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(54) **LOW PROFILE TAPE PACK**

FLACHPROFIL KLEBEBANDVERPACKUNG

EMBALLAGE DE RUBAN ADHESIF SURBAISSE

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Description

Field of the Invention

[0001] This invention relates to a package of flat wound pressure sensitive adhesive tape having an overall size to conveniently fit into a briefcase or the pocket a garment, such as a shirt. More particularly, this invention relates to a package of pressure sensitive tape convolutely wound around a tape core.

Background of the Invention

[0002] Pressure sensitive adhesive coated tapes are traditionally wound on a round core. The diameter varies, but the cores are always round. That may account for the reason why such products are known as "rolls of tape." Duct tape, packaging tape, masking tape are all generally wound onto large diameter cores. For example, the typical roll of tape is about 2" wide and 31/4" to 4" in diameter.

[0003] However, tapes packaged in this form have the disadvantage in that they are inconvenient or difficult to carry, for example in a briefcase, toolbox or garment. Furthermore, the edges of the tape pick up dirt and other contaminants when stored in a drawer or carried. Additionally, telescoping of tapes can occur. "Telescoping" of the tape is the lateral displacement of the turns of tape on a core. This can add to edge pick up and edge distortion, which can lead to an unsatisfactory or incomplete bond.

[0004] Many times it would be convenient to have a "roll of tape" that can be conveniently placed in a pocket or is compact enough to fit through restricted openings. U.S. Patent 3,006,464 describes such a configuration, wherein the tape roll is a shuttle-like roll of a long length of tape wound upon itself. Also U.S. Patent 5,269,421, upon which the preamble of claim 1 is based, describes a flat shape using a relatively thin, stiff and short two-ply core is sized to conveniently fit into a shirt pocket.

Summary of the Invention

[0005] Briefly, the present invention provides a tape dispenser article according to claim 1. The tape core may have a textured surface. Such a textured surface would permit easy removal of the tape that is in direct contact with the tape core surface, which is typically referred to as the end of the tape, without the addition of a release layer.

[0006] The core may be a grid-like honey-comb wherein the effective tape surface area is defined by the size and number of open cells. The effective surface area provides similar release characteristics as a textured surface.

[0007] Advantageously, the side portions not only provide structural stability, but (1) provide convenient means for holding the tape dispenser to dispense the convolutely wound tape, while eliminating the need to contact the adhesive side edges of the tape, (2) signficantly reduce contamination of the edges of the tape (particularly if carried in a garment pocket, stored in a desk drawer or carried in a briefcase), and (3) eliminate the problems associated with tape core telescoping as seen in conventional tape rolls. Furthermore, the side portions provide a convenient means for handling the tape dispenser, while maintaining the relatively flat profile that is particularly advantageous.

[0008] In yet another embodiment, a low profile tape pack is provided comprising a tape dispenser article and a predetermined length of pressure sensitive adhesive tape convolutely wound around the relatively flat elliptical core to form a plurality of superimposed layers. The present invention has been found particularly well suited for pressure sensitive adhesive mailing tapes, particularly hand-tearable tapes, although the flat tape dispenser is useful for any type of pressure sensitive adhesive tapes. Generally, the width of the pressure sensitive tape is substantially the same width as the relatively flat elliptical core.

Brief Description of the Drawings

[0009]

FIG. 1 illustrates a perspective view of a tape dispenser of pressure sensitive tape according to the prior art;

FIG. 2 is a top view of a tape core from the tape dispenser shown in FIG. 1;

FIG. 3 is a side view of the tape core shown in FIG. 2;

FIG. 4 is a perspective view of a curvilinear tape core having a grid-like honey-comb structure according to the present invention;

FIG. 5 is a perspective view of another embodiment of a package of pressure sensitive tape in accordance with the present invention; and

FIG. 6 is a perspective view of a low profile tape pack of the present invention.

