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HAND TAPE DISPENSER WITH TAPE POSITIONING MEANS

Filed May 15, 1970

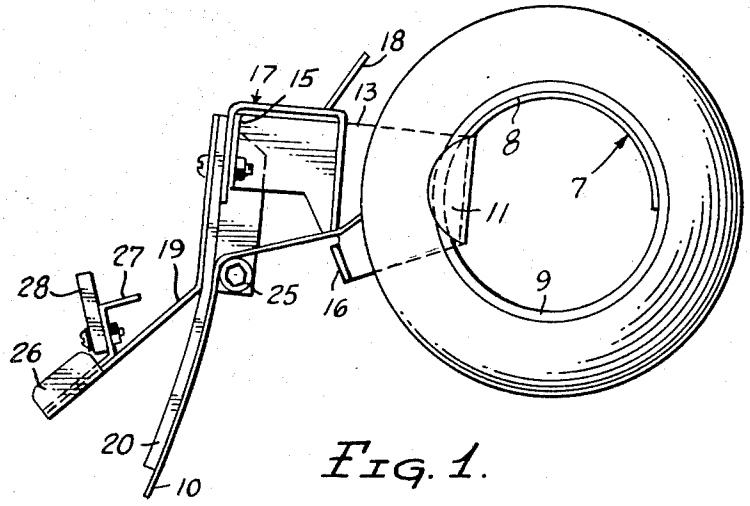


FIG. 1.

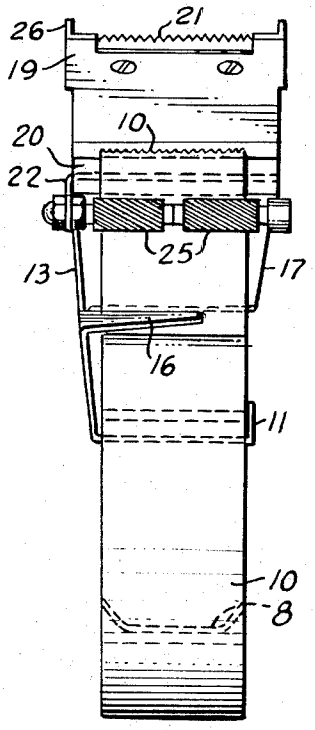


FIG. 2.

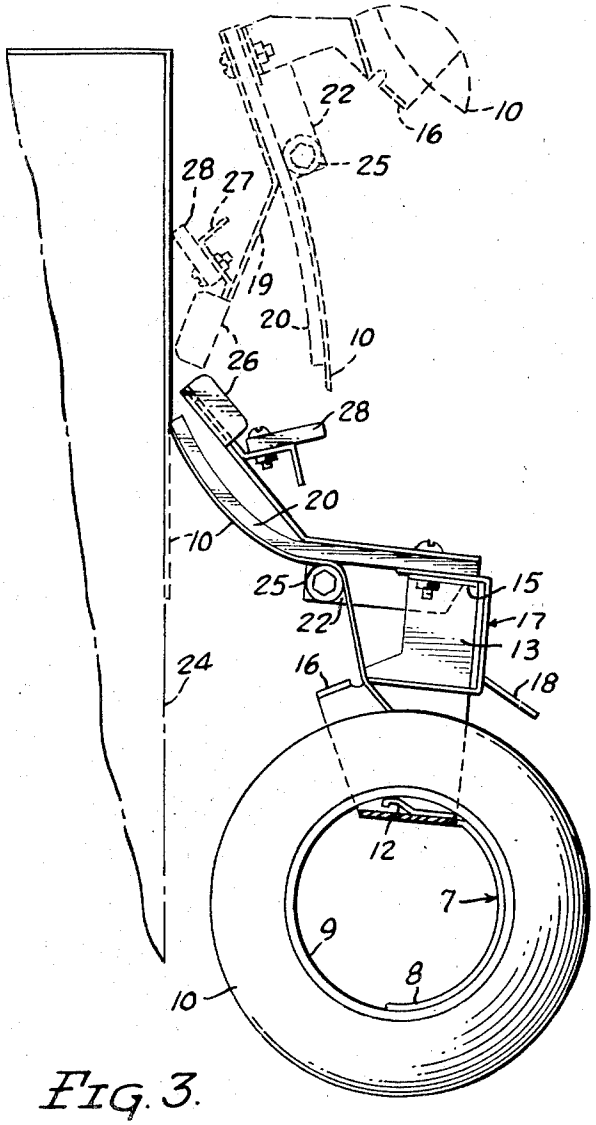


FIG. 3.

