

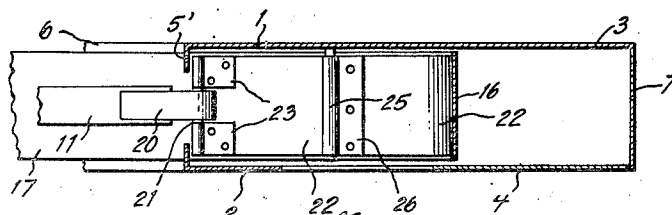
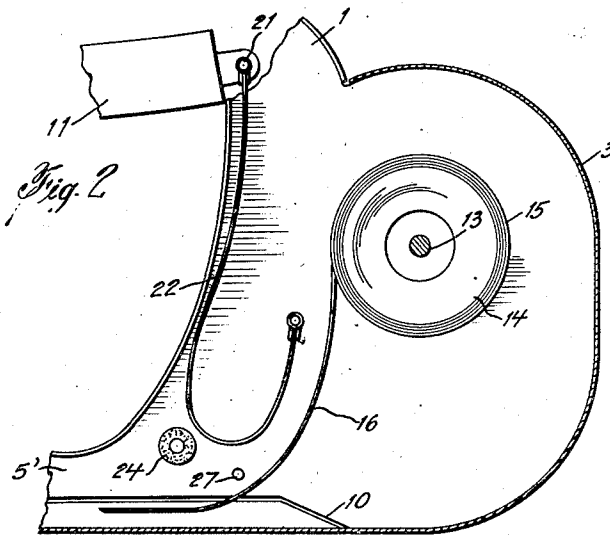
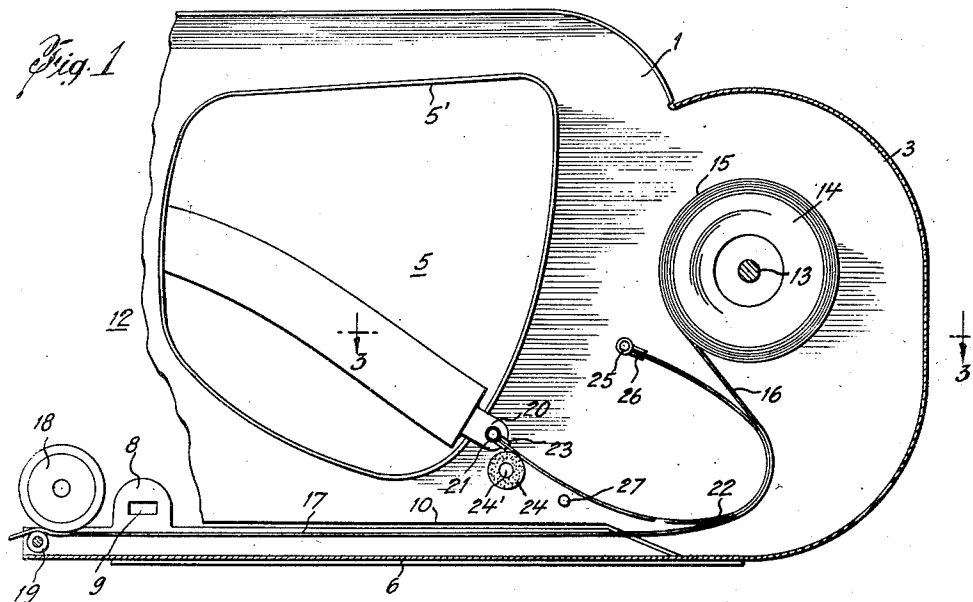
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TAPE RELEASE FOR TAPE APPLICATORS

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TAPE RELEASE FOR TAPE APPLICATORS

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7 Claims. (Cl. 271-2.2)

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The present invention is directed to the feeding or use of adhesive tape such as the well-known pressure adhesive material some times known as pressure sensitive tape. More particularly the invention is directed to a mechanism whereby such tape in the form of a roll may be released prior to use.

In my application Serial No. 183,622, filed September 7, 1950, entitled "Tape Dispenser and Applicator," there is described a machine adapted to utilize rolls of adhesive tape. In the operation of the machine there is provided a mechanism which feeds the tape in various lengths of predetermined amounts, holds the same to a surface to which the tape is to be attached, cuts off a section of tape and adheres it to the surface. For the operation of the machine a pivoted handle is provided, the movements on which by the hand cause the several elements and operations to occur.

