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A. P. KRUEGER ET AL  
TAPE-DISPENSING MACHINE

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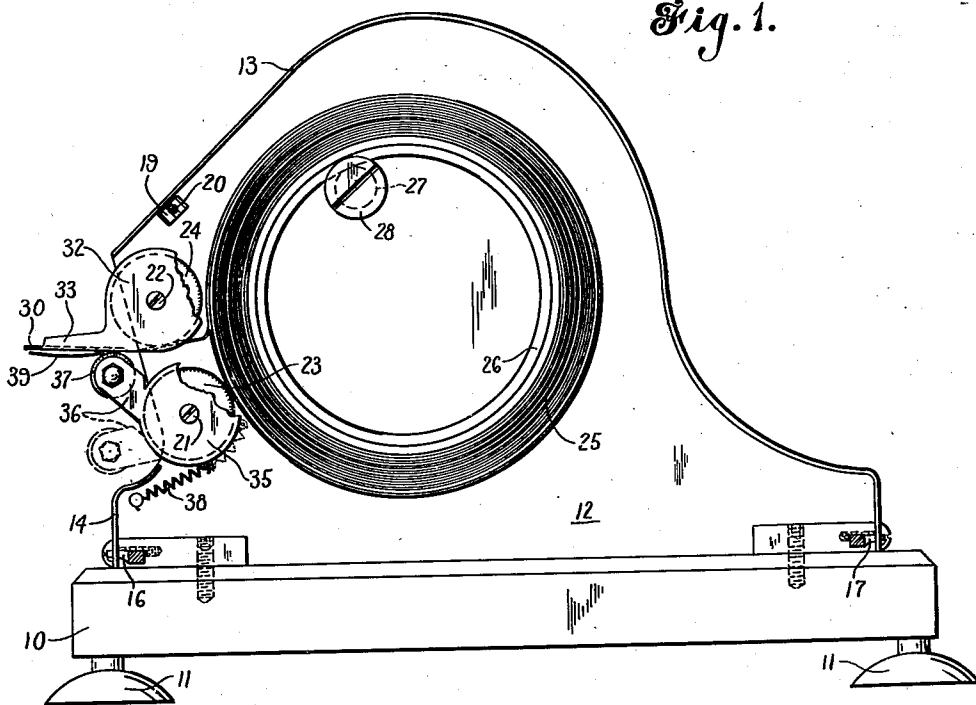


Fig. 1.

Fig. 2.

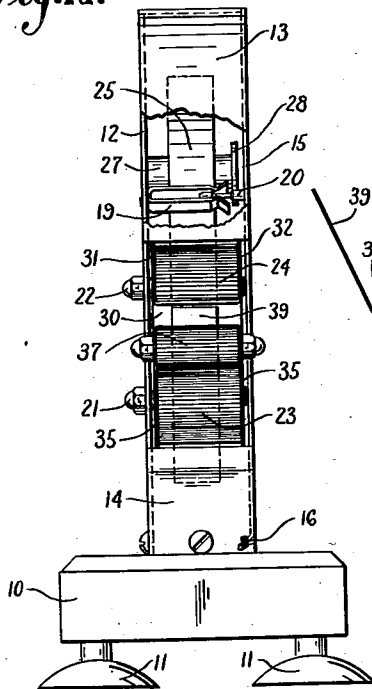
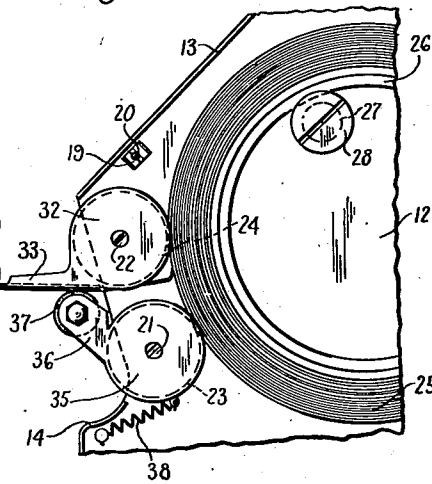


Fig. 3.



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## TAPE-DISPENSING MACHINE

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6 Claims. (Cl. 242-55.5)

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This invention relates to tape-dispensing machines, and more particularly to a device for dispensing pressure-sensitive tape, or tape which is tacky or clingable upon one surface.

Tape of this character is usually supplied upon rolls comprising a series of windings of the tape upon a hollow spool, the tape being wound with the tacky side inward. Such spools are sometimes supported upon the frame of dispensing machines by a drum or the like, which is rotatably mounted and which fits interiorly the spool upon which the tape is wound.

The present invention relates particularly to simple and effective means for supporting the roll of tape in the machine, and for providing for the efficient feeding of the tape from the roll. In the present instance, this feeding is accomplished by the operator grasping the free end of the tape and drawing it forwardly, and abutment means, such as rollers, are provided against which the forward outer surface of the supply roll bears during the feeding operation.

