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3,077,919

DISPENSER FOR TAPE Having PAPER BACKING

Filed March 14, 1960

Fig. 1.

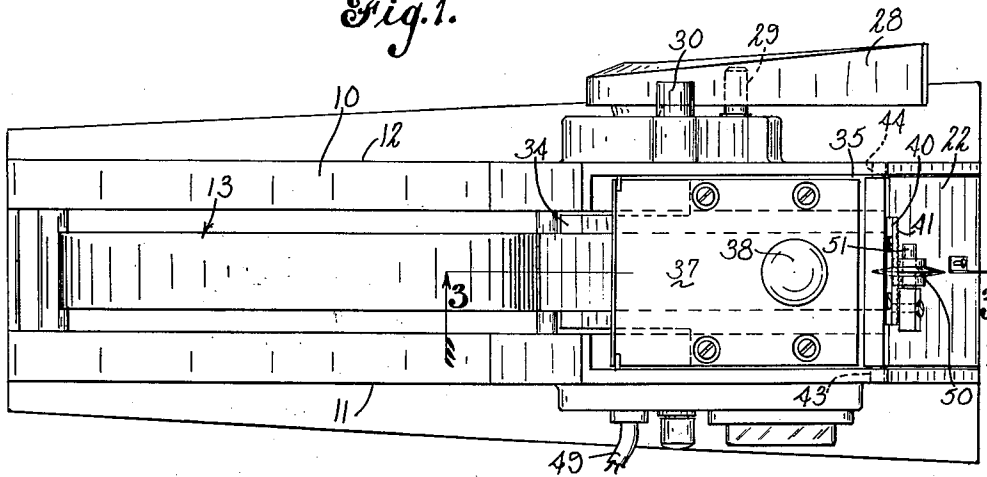


Fig. 2.

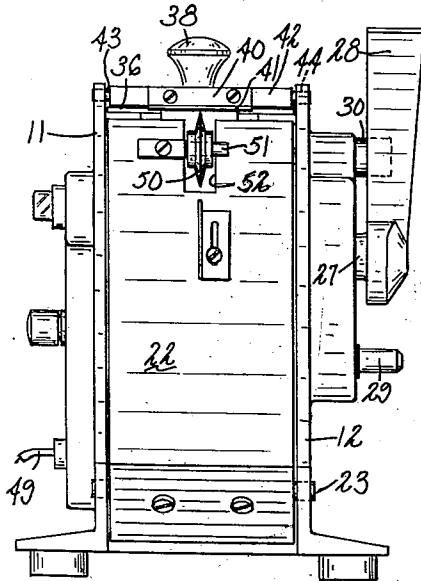
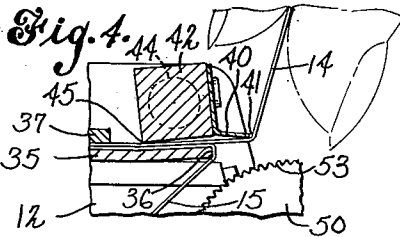
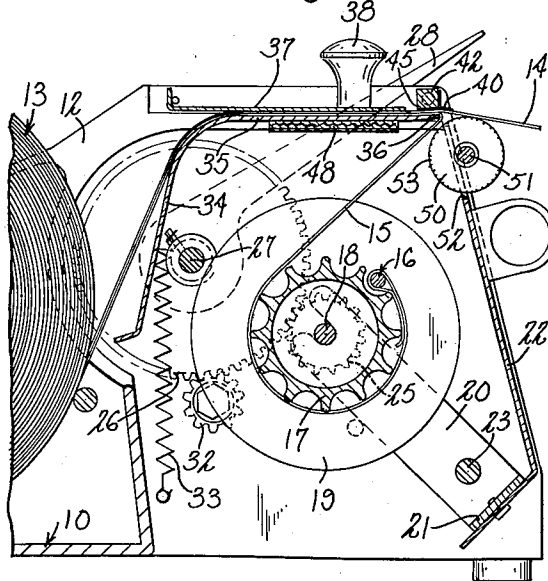


Fig. 3.