It often occurs that the several layers of the adhesive tape on the roll adhere relatively strongly to each other and when a measured amount of the tape is pulled from the roll, some damage or even tearing of the tape takes place. In the aforesaid machine, this difficulty is largely overcome by the mechanism thereof and particularly by the feeding means there provided. However, it has been found desirable to still further improve the machine from this viewpoint and to make certain that no injury to the tape takes place. It is also desirable to improve the operation of this machine by providing a relatively loose portion of tape prior to the feeding operation in order to facilitate it and to obtain a better result.

It is among the objects of the present invention to overcome the disadvantages inherent in prior structures of the type described and to provide a modification or improvement in such machines which will release a predetermined amount of tape without tearing thereof or injury thereto.

It is also among the objects of the present invention to provide a device which may be attached to a machine of the above mentioned type or of any other type, which is simple in its structure, which is positive in operation and which effectively releases the desired amount of tape.

It is further among the objects of the present invention to incorporate the new device into a dispensing machine in such a manner that the operation thereof is controlled by a handle or the like which also operates the machine itself and which renders the releasing operation entirely automatic.

In practicing the present invention there is

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provided a machine of the type described in my copending application Serial No. 183,622, the disclosure of which is to be considered a part of the present application. This machine has a handle pivoted at the front end with the rear of the handle being free to move within the casing which houses the mechanical elements thereof. It also has an opening in the central portion of the machine with the handle projecting into said opening, making it convenient for the operator to grasp the handle and the casing and manipulate the handle about the pivot.

The roll of adhesive tape is within the casing at the rear thereof and the present invention provides a flat spring, one end of which is attached to the free end of the handle, the other end being attached to a suitable pin on the base in proximity to the mounted roll but somewhat below the same. The length of the spring is such that it is bowed with the curved portion extending into the path of movement of tape as it is fed from the roll. In the operation of the device when it is desired to feed the tape, the handle is lifted, moving the spring out of the path of the tape and providing a predetermined length of unrolled tape. As the handle is moved still further, suitable feeding means such as rolls pull the loosened portion of tape out of the machine and the final continued movement of the handle causes a knife and plunger to move downwardly to simultaneously cut off said portion of tape and attach it to a surface. Then upon release of the handle, the spring again enters across the path of the tape, placing pressure thereon, which unrolls a predetermined portion thereof from the roll. This action is made possible by the feeding means holding the free end of the tape so that the tape must be removed from the roll.

My invention is more fully described in connection with the accompanying drawing, in which like reference characters indicate like parts, and in which

Fig. 1 is a fragmentary side elevational view of that portion of my prior machine which is equipped with the modification of the present invention, some parts being broken away for clearness;

Fig. 2 is a view similar to Fig. 1, showing the device in another position with the machine about to feed the tape, and

Fig. 3 is a horizontal cross-sectional view thereof taken along line 3-3 of Fig. 1.

The device constitutes a casing consisting of a pair of flat plates 1 and 2 having inturned edges that meet to form the edges of the machine. A

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rearward extension 3 is provided on plate 1 and a closure 4 in alinement with plate 2 covers the rear of the casing wherein the roll of tape is located. Centrally of the casing is a relatively large opening 5 sufficient to accommodate the hand of the operator, the edges 5' of plates 1 and 2 being turned inwardly to enclose the mechanism.

Attached to plate 4 is a bottom plate 6 having a curved end 7 which forms the rear end of the casing. Elements 4, 6 and 7 are detachable and in order to hold the same onto the machine, there is provided a pair of ears 8 having slots 9 therein, said ears being extensions of lateral flanges 10 on bottom plate 6. Suitable latches (not shown) mounted on the casing are adapted to hold in slots 9 to retain the member in position.