FIG. 7 is cross-section of the low profile tape pack of the present invention taken along line 7--7 of FIG. 6.

FIG. 8 illustrates a package of the present invention being written upon by a user.

Description of the Preferred Embodiment(s)

[0010] Referring first to FIG. 1, there is shown a tape dispenser of pressure sensitive adhesive coated tape according to the prior art. This tape dispenser 10 is a small hand-held device comprising a cutting means 12, two side rails 13, and a tape assembly 14.

[0011] Referring now to FIGS. 1 to 3, a tape assembly 14 according to the prior art consists of a core 16, convolutely wound tape 15, and a pair of axel hubs 17. Axel

hubs 17 fit into mating slots or recesses (not shown) located on the inside portion of side rails 13 of tape dispenser 10. Mating slots (not shown) are positioned to allow core 16 free rotation about the axis as defined by axel hubs 17, when axel hubs 17 are positioned in the mating slots or recesses (not shown).

[0012] Referring specifically to FIG. 2, one of the problems associated with the prior art is illustrated and this is the likelihood that tape 15 will telescope off of core 16 and typically telescopes to such a distance such as shown by the off core distance 18, such that the tape assembly 14 can no longer be inserted into side rails 13. Even if the off core distance 18 is small, the fit between the core 16 and the side rails 13 is such that even if the core could be inserted into the mating slots (not shown), the rotation of core 16 about the axis defined by axel hubs 17 is hampered or constrained.

[0013] Referring now to FIG 4, a tape dispenser article 20 ("article") according to the present invention is shown. Tape dispenser 20 comprises a pair of side portions 21 and a tape core 22 wherein the width of the tape core 22 is determined by what tape (not shown) will be wound on tape dispenser article 20. Tape core 22 is comprised of an upper and a lower curvilinear surface about an axis defined by the length and width of tape dispenser article 20. Tape core 22 is configured such that any portion of tape core 22 is curvilinear, however, in the preferred embodiment, the upper and lower curvilinear surfaces are symmetric about the axis defined by the length and width of tape dispenser article 20.

[0014] Tape core 20, as shown in FIG. 4 is comprised of a plurality of open grid-like areas 23. Typically, cells 23 are open from top to bottom wherein the area adjacent to the interior surface of the side portions 21 are filled cells 24. Alternatively, all of the cells of tape core 22 can be open, partially open, completely filled, or any combination thereof.

[0015] The upper and lower surfaces of tape core 22, as described above can be grid-like as shown. One purpose for the open structure is to provide for a lightweight relatively flat alternative to roll tape. Another purpose for the open structure is to provide a mechanical means for reducing the surface energy, thereby adjusting the adhesive surface contact between the tape (not shown) and the surface of the tape core 22. This surface energy reduction provides an effective means for easier tape removal from this surface at the end of the tape winding.

[0016] Referring now to FIG. 5, an alternative embodiment of tape dispenser article 30 is shown, wherein the upper and lower surfaces of tape core 32 are textured, thus providing an alternative means for adjusting the adhesive surface contact between the tape (not shown) and the surface of the tape core 32. Also shown in FIG. 5 are side portions 31.

[0017] Referring to FIG. 6 and FIG. 7 a low profile tape pack 40 is illustrated comprising a . tape dispenser article 20 having a pair of side shields 21 and layers of convolutely wound tape 41. Referring specifically to the cross-section of FIG. 6, as shown in FIG. 7, the open cells 23 are illustrated in relationship to the closed cells 24, juxtaposed to the inner surface of the side portions 21. Also shown are the layers of tape 41 and the adjacent position of the tape 41 to side portions 21.

[0018] As may be recognized in the art, the tape dispenser article could be fabricated from a variety of materials. Preferably, the tape dispenser article is a unitary piece of molded plastic, although this tape dispenser article may be comprised to two or more pieces. Useful plastics include but are not limited to polystyrene, polypropylene, acrylonitrile-butadiene-styrene copolymer (ABS) and other plastics typically used by those skilled in the art of dispenser molding.