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1

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DISPENSER FOR TAPE HAVING PAPER BACKING
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 assignments, to Minnesota Mining and Manufacturing
 Company, St. Paul, Minn., a corporation of Delaware
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 3 Claims. (Cl. 156—584)

This invention relates to a device for dispensing tape and more particularly pressure-sensitive tape which is tacky upon one surface. It is particularly adapted for tapes of cellulose acetate or "Mylar" which are somewhat difficult to feed in that they do not have the required stiffness to be pushed through the machine past a severing knife.

When a tape is fed through a dispenser by movement of feeding mechanisms such as feeding rolls, and not pulled from the machine by engagement with the hand, the feeding mechanism is mounted rearwardly of the severing means, with respect to the direction of travel of the tape, and, therefore, the tape must be pushed past the severing means. In the event that the tape is of such a character that it is quite limp and does not have sufficient stiffness, it is difficult for it to be fed in this manner and, therefore, such tapes are commonly mounted upon backing strips or ribbon to which they lightly adhere. The ribbon or backing strip upon which the strip of tape is mounted is pulled through the machine and wound up on a take-up roll. During this operation the backing strip is bent sharply around a projecting edge and the tape will not follow the backing strip but will continue more or less in a straight path so that it will be separated or stripped, from the backing strip or ribbon. The present machine is one of this type.

Moreover, such tapes as "Mylar," for example, are somewhat tough and offer resistance to being torn off or severed against the sharp edge of a severing member. The result is that in some instances the tearing of the tape against the edge of the severing member causes an additional length to be drawn from the supply roll during the severing operation. This is an undesirable feature as in the case of most of these machines the operating lever can be set to deliver a measured length at each forward or feeding stroke of the lever, and the drawing of an additional length would, of course, render this measurement inaccurate. It is advantageous, therefore, to have means for holding or clamping the tape rearwardly of the severing member during the severing operation so that the latter will be effected without drawing any additional tape from the supply roll which is one function of the present structure.

Also in some instances the tape in its movement develops a static charge which causes the dispensed end of the tape to curl and cling to the front of the machine. Therefore, in the present instance guiding means are provided to guide the free dispensed end of the tape away from the machine, this guiding means, as illustrated, being in the form of a freely rotatable disk or wheel having a notched or serrated periphery which will cling lightly to the tape and cause the wheel to be rotated by the moving tape and thus the latter will be carried away from the front of the casing in which the mechanism is mounted.

One object of the present invention is to provide a tape-dispensing mechanism particularly adapted for use with pressure-sensitive tape mounted upon a backing strip.

A further object of the invention is to provide a tape-dispensing mechanism of the character described wherein means is provided for clamping the tape during the severing operation to prevent any tendency of an additional length of tape being drawn from the supply roll by the

2

force exerted on the tape to tear it or sever it against a severing edge.

A further object of the invention is to provide means, particularly in connection with tape of a character which is inclined to develop a static charge during its passage through the machine, for guiding the dispensed free end of the tape away from the forward portion of the casing of the machine and prevent the tape from curling.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

FIG. 1 is a top plan view of a tape-dispensing mechanism embodying my invention;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a partial sectional view on line 3—3 of FIG. 1; and

FIG. 4 is an enlarged sectional view of the tearing or severing mechanism.

To illustrate a preferred embodiment of my invention I have shown in the drawing a dispenser for pressure-sensitive tapes mounted on a backing strip, which comprises a hollow casing 10 having upstanding side walls 11 and 12 between which the mechanism may be housed. Within the casing is suitably supported a supply roll of tape 13 which in this instance consists of a pressure-sensitive tape 14 mounted on a backing strip 15. It is understood that the tacky side of the tape 14 is adjacent the face of the backing strip and will cling lightly thereto so that pull upon the backing strip will effect the feeding of the tape as well.