Handle 11 has its forward end pivoted in the front of the casing in the area 12, the exact manner of mounting being shown in the aforesaid co-pending application. In extension 3 there is mounted a stub shaft 13 on which spool 14 bearing a roll of adhesive tape 15 is adapted to be mounted. The tape has the inner surface 16 coated with a film of adhesive material and it extends above bottom plate 6 as shown at 17 in being fed from the roll. Feeding means comprises a set of wheels 18 and 19 between which the tape is adapted to pass to the left where it is cut off and attached, as described in said application. When the tape is not being fed, rolls 18 and 19 hold the same firmly in position.

Extending from the free end of handle 11 is yoke 20 carrying transverse pin 21. A flat spring 22 has one end provided with a pair of clips or fasteners 23 which embrace the ends of pin 21 so that a pivotal movement of the end of said spring about yoke 20 is provided for. A roll 24 mounted on pin 24' and usually consisting of felt, acts as a stop for said spring.

The opposite end of spring 22 is mounted on transverse pin 25 which is adjacent to stub shaft 13 and somewhat below the same. A relatively wide clip 26 secured to said end of said spring is mounted on pin 25 and allows pivotal movement of the spring relative to the pin. Pin 25, shaft 13 and pin 21 are on axes which are substantially parallel to each other. Guide pin 27, fixed in plate 4, acts as a guide for the tape expander or spring 22, causing the expander to reach further backward, thereby releasing additional tape from the roll.

In the operation of the device, the various elements are in the position shown in Fig. 1. The device is grasped by the hand with the palm at the top of the casing and the fingers grasping the under side of handle 11. The fingers are contracted, pulling handle 11 upwardly a substantial distance. This movement carries with it the attached end of spring 22 and removes it from contact with the loosened portion of tape 16. By further movement, the mechanism 12 causes rolls 18 and 19 to pull tape 17 to the left. Then in the final upward movement of handle 11 when it is practically at the top of casing 1, a knife descends and cuts off the free end of tape 17, at the same time attaching the cut portion on to a surface.

The position of the several elements at this point is as shown in Fig. 2. Spring 22 is entirely out of the path of tape 16. When handle 11 is released a suitable spring contained within the casing and bearing upon said handle auto-

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matically retracts the handle into its last position. In the course of this movement, rolls 18 and 19 firmly hold the end of the tape. Also during the movement the bowed portion of spring 22 again contacts tape 15 and moves it to the right of Fig. 2. Since the outer end is held against movement, spool 14 will rotate and allow tape to be removed therefrom, the amount being determined by the size of the spring. This action is automatic and the elements are now again in the position shown in Fig. 1, ready for repetition of the cycle.

I claim:

1. Tape release for tape applicator comprising a base, a movable handle mounted thereon, a flat spring having one end attached to said handle, a pin on said base, the other end of said spring being attached to said pin, a stub shaft mounted on said base for holding a roll of adhesive tape, said roll being rotatably mounted on said shaft, a feed roll for firmly holding and alternately advancing said tape spaced from said roll past said spring, said spring being bowed in the direction of the tape fed from said roll, said handle being movable in one direction to shift said bowed spring into the path of said tape adjacent to said roll to draw a portion of said tape from said tape roll while the gripping action of said feed roll is adapted for holding the free end of said tape against the action of said spring, whereby a predetermined length of tape is unrolled from said roll, the movement of said handle in the opposite direction adapted to move said spring out of said path to release said tape and permit it to be fed freely.

2. Tape release for tape applicator comprising a base, a movable handle mounted thereon, a flat spring having one end attached to said handle, a pin on said base, the other end of said spring being attached to said pin, a stub shaft mounted on said base for holding a roll of adhesive tape, said roll being rotatably mounted on said shaft, a feed roll for firmly holding and alternately advancing said tape spaced from said roll past said spring, said spring being bowed in the direction of the tape fed from said roll, the ends of said spring being pivotally mounted, said handle being movable in one direction to shift said bowed spring into the path of said tape adjacent to said roll to draw a portion of said tape from said tape roll while the gripping action of said feed roll is adapted for holding the free end of said tape against the action of said spring, whereby a predetermined length of tape is unrolled from said roll, the movement of said handle in the opposite direction adapted to move said spring out of said path to release said tape and permit it to be fed freely.

