lugs at its opposite edge to retain said roll in said frame and be engaged by the thumb, legs at the ends of the outer surface of the frame member to support the latter above a supporting surface and to permit grasping of the grip member by the hand, tape cutting means at one end of the frame member, tape applicator means at the last named end of the frame member, and snubbing means at the last named end of the frame member to prevent return of the tape to the roll.

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