[0019] As described above in reference to FIGS. 4 and 5, the effective surface area is adjusted by mechanical means, that is, the surface area is reduced either by texturing the surface or providing a grid-like surface. Alternatively, it is possible to adjust the surface energy of the tape core surfaces by post-mold coatings of a release material, or providing a release additive to the resins prior to molding. These means would generally be understood to mean a chemical solution to providing a release surface or a low energy surface to reduce the adhesive contact between the tape and the tape core surface.

[0020] The tape dispenser article of the present invention is defined by the length of the core, width of the core, which is typically dependent upon the width of the tape to be wound onto the core. The height is dependent upon the thickness of the tape and the length of tape that is to be wound upon the core. Typically, widths of the core range from 1/2" upward to approximately 3" or 4". The tape width may be narrower or wider than 3" to 4" depending on the hand span of potential end-users. Typical lengths of the tape dispenser article core are in the range of 2" to 8", although such a description of length should in no way be construed to limit the scope of this invention.

[0021] The height of the side portions, as stated above is dependent upon the thickness of the tape to used and the amount of tape to wound onto to the core. Typically, the height is in the range of 1/4" to 1/2", measured at the midline of the side portions. Preferably, the height of the side portions is at least the same thickness as the initial thickness of plurality of layers of convolutely wound tape. "Initial thickness" means the thickness of tape prior to any dispensing or removal of the tape from the tape dispenser.

[0022] By way of illustration, the tape core of the tape dispenser article could have a height at the highest point (generally the mid point) in the range of 1/4" and the side portions could have a height at the highest point (measured at the same point as the tape core) in the range of 1/2". It is understood that the description of the particular heights, lengths and widths are merely for illustration and do not limit the scope of the invention.

[0023] It is preferred that the general shape of the tape

dispenser article be curvilinear, although a flatter profile would also be within the scope of this invention. When not intending to be bound by theory, it is believed that the curvilinear shape of the tape dispenser article may improve the winding of the tape onto the tape core, during the manufacturing process. Additionally, it is also possible to fabricate a tape core with only a single side portion

[0024] Referring now to FIG. 8, because of the improved structural stability attributed to the side portions, as illustrated, the low profile tape pack can provide a sufficiently stable and firm surface to scribe onto a writable tape, such as a masking tape.

[0025] The side shields not only provide structural stability, but (1) provide convenient means for holding the tape dispenser to dispense the convolutely wound tape, whole eliminating the need to contact the adhesive side edges of the tape (2) significantly reduces contamination of the edges of the tape (particularly if carried in a garment pocket, stored in a desk drawer or carried in a briefcase), and (3) eliminate the problems associated with tape core telescoping as seen in conventional tape rolls.

[0026] It should be understood that the pressure sensitive adhesive tape may be any types of pressure sensitive adhesive tape, including but not limited to packaging tape, electrical tape, masking tape, hand-tearable tape, labeling tape, duct tape and the like.

[0027] Since many variations, modifications, and changes in detail may be made to the embodiment described in the foregoing description and shown in the accompanying drawings without departing from the scope of the invention, the description of the drawings shall be interpreted as illustrative and not in a limiting sense.

Claims

1. A tape dispenser article wherein the tape dispenser (20; 30; 40) has a relatively flat curvilinear tape core (22; 32) **characterised by** at least one of a grid-like surface and a textured surface which provides surface contact between the tape (41) and the tape core (22; 32).

2. The tape dispenser article according to claim 1 wherein the tape dispenser article is molded plastic.

3. The tape dispenser article of claim 1 and further comprising:

   a plurality of layers of convolutely wound pressure sensitive adhesive tape (41).

4. The tape dispenser according to claim 3 wherein the curvilinear tape core (22; 32) is at least as wide as the pressure sensitive adhesive tape (41).