In addition, a tear-off blade is provided by means of which the tape may be readily severed after a sufficient quantity has been drawn from the roll, and also means are provided which will normally hold the free end of the tape in a position in which it may be readily grasped and prevent the tape from clinging to or following the surface of the rollers against which the supply roll rests.

One object of the invention is to provide a new and improved tape-dispensing machine.

A further object of the invention is to provide a tape-dispensing machine having simple, economical, and effective means for supporting the supply roll of tape.

A still further object of the invention is to provide a tape-dispensing machine of the character described having improved means for effecting the severing of the tape and causing the free end of the tape to stand in a position in which it may be readily grasped by the operator.

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 side elevational view of a tape-dispensing machine embodying our invention, the cover plate being omitted to show the interior mechanism;

Fig. 2 is a front elevational view of the device, a part of the case being broken away; and

Fig. 3 is a fragmentary view similar to Fig. 1, but showing the parts in another position.

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To illustrate a preferred embodiment of our invention, we have shown in the drawings a tape-dispensing machine comprising a base 10, the base being supported upon feet 11, which, in this instance, comprise suction cups, so that the device will rest firmly upon a flat supporting surface and will not tend to move or "walk" when tension is applied to the tape to draw it from the roll.

Secured to and upstanding from the frame is a side plate 12, which forms one wall of the casing. The top of the casing is formed by an upper plate 13 which may be formed integrally with, or secured to, the wall 12, and there is also provided a relatively short front wall 14 leaving an opening between the upper end of this wall and the forward portion of the top wall 13. The other side wall is formed by a cover plate 15 which is hinged to the forward wall 14 by the pin 16 and to the top plate 13 by the pin 17, so that this wall may be swung downwardly about the hinge pins to expose the interior of the case and permit a supply roll of tape to be placed in the machine.

The cover plate may be retained in closed position by means of a clip 19 secured to the wall 12, this clip having resilient fingers between which is received a headed pin 20 secured to the cover plate 15.

Rotatably mounted to studs 21 and 22, which are secured to the side plate 12, are feed rollers 23 and 24. As shown in Figs. 1 and 2, these rollers are mounted adjacent the opening between the members 13 and 14 and are slightly spaced apart so as to permit the passage of the end of the tape therethrough.

The supply roll of tape is shown at 25, the tape being wound upon a hollow spool 26, and this spool may be conveniently supported in the case by means of a headed pin 27 secured to the plate 12, the roll being confined between the head 28 of this pin and the side wall 12. It will be noted that this pin is disposed forwardly of the center of the supply roll of tape, and the latter is supported in a pendent position thereon, so that it will tend to be urged forwardly by gravity toward the feed rolls 23 and 24. The latter rolls are so disposed that, as shown in Fig. 1, when the parts are at rest, the outer surface of the tape upon the supply roll will rest against the lower roll 23, but will be slightly spaced from the upper roll 24. The reason for this will appear hereinafter.

Means are provided by which the end of the tape may be severed or torn off when a sufficient length has been drawn from the roll. This means comprises a flat tear-off blade 30 which

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extends forwardly from the lower surface of the roll 24 and in a plane substantially tangent to this roll, the blade 30 having integrally formed therewith side disks 31 and 32 which are secured to the pin 22 upon opposite sides of the roll 24. It will be understood that this tear-off member is rigidly supported, so that it will withstand the upward pressure of the tape thereagainst during the severing operation. Strengthening flanges 33 may be provided at each side of the blade 30, which flanges extend forwardly from the disks 31 and 32 to a point adjacent the forward edge of the blade. It will be understood that all of the parts of this tear-off mechanism may be integrally formed from sheet metal, for example, so as to be light in weight and manufactured in a convenient and economical manner.

Pivotally mounted upon the stud 21 are a pair of disks 35 from which arms 36 extend forwardly, and rotatably mounted in the forward end of these arms is a roller 37 designed to lie adjacent the lower or tacky side of the tape as it issues below the roller 24. A light spring 38 is secured at one end to the plate 12 and at its other end to one of the disks 35 to normally hold the roller 37 in its upper position, shown in Fig. 3, and in full lines in Fig. 1.

When the cover plate 15 of the device is swung downwardly to open position about the hinge pins 16 and 17, a supply roll of tape may be placed in the casing and dropped upon the pin 27, the roll resting freely upon the pin and against the lower roller 23. The free end 39 of the tape may then be drawn outwardly between the rollers 23 and 24. To enable the tape to be threaded between the rollers and brought out to a position to be grasped by the operator, the guide roller 37 may be swung downwardly from its full-line position in Fig. 1 to the dotted-line position shown in that figure. The parts will then normally lie in the position shown in Fig. 1, in which the end 39 of the tape will lie adjacent the lower surface of the tear-off member 30, it being understood that the non-tacky side of the tape is upward and against the blade 30.

