Sept. 18, 1956 R. L. HARRIS 2,763,237

ADHESIVE APPLICATOR FOR TAPES

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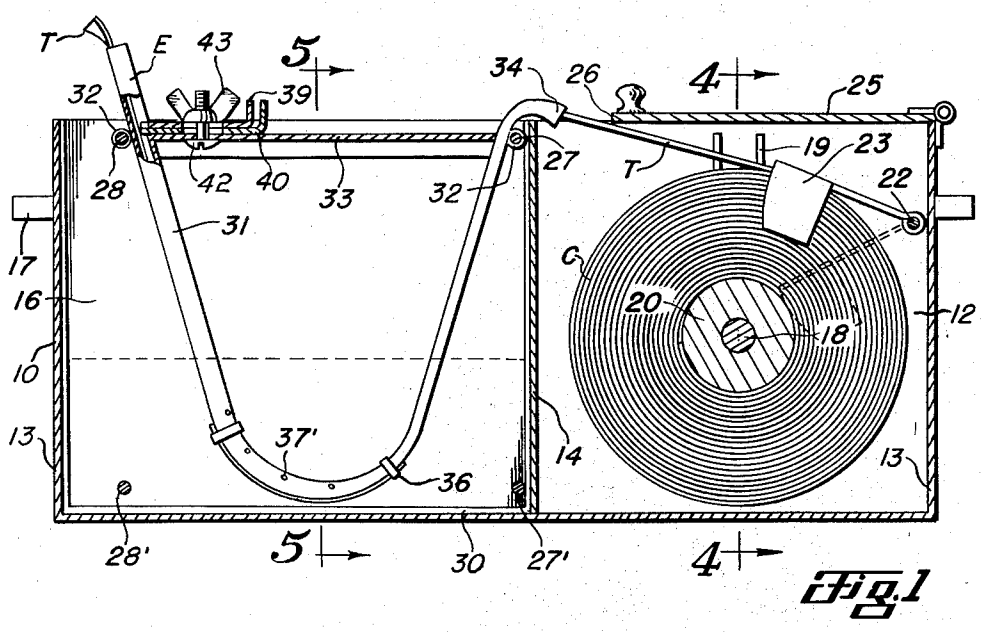


Fig. 1

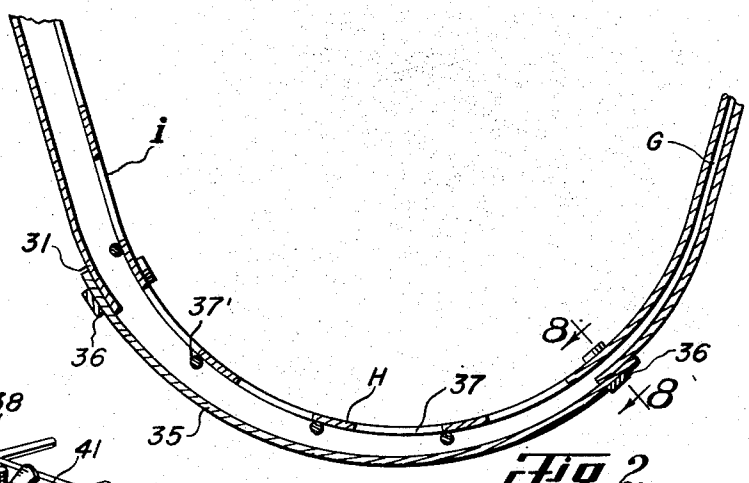


Fig. 2

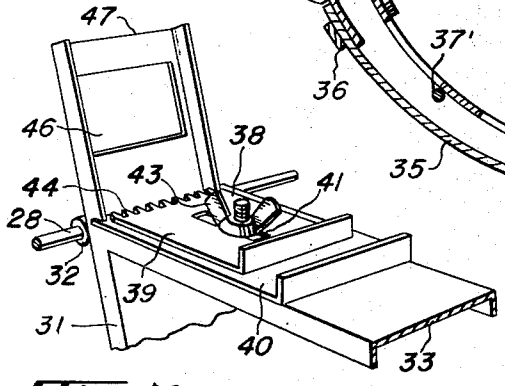


Fig. 7

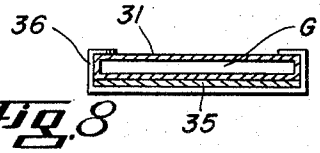


Fig. 8

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ADHESIVE APPLICATOR FOR TAPES