5. The tape dispenser according to claim 3, wherein the height of side portions (21; 31) are at least as high as initial thickness of the plurality of layers of convolutely wound pressure sensitive adhesive tape (41).

6. The tape dispenser according to claim 3, wherein the pressure sensitive adhesive tape (41) is packaging tape.

7. The tape dispenser according to claim 3, wherein the pressure sensitive adhesive tape (41) is a writable tape.

8. The tape dispenser according to claim 7, wherein the curvilinear tape core (22; 32) provides a sufficiently stable and firm surface to scribe onto the writable tape (41).

Patentansprüche

1. Bandspenderartikel, wobei der Bandspender (20; 30; 40) einen relativ flachen, gekrümmten Bandkern (22; 32) hat, **gekennzeichnet durch** mindestens eine gitterartige Fläche und/oder eine strukturierte Fläche, wodurch das Band (41) und der Bandkern (22; 32) in Flächenkontakt miteinander stehen.

2. Bandspenderartikel nach Anspruch 1, wobei der Bandspenderartikel geformter Kunststoff ist.

3. Bandspenderartikel nach Anspruch 1, der weiterhin mehrere Schichten aus übereinandergewickeltem druckempfindlichem Klebeband (41) aufweist.

4. Bandspenderartikel nach Anspruch 3, wobei der gekrümmte Bandkern (22; 32) mindestens so breit wie das druckempfindliche Klebeband (41) ist.

5. Bandspenderartikel nach Anspruch 3, wobei die Höhe von Seitenabschnitten (21; 31) mindestens der Ausgangsdicke der mehreren Schichten aus übereinandergewickeltem druckempfindlichem Klebeband (41) entspricht.

6. Bandspenderartikel nach Anspruch 3, wobei es sich bei dem druckempfindlichen Klebeband (41) um Verpackungsband handelt.

7. Bandspenderartikel nach Anspruch 3, wobei es sich bei dem druckempfindlichen Klebeband (41) um ein beschreibbares Band handelt.

8. Bandspenderartikel nach Anspruch 7, wobei der gekrümmte Bandkern (22; 32) eine ausreichend stabile und feste Schreibfläche für das beschreib-

bare Band (41) bereitstellt.

Revendications

1. Article de distribution de ruban dans lequel le distributeur de ruban (20 ; 30 ; 40) a une âme de ruban curvilinéaire, relativement plate (22 ; 32), **caractérisé par** au moins une surface texturée et/ou une surface semblable à une grille qui fournit le contact de surface entre le ruban (41) et l'âme de ruban (22 ; 32).

2. Article de distribution de ruban selon la revendication 1, dans lequel l'article de distribution de ruban est en plastique moulé.

3. Article de distribution de ruban selon la revendication 1 et comprenant en outre :

   une pluralité de couches de ruban adhésif sensible à la pression enroulé sur lui-même (41).

4. Article de distribution de ruban selon la revendication 3, dans lequel l'âme de ruban curvilinéaire (22 ; 32) est au moins aussi large que le ruban adhésif sensible à la pression (41).

5. Article de distribution de ruban selon la revendication 3, dans lequel la hauteur des parties latérales (21 ; 31) est au moins aussi élevée que l'épaisseur initiale de la pluralité de couches de ruban adhésif curvilinéaire sensible à la pression enroulé sur lui-même (41).

6. Article de distribution de ruban selon la revendication 3 dans lequel le ruban adhésif sensible à la pression (41) est du ruban d'emballage.

7. Article de distribution de ruban selon la revendication 3, dans lequel le ruban adhésif sensible à la pression (41) est du ruban sur lequel il est possible d'écrire.

8. Article de distribution de ruban selon la revendication 7, dans lequel l'âme de ruban curvilinéaire (22 ; 32) fournit une surface suffisamment stable et ferme pour permettre l'écriture sur le ruban (41) sur lequel il est possible d'écrire.