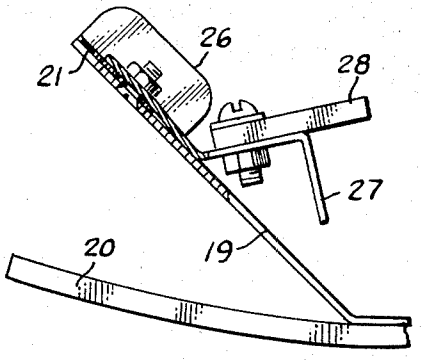


FIG. 4.

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HAND TAPE DISPENSER WITH TAPE POSITIONING MEANS

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U.S. Cl. 156—576 5 Claims

ABSTRACT OF THE DISCLOSURE

A tape dispensing device comprising an arcuate portion defining a tape supply roll support, tape guides for directing the free end of the tape from the roll, a tape support member to support the free end of the length of tape, and a tape severing blade positioned along the path of the tape for cutting a dispensed and applied length of tape. The dispenser may also have a wiper for pressing and smoothing the tape into contact with the surface to which it is applied.

The present invention relates to a new and improved tape dispensing mechanism and in one aspect to a hand holdable tape dispenser for pressure-sensitive adhesive tape designed to carry a roll of tape and to be held in the hand of the user so that the tape may be readily applied by the dispenser directly to the box, package or other article without necessitating the use of the other hand to position the free end of the tape to begin the application.

Hand held tape dispensers are well known in the art and they provide, certainly, a very useful tool in the application of tape to packages and the like, providing means for guiding the tape during application, convenient means for tensioning tape during application, and the convenient cutting of the applied tape from the remainder of the roll.

Examples of the prior known hand held tape applicators or dispensers include U.S. Pat. Nos. 2,777,594; 3,170,613; 3,351,511; 2,767,872; 2,722,329; and 2,527,588.

Devices utilizing rollers for applying and buffing the tape are shown, for example, in Pat. Nos. 2,732,964 and 2,532,596, both of which are provided with special means for placing the free end of the tape into contact with the surface to which the tape is to be applied.

The hand held dispensers of the above-described group are formed with means for aiding in the pressing of the tape against the surface to which the tape is to be applied, but these devices do not have any specific means for maintaining control of the free end of the tape after severing a length from the roll such that it is readily available to be placed in contact with a subsequent surface. The previous attempts to solve this problem of recoil of the free end after cutting the tape and having the free end become stuck to the dispenser or back to the roll of tape are generally similar. The dispensers are generally provided with a surface against which the adhesive surface of the tape may be urged such that the free end will not become lost in the dispenser. For example, look at the tape retaining prong **6** in U.S. Pat. No. 3,351,511, and the edge **12** in Pat. No. 2,527,588.

Another dispenser having a surface to contact the tape

and aid in the application of the tape is U.S. Pat. No. 2,890,808. This dispenser however as with the other prior art is not designed to avoid recoil of the free end of the tape after a length thereof is severed from the roll. The tape is held against the applicator finger **24** by the roller **30** and lugs **34** but they fail to direct the tape against the pressure portion **27** to avoid recoil or displacement of the free end of the tape.

The present invention affords a significant improvement over the prior devices by defining a tape support and applicating pad to which the tape will readily adhere and maintain its position without contamination of any of the adhesive by contact of the free end with the dispenser frame.

The present invention provides an improvement in hand held tape dispensers which will increase the speed with which one can apply pressure-sensitive adhesive tape to cartons, boxes, or the like.

The hand holdable dispensing device of the present invention comprises a frame including a hand grip member which also serves to support a roll of tape, means defining several guide members positioned along one side of the frame to define a path along which the tape is guided toward the object to which it is to be applied, a cutting member on the terminal end to sever the applied length of tape from the remainder of the roll, and a dielectric pad which is supported on the frame and extends along the tape path to be continually in frictional contact with the tape as the same is being drawn from the roll such that upon severing the dispensed length of tape from the tape remaining on the roll the free end of the tape is held against the dielectric pad because of electrostatic charge developed during the dispensing of a length of tape.