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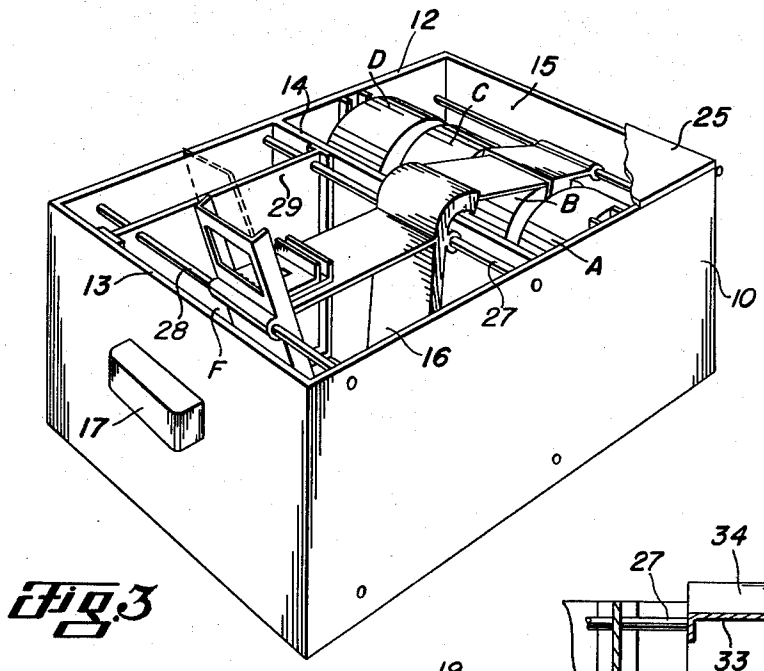


Fig. 3

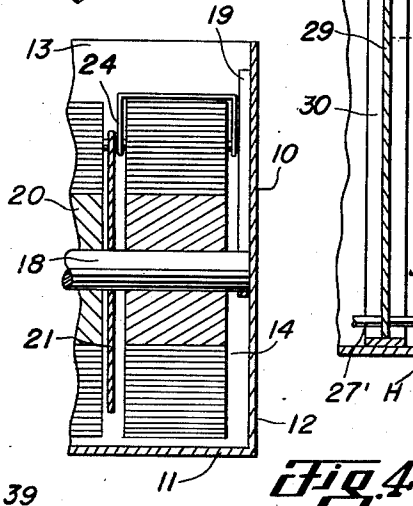


Fig. 4

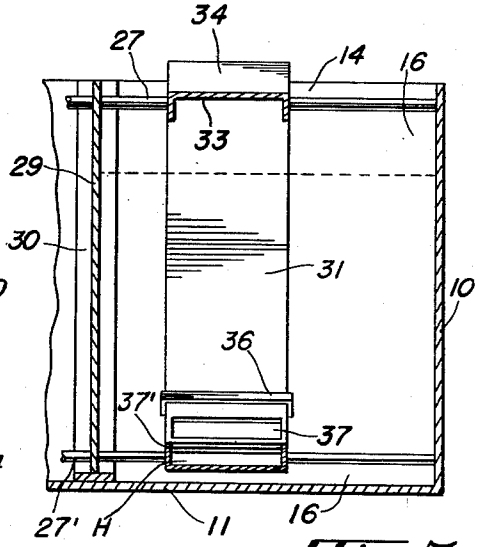


Fig. 5

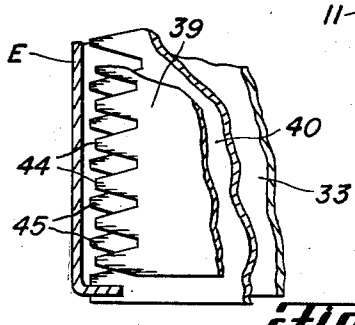


Fig. 6

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ADHESIVE APPLICATOR FOR TAPES

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Application August 18, 1952, Serial No. 305,050

10 Claims. (Cl. 118—123)

This invention relates to new and useful improvements in tape dispensers.

One object of the invention is to provide an improved tape dispenser having an adhesive applicator of such construction that the use of a brush is eliminated, the tape being fed from a dry area through a liquid adhesive bath and wiped to remove surplus adhesive.