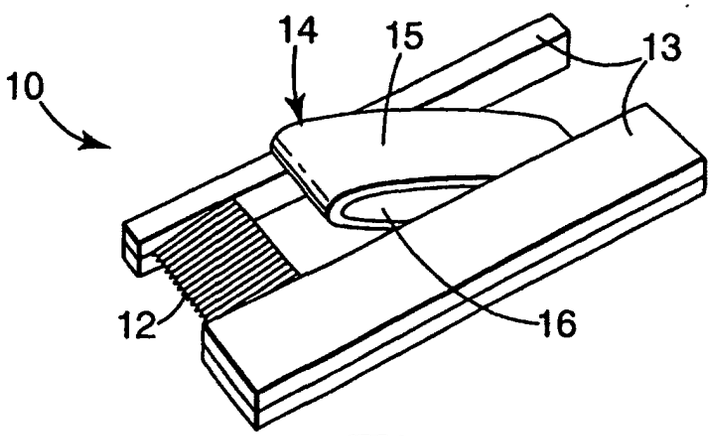


Fig. 1
PRIOR ART

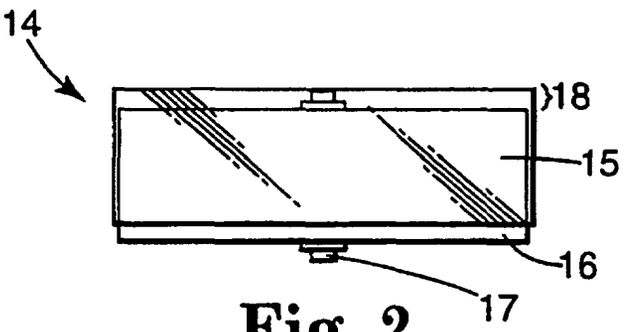


Fig. 2
PRIOR ART

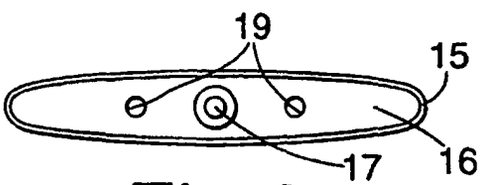