The present invention will be more fully understood after reading the following detailed description which refers to the accompanying drawing wherein:

FIG. 1 is a side elevational view of a dispenser constructed in accordance with the present invention;

FIG. 2 is a bottom view of the dispenser constructed in accordance with the present invention;

FIG. 3 is an illustration of the dispenser of the present invention applying a length of tape about the corner of a carton, package, or similar article and showing in broken lines the position of the applicator after severing the tape; and

FIG. 4 is a detail, sectional view showing the severing blade disposed on the forward portion of the frame.

The hand holdable tape dispensing device illustrated in the accompanying drawings comprises a plate-like frame formed by a number of frame elements bolted together to define on one end a hand grip portion **7** having a generally semicircularly shaped tape supporting member **8** upon the convex surface of which is mounted the core **9** of a supply roll of tape **10** wound adhesive side inward. The core **9** is contained on the member **8** by a flange **11** extending in a radially outward direction from a planar portion of the member **8** on which a leaf spring **12** (see FIG. 3) is mounted which urges the core **9** into engagement with the convex surface of the member **8**. The flange **11** and a side wall **13** of the hand grip portion thus serve to contain the roll of tape **10**. The hand grip portion is also formed with two transversely or axially

extending bars, a bar **15** defining a mounting bracket and a bar **16** aiding to define the tape path from the roll to the dispensed position.

Secured to the mounting bar **15** by means of bolt and nut assemblies, is a sheet metal web member **17** which is generally U-shaped and formed with a thumb rest **18** projecting from the bight portion thereof in a direction along the surface of the roll of tape.

Positioned on the other side of the web member **17** and secured to bar **15** to define the forward end of the dispenser frame is a tape support member **19**. The member **19** has a length or tape supporting surface of between 1 inch (2.5 cm.) and 4 inches (10 cm.), to support a pad positioned along the tape path. A flexible and resilient pad **20** is supported by support member **19** and as illustrated is sandwiched between the support member **19** and the web member **17**. When mounted in this cantilever manner one end of the pad **20** extends from its support to a position along the tape path where it will swing against the tape support member **19**. The pad **20** terminates adjacent the outer end of the member **19** which supports a tape severing blade **21** on its free end. The member **20** may be formed of a strip of flexible, normally straight, dielectric material, e.g., neoprene rubber about $\frac{3}{16}$ of an inch thick (5 mm.), having a width, preferably, at least as wide as the tape to be applied. The dielectric property aids to retain limp tapes such as pressure sensitive adhesive tapes using thin polyester films as backing materials. Other suitable materials may be pure gum black rubber having a durometer of 45, a piece of carpeting material having a relatively stiff backing to keep the material in a normally straight position, a resiliently mounted metal support on the face of the tape support member **19**, which may have a face coated with a dielectric material, or other similar flexible material which will develop an electrical charge upon frictional contact sliding engagement with the tape backing as the same is dispensed and applied to the surface of a product **24**.

Supported from a bracket **22** of the blade support member **19** and defining a tape guide along the tape path adjacent the member **19** and pad **20** is a knurled roller **25**. The roller **25** has its periphery adjacent the plane of the pad **20** but is positioned on the side nearer the axis of the tape support **8** and contacts the adhesive surface of the tape as it is drawn from the roll to guide the tape backing into position against the pad **20**. The roller **25** is positioned to direct the tape toward the tape support member **19** and pad **20**. When using the stiffer heavier tapes such as filament tapes, the curve placed in the tape by the roller may hold the tape against the pad after a portion has been applied and separated by the blade from the supply roll.

The tape support member **19**, which is formed on each side of the severing blade **21** with upstanding guards **26**, also has a bracket **27** mounted thereon for holding a wiper **28** formed of a flexible material which is stiff enough because of its thickness or structure to serve to smooth and wipe the tape against the surface to which it is applied. The wiper **28** may be formed, e.g., of rubber or neoprene, mounted also in a cantilever fashion to serve as a buffer to press down the end of a severed and partially applied length of tape to a surface **24**.