Another object of the invention is to provide an improved tape dispenser adapted to contain a plurality of rolls of tape and having adjustable means for guiding any one of the tape rolls, which means is partially immersed in a bath of adhesive whereby the adhesive is applied to the tape as it is dispensed.

A particular object of the invention is to provide an improved dispenser wherein the tape is fed from a dry roll through guide means having an intermediate portion immersed in a liquid adhesive in advance of wiping means for removing surplus adhesive from the tape prior to severing a length for use, whereby adhesive is applied only to the face of the tape and the thickness of such adhesive application may be definitely controlled.

An important object of the invention is to provide an improved tape dispenser having an adhesive chamber in which an adhesive application and guide tube is suspended and which is movable transversely thereof and of the rolls of tape to accommodate the latter, the chamber having an adjustable partition whereby its volume may be varied in accordance with the quantity of tape to be dispensed.

A further object of the invention is to provide an improved tape dispenser having an adhesive applicator in the form of a separate unit which may be cleaned and readily adjusted to various positions.

A construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, wherein an example of the invention is shown, and wherein:

Fig. 1 is a longitudinal, vertical, sectional view of a tape dispenser constructed in accordance with the invention,

Fig. 2 is a vertical, sectional view, on an enlarged scale, of a portion of the adhesive applicator tube,

Fig. 3 is a perspective view of the dispenser with the lid broken away,

Fig. 4 is a partial transverse, vertical, sectional view through the magazine, taken on the line 4—4 of Fig. 1,

Fig. 5 is a partial transverse, vertical, sectional view through the adhesive chamber,

Fig. 6 is an enlarged, cross-sectional view showing the relation of the scraper elements,

Fig. 7 is a perspective view, showing the relation of the scraper and applicator tube, and

Fig. 8 is a cross-sectional view, taken on the line 8—8 of Fig. 2.

In the drawings, the numeral 10 designates a rectangular receptacle or container having a bottom 11, upright side walls 12 and upright end walls 13. The receptacle is divided by a vertical, transverse partition 14 into a magazine 15 and an adhesive or dispensing chamber 16. Handles 17 are provided on the outer sides of the end walls 13 for lifting the receptacle. A transverse shaft 18 extends horizotnally across the medial portion of the magazine 15 and has its ends freely journaled in upright stirrups 19 mounted on the inner surfaces of the side walls 12. As an illustration, four rolls A, B, C and D of paper tape (Fig. 3) are adapted to be mounted on the shaft 18. Each roll includes a spool 20 journaled on the shaft with the tape wound thereupon and flush with the sides thereof. Separator disks 21 may be loosely mounted on the shaft between the rolls (Fig. 4).

A horizontal rod 22 is mounted transversely across the magazine at the rear of the rolls of tape and a retainer 23 is pivotally and slidably mounted on the rod. The retainer 23 has depending side flaps 24 overhanging the sides of the tape roll so as to cause the roll to unwind evenly and to pay out under tension. A partial cover 25, hinged across the top of the rear or right-hand end wall 13 of the magazine, rests upon the upper edges of the side walls 12 and terminates short of the partition 14 to provide a transverse space or opening 26 through which the tape may be drawn. It is to be understood that the retainer 23 may be slid along the rod 22 and engaged with any one of the rolls.

The chamber 16 must be liquid tight except at its top so that moisture is excluded from the magazine 15. A rear, horizontal, slide rod 27 is mounted transversely across the top of the chamber adjacent the partition 14, while a second parallel, slide rod 28 is disposed across the top of said chamber adjacent the front or left-hand end wall 13. A dispenser E is suspended from the rods 27 and 28 and is free to be slid transversely of the chamber and the rolls of tape. Since the dispenser accommodates only one strip of tape at a time, it is of considerably less width than the chamber. As only one roll of tape is unwound at a time, the dispenser may be slid transversely into alinement with any one of said rolls.