As shown more especially in FIG. 3, the free end of the backing strip 15 is secured at 16 to a take-up reel 17 secured to a shaft 18 rotatably supported within the casing. The reel 17 may be provided with flanges 19 to retain the windings of the backing strip thereon. The shaft 18 is rotatably mounted in the arms 20 (only one of which is shown) of a U-shaped support 21 secured to the lower portion of a front wall 22 hinged to the casing at 23.

Secured to the shaft 18 is a pinion 25, the teeth of which mesh with those of a gear 26 loosely mounted on a shaft 27. Secured to this shaft is a handle lever 28 designed to be oscillated between stops 29 and 30 (FIG. 2). Usually one of these stops will be adjustable so as to vary the length of tape dispensed at each stroke of the lever 28 the feeding stroke of the latter being in a clockwise direction, as shown in FIG. 3.

The shaft 27 is provided with the usual one-way connection (not shown) with the gear 26 so that the latter will only be actuated upon the forward or clockwise stroke of the lever 28 and will remain idle upon the reverse stroke thereof. A pinion 32 may be mounted on the wall 12 of the casing to rotate with a certain amount of friction. The teeth of this pinion are engaged with those of the gear 26 which will prevent any tendency of the gear to rotate when the handle is moved in a non-feeding or counterclockwise direction. A spring 33 secured at one end to the wall 12 of the casing and at the other end to the shaft 27 tends to return the lever 28 to a position against the stop 30 when the lever is released after a feeding stroke has been completed.

With the above construction it will be seen that movement of the lever 28 in a clockwise direction will rotate the gear 26 in the same direction and the reel 17 in a counterclockwise direction to wind the strip 15 upon the reel and draw the strip and the tape which clings thereto from the supply roll.

The tape and backing strip are drawn from the supply roll over a sheet metal guide member 34 having a horizontally disposed table portion or platen 35 terminating

adjacent the front of the machine in an abrupt edge 36 over which the backing strip is sharply bent to strip the tape 14 therefrom. A pressure member 37 of relatively light weight rests by gravity upon the upper non-tacky surface of the tape to hold it upon the table 35, and this member may be removed by a handle 38 when it is necessary to place a new supply of tape in the machine.

Adjacent the edge 36 of the table 35 a severing member 40 having a serrated edge 41 is provided and when a length of tape has been dispensed from the machine it may be grasped by the fingers as shown in FIG. 4 and torn off against this edge. The severing member 40 is secured to the forward face of a supporting member 42 rockably mounted in the side walls 11 and 12 by means of trunnions 43 and 44. As shown in FIG. 4, when the dispensed length of tape is drawn upwardly against the severing edge 41, the supporting member 42 will be rocked about its trunnions 43 and 44 and, as this member is substantially of rectangular shape in cross section, its rear edge 45 will be moved downwardly against the upper surface of the tape, thus clamping the tape and backing strip against the table 35 and preventing the pull on the tape from drawing an additional length from the supply roll.

If the tape is of such a character that it is required or desirable, an electric heating element 48 may be provided below the table 35 and served with current through the conductor 49. Also in the event that the tape is of a character to curl and lie against the front wall 22 of the casing, a disk or wheel 50 may be rotatably mounted upon a shaft 51 secured to the wall 22, the wheel being disposed within a recess 52 in this wall. The upper surface of the wheel 50 lies adjacent the bending edge 36 of the table 35 so that the periphery of the wheel which is serrated or notched, as shown at 53, will be engaged by the tape 14 as it is stripped from the backing strip and dispensed from the machine. The wheel 50 will, therefore, be rotated and will serve to carry the tape away from the front wall of the casing.