Fig. 3
PRIOR ART

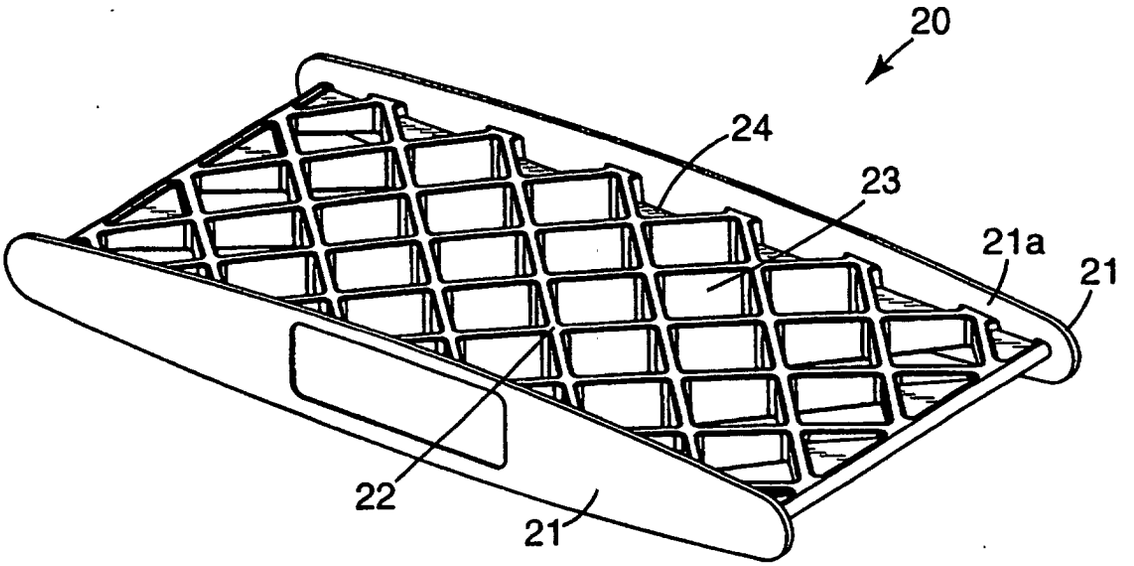


Fig. 4

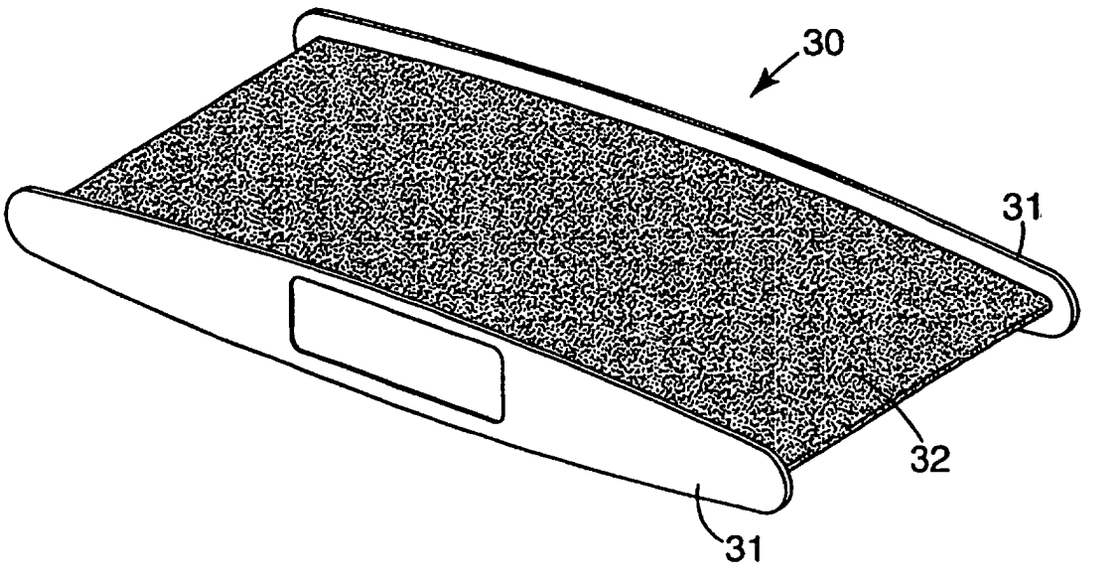


Fig. 5