An adhesive reservoir F is provided by the chamber 16 and an upright partition or movable wall plate 29 is adjustably supported therein by the transverse rods 27 and 28 so as to be slidable transversely of said chamber (Fig. 5). The plate 29 has a U-shaped marginal flange or shoe 30 slidably engaging the inner surfaces of the partition 14, the bottom 11 and the front wall 13. In order to guide and hold the plate in position to slide freely, additional guide rods 27′ and 28′ underlie the rods 27 and 28, respectively, adjacent the bottom of the chamber. It is obvious that by sliding the plate laterally, the width and cubical capacity of the reservoir may be varied. Since the adhesive used in the reservoir is a more or less heavy liquid, it is obvious that leaks between the shoe 30 and its contacted walls are not likely to occur. It is noted that the plate 29 is adapted to be used when only one or a few rolls of tape is to be dispensed so as to reduce the capacity of the reservoir F and the volume of the adhesive in accordance with the requirement therefor.

The dispenser E includes a depending substantially U-shaped applicator and guide tube 31 having transverse bearing sleeves 32 secured on its outer sides adjacent its upper ends and snugly slidable on the rods 27 and 28. The tube 31 is narrow in thickness longitudinally of the receptacle and relatively broad transversely thereof so as to conform generally to the tape. A horizontal brace 33 connects the upper ends of the tube. The tube in general increases in thickness from its intermediate portion, throughout its length to its discharge end above the front end of the chamber 16. At its inlet end, the tube has a

downwardly curved and flared mouth 34 extending over the upper edge of the partition 14 into the opening 26 at the top of the magazine 15 so that the tape T of the roll C may freely enter said tube (Fig. 1).

The tube 31 includes three main sections G, H and which are shown in detail in Fig. 2. The entrant section G has a little flare at its lower and inner curved end, while the section H increases in thickness from its rear to its front end. The thickness of the section i increases slightly throughout its length. Due to the thinness of the section G, which is of a thickness only slightly greater than the thickness of the tape, the adhesive is substantially prevented from entering said section when the tape extends therethrough thus preventing deterioration of the tape due to the absorption of moisture contained in the liquid adhesive, which would otherwise occur when the dispenser is not in constant use. The section H, which forms the bow or bottom of the tube, has a removable bottom plate 35 and its ends overlap the bottoms of the sections G and I, being held thereagainst by slip collars 36 (Figs. 2 and 8). This removable bottom is provided so that the tube may be readily cleaned. It is noted that the upper sides of the sections H and I are provided with openings 37. Since the section H and the lower portions of the sections G and I are immersed in the liquid adhesive in the reservoir, said adhesive enters the tube through openings 37 and adheres to the upper side of the tape T. Preferably transverse guide rods 37′ extend across the sections H and I adjacent the openings to prevent dragging of the tape against the upper wall of the tube.

A transverse scraper or wiper 38 is mounted on the cross brace 33 and includes a pair of angular coacting blades 39 and 40. The latter are disposed in overlying relation and each blade has a central longitudinal slot 41 for receiving an upright bolt 42 projecting upwardly through the brace. A wing nut 43 is screw-threaded on the bolt and engages the top blade 39 for fastening the blades in adjusted positions. The forward edge of the blade 39 has blunt ended spaced teeth 44, while the blade 40 has similar teeth 45 underlying and staggered with relation to the teeth 44 as is best shown in Fig. 6. The top wall of the tube section I of the tube terminates at the brace 33 so that the teeth 44 and 45 project into the tube toward the face of the tape T. It is obvious that by adjusting the blades and spacing the same from the face of the tape, the coating of adhesive on the tape face may be regulated and the surplus wiped therefrom. As is best shown in Figs. 3 and 7, the discharge end of the tube 31 extends above the blades and also above the top of the receptacle and has a window 46 and a straight edge 47 thereacross. The window may be used in grasping and pulling the tape upwardly, while the edge 47 may be employed in cutting or tearing off the tape.

In using the dispenser one or more rolls of paper tape or other strip material is mounted upon the shaft 18 as shown in Figs. 1 and 3. The retainer 23 is engaged with the roll to be dispensed and the tape is pulled up and over the roll, inserted in the mouth 34 and then fed down the tube 31 and passed through the sections G, H and I. The end of the tape is pulled up through the discharge end of the tube, beyond the scraper 38, past the window 46 and behind the edge 47, as shown in Fig. 1. The blades 39 and 40 are adjusted to wipe surplus adhesive from the tape. When a desired length of tape has been pulled from the tube, it is cut or torn off across the edge 47. The window 46 aids in pulling the next length of tape from the tube.