In the operation of the device the stop members 29 and 30 are set at the proper distance apart to deliver the desired length of tape. Upon rotation of the lever 26 in a clockwise direction, as shown in FIG. 3, the take-up reel 17 will be rotated in a direction to wind up the backing strip 15 upon it and draw the backing strip and the tape adhering thereto from the supply roll 13. The tape passes over the table 35 and below the knife edge 36 and is propelled in a direction away from the front of the machine by the wheel or disk 50. When the measured length has been drawn from the machine the lever 28 is released and it will be returned to its original position against the stop 30 by the spring 33 without rotating the reel 17 in a reverse direction. The operator may then grasp the free end of the tape, as shown in FIG. 4, and tear off the dispensed length against the severing edge 41. During the severing operation the tape and backing strip will be clamped between the edge 45 of the knife support 42 and the table 35 and thus prevent an additional length of tape from being drawn from the supply roll.

While I have shown and described one embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A tape dispenser for dispensing pressure-sensitive tape, comprising an upright casing having front and rear ends and means for supporting a supply roll of tape lightly adhering to a backing strip, means for drawing the strip and the tape adhering thereto forwardly from the supply roll, a platen over which the strip is drawn, having a free edge adjacent the front end of the casing over which the strip is sharply bent to separate the tape therefrom, a

thin sheet-like severing member having a cutting edge spaced forwardly of the first-mentioned edge and normally lying substantially in the plane of the upper surface of the platen, and a rockable supporting member on which said severing member is fixed, the supporting member being supported from the casing and having a lower surface lying in a plane approximately the same as the plane of said cutting edge, and said surface of the supporting member terminating rearwardly in a sharp edge which clamps the tape-carrying-backing strip against the platen when the supporting member is rocked by manually moving the tape against the severing member to sever the tape.

2. A tape dispenser for dispensing pressure-sensitive tape, comprising an upright casing having front and rear ends and means for supporting a supply roll of tape lightly adhering to a backing strip, means for drawing the strip and the tape adhering thereto forwardly from the supply roll, a platen over which the strip is drawn, having a free edge adjacent the front end of the casing over which the strip is sharply bent to separate the tape therefrom, a thin sheet-like severing member adjacent said edge of the platen and having a cutting edge normally lying substantially in the plane of the upper surface of the platen, and a rockable supporting member on which said severing member is fixed, the supporting member being supported from the casing and having a substantially flat lower surface lying in a plane approximately the same as the plane of said cutting edge, said cutting edge extending forwardly of said supporting member and said platen and to a relatively small extent downwardly from said surface of the supporting member, and said surface of the supporting member terminating rearwardly in a sharp edge which clamps the tape-carrying-backing strip against the platen when the supporting member is rocked by manually moving the tape against the severing member to sever the tape.

3. A tape dispenser for dispensing pressure-sensitive tape comprising an upright casing having front and rear ends and means for supporting a supply roll of tape lightly adhering to a backing strip, means for drawing the strip and the tape adhering thereto forwardly from the supply roll, a platen over which the strip is drawn having a free edge adjacent the forward end of the casing and over which the strip is sharply bent to separate the tape therefrom, said platen being fixedly supported from the casing, and a guide wheel supported from the casing for free rotation and spaced from the free edge of the platen to engage the tacky side of stripped tape and be rotated thereby to guide the tape away from the casing, said wheel being so located with reference to the free edges of the platen that the portion of the issuing tape in engagement with the wheel is substantially in the same plane as the tape on the platen, and the periphery of the wheel being of serrated thin blade-like form to inhibit sticking of the tape to the wheel.

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**UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION**

Patent No. 3,077,919

February 19, 1963

Alfred P. Krueger

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 50, for "edges" read -- edge --; line 59, for "648,937" read -- 648,837 --.

Signed and sealed this 22nd day of October 1963.

(SEAL)

Attest:

ERNEST W. SWIDER
Attesting Officer

EDWIN L. REYNOLDS
Acting Commissioner of Patents