3. Tape release for tape applicator comprising a base, a movable handle mounted thereon, a flat spring having one end attached to said handle, a pin on said base, the other end of said spring being attached to said pin, a stub shaft mounted on said base for holding a roll of adhesive tape, said roll being rotatably mounted on said shaft, a feed roll for firmly holding and alternately advancing said tape spaced from said roll past said spring, said spring being bowed in the direction of the tape fed from said roll, said handle being movable in one direction to shift said bowed spring into the path of said tape adjacent to said roll, said spring contacting the non-adhesive face of said

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tape over substantially its entire width to draw a portion of said tape from said tape roll while the gripping action of said feed roll is adapted for holding the free end of said tape against the action of said spring, whereby a predetermined length of tape is unrolled from said roll, the movement of said handle in the opposite direction adapted to move said spring out of said path to release said tape and permit it to be fed freely.

4. Tape release for tape applicator comprising a base, a movable handle mounted thereon, a flat spring having one end attached to said handle, a pin on said base, the other end of said spring being attached to said pin, a stub shaft mounted on said base for holding a roll of adhesive tape, said pin being adjacent to and below said roll, said roll being rotatably mounted on said shaft, a feed roll for firmly holding and alternately advancing said tape spaced from said roll past said spring, said spring being bowed in the direction of the tape fed from said roll, said handle being movable in one direction to shift said bowed spring into the path of said tape adjacent to said roll to draw a portion of said tape from said tape roll while the gripping action of said feed roll is adapted for holding the free end of said tape against the action of said spring, whereby a predetermined length of tape is unrolled from said roll, the movement of said handle in the opposite direction adapted to move said spring out of said path to release said tape and permit it to be fed freely.

5. Tape release for tape applicator comprising a base, a movable handle mounted thereon, a flat spring having one end attached to said handle, a pin on said base, the other end of said spring being attached to said pin, a stub shaft mounted on said base for holding a roll of adhesive tape, said pin being adjacent to and below said roll, said first end of said spring being adapted to be moved by said handle from below to above said pin and vice versa, said roll being rotatably mounted on said shaft, a feed roll for firmly holding and alternately advancing said tape spaced from said roll past said spring, said spring being bowed in the direction of the tape fed from said roll, said handle being movable in one direction to shift said bowed spring into the path of said tape adjacent to said roll to draw a portion of said tape from said tape roll while the gripping action of said feed roll is adapted for holding the free end of said tape against the action of said spring, whereby a predetermined length of tape is unrolled from said roll, the movement of said handle in the opposite direction adapted to move said spring out of said path to release said tape and permit it to be fed freely.

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6. Tape release for tape applicator comprising a base, a movable handle mounted thereon, a flat spring having one end attached to said handle, a pin on said base, the other end of said spring being attached to said pin, a stub shaft mounted on said base for holding a roll of adhesive tape, said roll being rotatably mounted on said shaft, a feed roll for firmly holding and alternately advancing said tape spaced from said roll past said spring, said spring being bowed in the direction of the tape fed from said roll, said pin, stub shaft and spring attachment to said handle being on substantially parallel axes, said handle being movable in one direction to shift said bowed spring into the path of said tape adjacent to said roll to draw a portion of said tape from said tape roll while the gripping action of said feed roll is adapted for holding the free end of said tape against the action of said spring, whereby a predetermined length of tape is unrolled from said roll, the movement of said handle in the opposite direction adapted to move said spring out of said path to release said tape and permit it to be fed freely.

7. Tape release for tape applicator comprising a base, a movable handle mounted thereon, a flat spring having one end attached to said handle, a pin on said base, the other end of said spring being attached to said pin, a stub shaft mounted on said base for holding a roll of adhesive tape, said roll being rotatably mounted on said shaft, a feed roll for firmly holding and alternately advancing said tape spaced from said roll past said spring, said spring being bowed in the direction of the tape fed from said roll, said handle being movable in one direction to shift said bowed spring into the path of said tape adjacent to said roll, a guide below said pin to deflect said spring toward said tape to draw a portion of said tape from said tape roll while the gripping action of said feed roll is adapted for holding the free end of said tape against the action of said spring, whereby a predetermined length of tape is unrolled from said roll, the movement of said handle in the opposite direction adapted to move said spring out of said path to release said tape and permit it to be fed freely.

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