It is to be noted that the magazine 15 is dry and therefore the tape is unwound in a dry atmosphere. The reservoir F, formed by the chamber 16, is filled with liquid adhesive to a level above the section H so that such adhesive may enter the tube through the openings 37 and deposit upon the face of the tape T. Since the tube flares or increases in thickness longitudinally of the tape toward the discharge end of said tube, the adhesive is given ample

opportunity to deposit on the tape. The upwardly flaring shape of the section H and the enlarged cross-sectional area of the section *i*, when compared to the section G, is very important and assures a full coating of the tape with a rather thick liquid adhesive. Due to the adjustability of the plate 29, the size of the reservoir F may be varied in accordance with the quantity of tape to be dispensed to conserve and prevent waste of the adhesive. It is noted that the dispenser, and particularly its tube, functions as an adhesive applicator and guide for the dispensed tape.

The foregoing description of the invention is explanatory thereof and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. In combination in a tape dispenser, a support for a roll of tape, a chamber, a reservoir in the chamber of variable volume adapted to contain a liquid adhesive, and a U-shaped tubular applicator mounted uprightly in the reservoir and having an entrant end for receiving a section of tape from the chamber, the applicator being mounted for immersion in a bath of adhesive in the reservoir and having openings for admitting the adhesive to the tape and increasing in interior area toward its discharge end to prevent removing the adhesive therefrom.

2. The combination set forth in claim 1, with means coacting with the applicator to remove surplus adhesive from the tape.

3. In combination in a tape dispenser, a support for a roll of tape, a reservoir adapted to contain a liquid adhesive, and an elongate tubular applicator disposed in the reservoir with its medial portion immersed in the adhesive and open to admit adhesive liquid from the reservoir, said applicator having an entrant portion through which a tape to be coated is admitted and guided through the medial portion whereby it is coated with the adhesive and a discharge end through which the coated tape is discharged, said entrant portion being imperforate and having a cross-section of only slightly greater area than the tape passing therethrough to prevent admission of adhesive to the tape while in said entrant portion.

4. The combination set forth in claim 3, including means for removing surplus adhesive from the tape.

5. The combination set forth in claim 3, wherein the applicator has openings in one side only to admit adhesive from the reservoir to one face of the tape.

6. As a sub-combination in a tape dispenser, a bowed tubular applicator having an entrant end, a discharge end and an intermediate section larger than the entrant end and having openings in its upper side and a removable bottom, the applicator from the intermediate section to its discharge end being enlarged to accommodate a wet coating of adhesive.

7. In combination in a tape dispenser, a receptacle having a tape magazine and a chamber, a variable adhesive reservoir in the chamber, an adhesive applying tube suspended in the reservoir and having an opening communicating with said reservoir and means for removing surplus adhesive from a tape passed from the magazine through the tube, and members across the receptacle on which the ends of the tube are mounted to slide laterally.

8. In combination in a tape dispenser, a support for a roll of tape, a reservoir adapted to contain a liquid adhesive, and an elongate tubular applicator disposed in the reservoir with its medial portion immersed in the adhesive and open to admit adhesive liquid from the reservoir, said applicator having an entrant end through which a tape to be coated is admitted and guided through the medial portion whereby it is coated with the adhesive and a discharge end through which the coated tape is discharged, the applicator being enlarged in cross-section toward its discharge end to accommodate the adhesive

coating of said tape, said reservoir being provided with an adjustable wall to vary its capacity.

9. In combination in a tape dispenser, means for supporting a plurality of rolls of tape in side by side relation, a reservoir adapted to contain a liquid adhesive, and an elongate tubular applicator disposed in the reservoir with its medial portion immersed in the adhesive and open to admit adhesive liquid from the reservoir, said applicator having an entrant end through which a tape to be coated is admitted and guided through the medial portion whereby it is coated with the adhesive and a discharge end through which the coated tape is discharged, the applicator being enlarged in cross-section toward its discharge end to accommodate the adhesive coating of said tape, said applicator being suspended in the reservoir and being adjustable laterally therein for alignment with any one of the tape rolls.

10. As a sub-combination in a tape dispenser, a bowed

tubular applicator having an entrant portion, a discharge end and an intermediate section larger than the entrant portion, said intermediate section having openings in one side only, said entrant portion being imperforate and having a cross-section of only slightly greater area than the tape passing therethrough to prevent admission of adhesive to the tape while in said entrant portion.

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