As best illustrated in FIGS. 1 and 3, the dispenser may be used to place a length of tape onto a surface **24** of a package and the same is applied by manipulating the dispenser in such a manner that the surface is slapped by the pad **20** such that the exposed adhesive surface of a strip of tape **10** held to the pad member **20** by an electrostatic attraction is secured or transferred to the surface **24** by the pressure sensitive adhesive coating on the tape. The dispenser is then pulled in a direction in which the length of tape is to run to apply the length of tape on the surface with the dispenser positioned at all times in a manner such that if the tape is withdrawn from the roll it moves about a knurled tape guide roller **25** and into contact with the surface of the pad **20**. After the tape has been applied to the package and possibly drawn around an edge of the same (as shown in FIG. 3) the dispenser is rotated about the end supporting the severing blade **21** to bring the tape **10** into engagement with the serrated blade **21** thus severing the tape. In this position then the buffing member **28** is in contact with the length of tape applied, and the buffing member may be used to press and smooth the free end of the tape down against the surface of the package to leave no free ends on the tape.

After each application the electrostatic attraction of the pad **20** for the free end of the limp type tape **10** supports the tape **10** on the exposed surface of the pad **20** out of contact with the dispenser frame and in a position where it can be readily attached to the next article.

This pad **20** and structure could be incorporated in a mechanized tape applicator as well to position the tape for application to articles automatically. The pad **20** would be positioned to engage the article to which the tape would be applied and to maintain contact with the tape during application.

Having thus described the present invention, what is claimed is:

1. A tape dispensing device comprising

a frame having two ends,

means on said frame adjacent one end for supporting a roll of pressure-sensitive adhesive tape,

guide means defining a tape path along said frame between said means for supporting a roll of tape and said blade, said guide means comprising

pad means including a rectangular pad formed of a dielectric material positioned along said tape path between said means supporting a roll of tape and said severing blade to frictionally contact the backing on the pressure-sensitive adhesive tape as the same is withdrawn from said roll of tape for electrostatically supporting the free end of the roll of tape upon severing of a dispensed length therefrom, and

roller means disposed for contacting the side of a said tape opposite the backing and for directing said backing toward said pad as a said tape is moved along said tape path from said means supporting a roll of tape toward said blade.

2. A tape dispensing device according to claim **1** wherein said pad is flexible and is cantilever mounted to the frame intermediate the ends of the frame and extends along the frame with a free end of the pad terminating adjacent the severing blade affording an exposed surface to contact the backing of the tape and support the free end of the tape in a said roll, said pad flexing from a normally straight planar position to a position adjacent the frame and nearer the severing blade as the tape is drawn from the roll.

3. A tape dispensing device according to claim **2** wherein said roller means includes a guide roller positioned adjacent one end of the pad with its periphery positioned on the side of the plane of said pad nearer said means for supporting a roll of tape for guiding the tape extending around said roller against said pad.

4. A tape dispensing device according to claim **5** wherein a buffing member is disposed on the frame on the side opposite said pad and adjacent said severing blade for buffing down an applied length of tape.

5. A hand holdable tape dispensing device comprising

a generally plate-like frame having two end portions,

a semicircularly shaped hand grip and tape roll support member positioned adjacent one end portion of said frame,

guide means including a guide roller defining a tape path along one side of the frame,

a tape severing blade supported adjacent the other end portion of the frame, and

tape support means comprising a rectangular pad formed of a flexible dielectric material mounted on the frame to extend along the tape path intermediate said end portions between said blade and said guide means to frictionally contact the backing on the pressure-sensitive adhesive tape for wiping the same on a surface and for supporting the free end of the tape roll upon severing of the applied length of tape, said guide roller being positioned on a side of the path opposite the tape support means to contact one side of said tape and to direct said backing against said tape support means and said rectangular pad having a normal planar position oblique to a line joining the axis of the guide roller and the axis of said semi-circularly-shaped support member.

References Cited

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3,185,363	5/1965	Krueger	225—66
2,777,594	1/1957	Krueger	225—66 X

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J. M. HANLEY, Assistant Examiner

U.S. Cl. X.R.

156—527

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,684,626 Dated August 15, 1972

Inventor(s) Donald E. Wood

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Claim 1, Column 4, between lines 29 and 30 the following phrase should be inserted:

-- a tape severing blade supported adjacent the other end of said frame --.

Signed and sealed this 6th day of August 1974.

(SEAL)
Attest:

McCOY M. GIBSON, JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents