

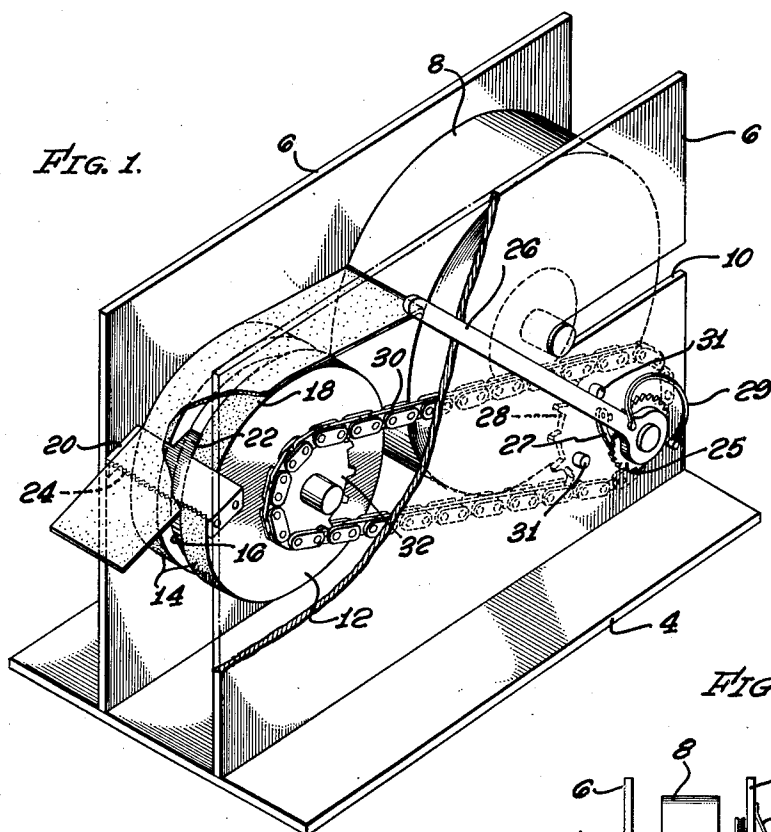
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K. J. MYSELS

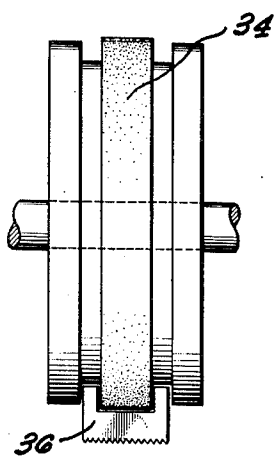
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ADHESIVE TAPE DISPENSER

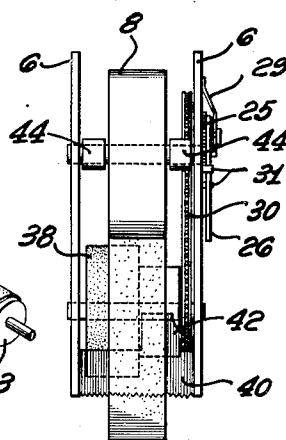
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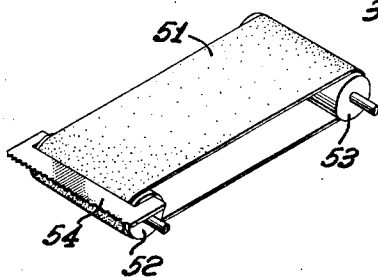
**FIG. 2.**



**FIG. 3.**



**FIG. 4.**



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## UNITED STATES PATENT OFFICE

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## ADHESIVE TAPE DISPENSER

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5 Claims. (Cl. 164—84.5)

1 This invention relates to a dispenser for pressure sensitive tapes.

Pressure sensitive tapes are well known in the art for home, commercial, industrial and surgical uses. They ordinarily consist of a flexible backing material such as paper, cloth, cellophane or the like coated with a pressure sensitive adhesive. The adhesive is of such a nature that it adheres to a surface when pressure is applied, and continues to adhere even after the pressure is released and does not require the application of moisture, solvent or heat. The adhesive ordinarily has a greater affinity towards the inner surface of the backing material than it has towards its outer surface and towards materials having a smooth surface, so that the tape may be stripped clean from the outer surface of its own backing and from smooth glass, plastic, metal or other non-porous surfaces. These tapes are sometimes known as the non-offsetting type. This invention may be applied to both offsetting and non-offsetting types of tape.

Pressure sensitive tapes for special purposes may have pressure sensitive coatings on both sides. The present invention is essentially not applicable to such tapes but only to tapes having a substantially non-adhesive backing.

The width of such pressure sensitive tapes may vary widely and the broad ones are sometimes known as sheeting. The term tape as used herein is not limited to narrow widths, however, but is intended to include thin material whether narrow or wide. The principles involved in the present invention are more simply illustrated with a relatively narrow tape and such is therefore discussed in the detailed description.

Pressure sensitive tapes are ordinarily marketed commercially in the form of tightly wound storage rolls in which the adhesive surface is in direct contact with the outer surface of the backing material and less frequently are provided with an interwound layer of less adhering material. The separation of the adhesive surface from the backing (or interwound material) requires an effort of variable intensity but always noticeable.

In the past dispensers for pressure-sensitive tapes have been unsatisfactory in operation and have required that the tape be given an undue amount of handling.

It is an object of this invention to provide a dispenser for pressure sensitive tapes of generally improved design.

It is a further object of this invention to provide a dispenser which does not require that the

2 tape be handled or manually pulled, and delivers the tape in a free and unrolled condition ready for use.

Another object of this invention is to provide a dispenser which enables an operator to remove a number of lengths of tape of equal length from the dispenser.

In general, the objects of the present invention are accomplished by providing a driving member to propel the tape which does not contact the adhesive side of the tape and a detaching member which removes the tape from said driving member.

Reference is now made to the drawings in which similar numbers refer to like parts throughout.

Figure 1 is an isometric drawing of a preferred embodiment of my tape dispenser.

Figure 2 is a plan view of an alternate form of driving and detaching members suitable for use on the dispenser of Figure 1.

Figure 3 is a plan view of another embodiment of the present invention.

Figure 4 is an isometric view of still another form of driving and detaching members.

Figure 1 shows a dispenser having a base member 4 which is provided with two roll-supporting side members 6. A roll of pressure sensitive tape 8 is supported by members 6. For ready insertion or removal of the tape, slots 10 are provided in member 6. Also supported by members 6 is a driving roller 12. In the form illustrated in Figure 1, the driving roller consists of a cylindrical member having an annular groove in the center of the peripheral surface. This forms two tape contacting surfaces 14 having between them a groove 16, the bottom of which is sufficiently deep to be out of contact with the tape.

The tape contacting surfaces 14 of roller 12 are provided with means for gripping and advancing the non-adhesive side of the tape. In the embodiment illustrated this consists of a coating 18 of a pressure sensitive compound on the roller which can be obtained either by spreading a pressure sensitive compound in form of paste or liquid directly upon surfaces 14 or preferably by attaching thereto a commercial non-offsetting pressure sensitive tape with a tacky side outwards. This may be done most simply by applying a tape whose both surfaces are tacky to the surfaces 14. Other means may be used to grip the tape such as suction cups on the surface of roller 12.

Side members 6 also support a detaching or a stripping and cutting member 20. Member 20

has a tongue 22 which fits loosely into groove 16, in a non-contacting or in a sliding relationship and a cutting edge 24. Suitable driving means may be employed to rotate roller 12. In the embodiment illustrated, this takes the form of a lever 26, a sprocket 28, a chain 30 and a second sprocket 32. Lever 26 may be equipped with a ratchet 25, pawl 27 and spring return 29 so that its movement is reciprocating rather than rotary for greater convenience in operation. The device may also be equipped with stops 31 to limit the movement of lever 26 so that a measured length of tape will be removed from the roll each time the lever is pressed.

The operation of the device described is fairly obvious. The tape from roll 8 is pulled from roll 8, when roller 12 is rotated, due to the adhesive nature of roller 12. As the tape passes over roller 12, it is removed from the roller by the action of stripping member 20. When the desired length has been unwound, the tape may be cut off by lowering the tape against the serrated cutting edge 24.

It is preferred that the stripping and cutting member 20 form substantially a tangent to the tape bearing surface of roller 12. This is particularly important if measured lengths of tape are to be removed inasmuch as it prevents any detachment of the tape from the driving roller when the tape is pulled and cut. It has been found that such detachment prevents the production of uniform lengths of tape, even when the rotation of the driving roller 12 is uniform. However the stripping action may be performed effectively by stripper member 20 even when tongue 22 forms an angle with gripping surfaces of roller 12. The tongue may then be either straight or arcuate.

An alternate form of driving roller and stripper is shown in Figure 2. Here the driving roller 34 is narrower than the tape being used and does not have a groove. The stripper member 36 is of U shape with the ends of the two arms extending on each side of the roller. The roller is treated to secure adhesion as described above, and the operation is the same.

Frequently it will be found advantageous, particularly when dispensing very wide tapes or sheeting, to provide the driving roller with several spaced grooves and several gripping surfaces and the stripper with the corresponding number of tongues.

Another embodiment of the invention is shown in Figure 3. In this embodiment the driving roller 38 is asymmetrical as is the stripping member 40. The roller 38 engages a portion of the tape on the peripheral surface of the roller and the stripper has a single extending arm 42 which extends beyond the roller. The advantage of this embodiment over those previously described is that it lends itself to accommodating various widths of tape even more easily than the previously described embodiments. The only adjustment necessary is in the lateral position of the roll of tape. This position should be selected to give the desired overhang of tape. The roll of tape may be retained in the desired place by means of loose fitting collars 44. By providing one dispenser with collars of various sizes, any width of tape may be accommodated by the dispenser, up to the width of the base members.

The driving member need not be rigid as shown in the above examples but may be in form of an endless belt or chain or the like. Figure 4 illustrates such an embodiment in which endless belt

51 is guided by rollers 52 and 53 one or both of whom may be driven by appropriate means not shown. The stripper member 54 is of U shape with the ends of the two arms extending on each side of the belt. The outer surface of the belt is treated to secure adhesion as described above and the operation is the same.

The stripper member need not be stationary as illustrated in the above examples but may be mobile in the form of rotating stripping wheels or endless belt provided they exert a detaching action on the tape by pressing its nonadhesive, back surface away from the driving member and do not attach themselves to it. The stationary type has however been found satisfactory and is the simplest to manufacture.

It is obvious that many variations of the present invention are possible. For instance, various driving mechanisms may be used and automatic devices may be used to rotate the driving roller. Various severing mechanisms, manual or automatic, may be used for cutting the tape after it has been advanced. Also the driving roller may be treated with various pressure-sensitive compounds to secure the desired adhesion. I consider as within the scope of my invention all modifications which come within the scope of the appended claims.

I claim as my invention:

1. A dispenser for pressure-sensitive tape comprising a support for a roll of pressure-sensitive tape, a roller adapted to propel said tape by contact with the non-adhesive side of the tape, said roller being substantially narrower than the tape, and a stripper comprising a U-shaped member having a body portion lying substantially tangent to the roller and the arms of the U lying on each side of the roller.

2. A dispenser for pressure sensitive tape comprising a support for a roll of pressure-sensitive tape, a roller adapted to propel said tape by contact with the non-adhesive side of the tape, said roller being substantially narrower than the tape and a stripper lying tangent to the roller and having an arm extending beyond the roller adjacent to one side of the roller.

3. A dispenser for pressure-sensitive tape comprising a support for a roll of pressure sensitive tape, a roller adapted to propel said tape by contact with a portion of the non-adhesive side of the tape, and a stripper lying tangent to the roller having an arm extending beyond the roller adjacent to one side of the roller and means for laterally positioning said roll of pressure-sensitive tape relative to said roller whereby the portion of the tape in contact with the roller may be controlled.

4. A dispenser for pressure sensitive tape comprising means for holding a roll of pressure sensitive tape and a moving member adapted to pull tape from the roll, part at least of the outer surface of said member having suction cups thereon adapted to grip the non-adhesive side of said tape in the absence of mechanical pressure exerted upon the adhesive side of said tape, and a stripper member acting on the non-adhesive side only of said tape and adapted to detach said tape from said moving member.

5. A dispenser for pressure sensitive tapes comprising a support for a roll of pressure sensitive tape, a roller having a pressure sensitive surface for propelling said tape by gripping the non-adhesive side of said tape in the absence of mechanical pressure exerted upon the adhesive side

## 5

of said tape, said roller having an annular groove substantially in the center of its peripheral surface, and a stripper member having a tongue fitting loosely into said groove, said stripper member having a cutting edge capable of cutting off a length of tape located at the side opposite the tongue.

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