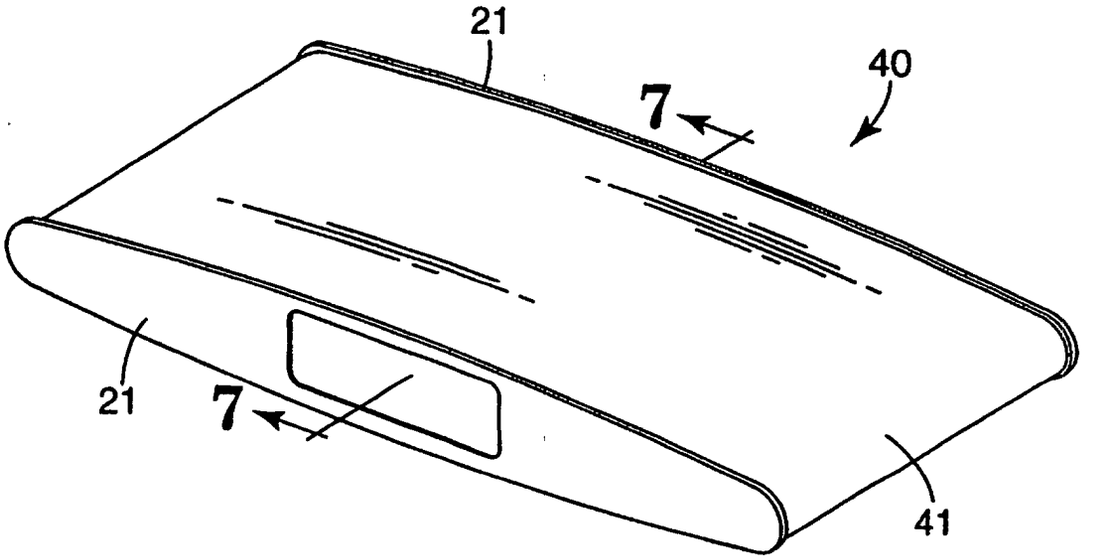


Fig. 6

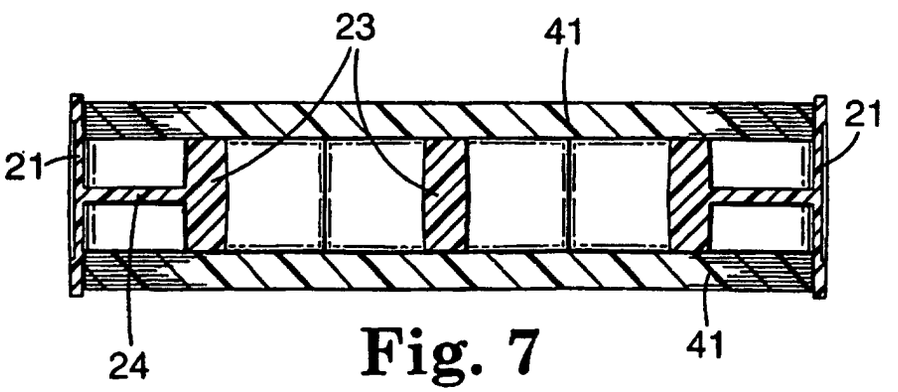


Fig. 7

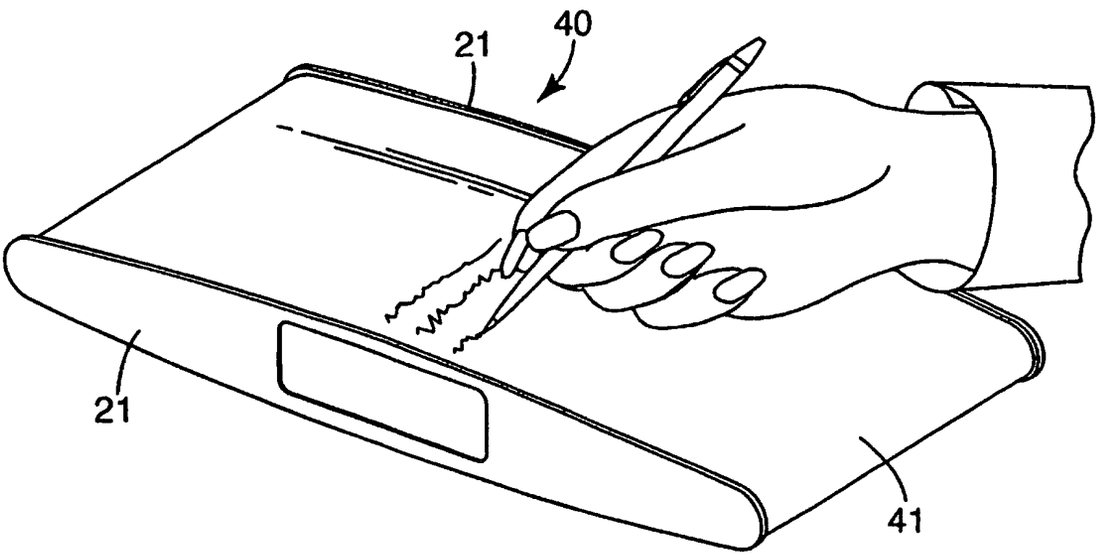


Fig. 8