The operator may then, by placing his finger against the lower or tacky side of the end 39 of the tape, draw it outwardly until it may be grasped between the thumb and finger and a sufficient length drawn from the roll. As already explained, when the parts are at rest, the outer surface of the supply roll 25 is slightly spaced from the adjacent surface of the roller 24. However, when tension is applied to the tape to draw it from the supply roll, the latter will be caused to move forwardly until the outer surface of the supply roll lies against the adjacent surface of the roller 24, as shown in Fig. 3. It will also be noted that, as shown in the latter figure, the inner surface of the spool 12 is raised from contact with the body of the pin 27, so that the spool does not ride on this pin, the supply roll bearing only against the rollers 23 and 24 under the tension applied to the free end 39.

As soon as a sufficient length of tape has been drawn from the roll, the free end may be drawn upwardly against the tear-off blade 30, as shown in Fig. 3, and the end of the tape severed. The roller 37 will prevent any tendency of the free end of the tape to drop down upon, and cling to, the lower roller 23, so that this free end of the tape will always stand in an upward position where the lower tacky surface may be engaged by the finger. When pressed against the

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lower surface of the blade 30 by the finger, the tape will adhere to the operator's finger to a sufficient extent to be drawn forwardly until it can be grasped between the thumb and finger.

While we have shown and described a preferred embodiment of our 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 we claim is:

1. In a machine for dispensing pressure-sensitive tape, a frame, a supply roll of tape mounted on the frame, a hollow spool upon which said roll is carried, a pin on the frame extending loosely within said hollow spool for freely suspending the latter, a pair of vertically spaced rollers mounted at the forward portion of the frame below said pin toward which the supply roll is urged by gravity, the tape being drawn from the frame between said rollers with its non-tacky side in engagement with the upper one thereof, and means for preventing engagement of the free end of the tape with the other roll.

2. In a machine for dispensing pressure-sensitive tape, a frame, a supply roll of tape mounted on the frame, a hollow spool upon which said roll is carried, a pin on the frame extending loosely within said hollow spool for freely suspending the latter, a pair of vertically spaced rollers mounted at the forward portion of the frame below said pin toward which the supply roll is urged by gravity, the tape being drawn from the frame between said rollers with its non-tacky side in engagement with the upper one thereof, means for preventing engagement of the free end of the tape with the other roll, and a severing member projecting forwardly from the upper roller in a plane substantially tangent to the lower surface thereof.

3. In a machine for dispensing pressure-sensitive tape, a frame, a supply roll of tape mounted on the frame, a hollow spool upon which said roll is carried, a pin on the frame extending loosely within said hollow spool for freely suspending the latter, a pair of vertically spaced rollers mounted at the forward portion of the frame below said pin toward which the supply roll is urged by gravity, the tape being drawn from the frame between said rollers with its non-tacky side in engagement with the upper one thereof, and means for preventing engagement of the free end of the tape with the other roll, said means comprising a pivoted roller mounted below the tape path and urged upwardly toward the upper roll.

4. In a machine for dispensing pressure-sensitive tape, a frame, a supply roll of tape mounted on the frame, a hollow spool upon which said roll is carried, a pin on the frame extending loosely within said hollow spool for freely suspending the latter, a pair of vertically spaced rollers mounted at the forward portion of the frame below said pin toward which the supply roll is urged by gravity, the tape being drawn from the frame between said rollers with its non-tacky side in engagement with the upper one thereof, a severing member projecting forwardly from the upper roller in a plane substantially tangent to the lower surface thereof, and a third roller pivoted to the frame and urged upwardly into engagement with the lower surface of the tape to hold the latter against said severing member.

5. A machine for dispensing pressure-sensitive tape comprising a frame, a supply roll of tape

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mounted on the frame, a hollow spool upon which said roll is carried, a pin on the frame extending loosely within said hollow spool for freely suspending the latter, a pair of vertically spaced rollers mounted on the frame forwardly of the supply roll relatively to the direction in which the tape is dispensed and at a level below said pin whereby the supply roll is drawn toward said rollers as the tape is pulled between the rollers with the non-tacky side in engagement with one thereof, and means for preventing engagement of the free end of the tape with the other of said rollers.

6. A machine for dispensing pressure-sensitive tape comprising a frame, a supply roll of tape mounted on the frame, a hollow spool upon which said roll is carried, a pin on the frame extending loosely within said hollow spool for freely suspending the latter, a pair of vertically spaced rollers mounted on the frame forwardly of the supply roll relatively to the direction in which the tape is dispensed and at a level below said pin whereby the supply roll is drawn toward

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said rollers as the tape is pulled between the rollers with the non-tacky side in engagement with one thereof, and a severing member projecting forwardly from said one roller in a plane substantially tangent to the surface thereof with which the non-tacky side of the tape engages.

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