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(54) **Correction fluid applicator with foam tip**

(57) A correction fluid applicator with an applicator tip (22) attached via a stem (20) to the cap (30) of a container (40) containing correction fluid. The applicator tip slides into a foam sleeve (10) made from soft polyurethane or polyester foam. This sleeve is fixed over the applicator tip at the distal end of a specially designed stem (20). The foam sleeve (10) has absorbent qualities that enhance the storage of correction fluid during the transfer from container to application surface. The applicator can be inserted into the container so that the foam sleeve is at least partially immersed in correction fluid even when the quantity of fluid is low.

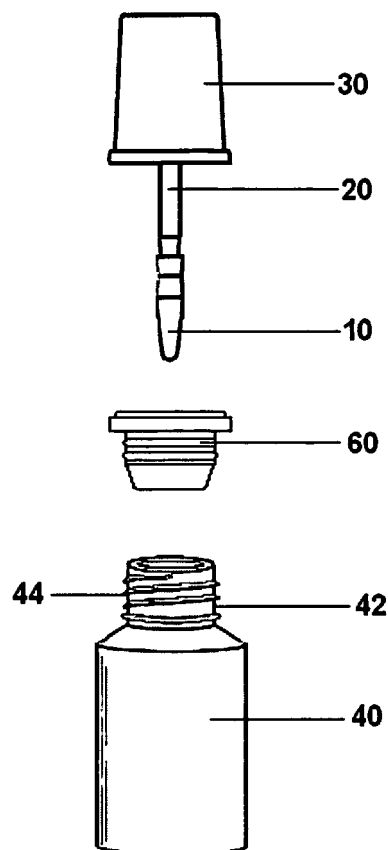


Figure 1

Description

FIELD OF THE INVENTION

[0001] This invention relates to a foam tip for a correction fluid applicator.

BACKGROUND OF THE INVENTION

[0002] Correction fluid applicators are used for covering handwritten, typewritten or photocopied markings with a layer of fluid. This layer of fluid then dries and hardens to a film that effectively covers the said markings. This film can usually be written over with ball-point pens or the like. Correction fluids typically contain a resin that provides the base for the film, and some type of pigmentation that has opaque properties, dispersed in water or an organic solvent.

[0003] The correction fluid is usually stored in a small container with some type of applicator attached to the cap via a stem. During use, the cap is removed from the container along with the applicator containing an amount of correction fluid. The markings that are intended for correction are then painted over with the applicator. Drying of the correction fluid into a film then occurs by natural convection or other means.

[0004] What is present in prior art related to this type of correction fluid applicator is the brush type applicator which suffers from a lack of precision in applying the correction fluid. This was replaced by a foam-type applicator. The travel of the applicator tip for foam-type applicators is much less than that of the brush-type, resulting in much higher precision.

[0005] However, another disadvantage of both brush- and foam-type applicators is the limited amount of correction fluid that the applicator can store during the fluid transfer from container to the application surface, necessitating more frequent refilling of the applicator tip from the container. What is needed in the art is a correction fluid applicator with both a high degree of precision and an ability to store more correction fluid.

SUMMARY OF THE INVENTION

[0006] This invention relates to a correction fluid applicator attached to the cap of a container containing correction fluid. The applicator tip slides into a foam sleeve at one end of a stem. This stem provides a small degree of flexibility for effective and comfortable operation, but not too much so that precision is maintained. The foam sleeve is made from soft polyurethane or polyester foam. This foam sleeve is slid over and fixed to an applicator tip at one end of a specially designed stem. The other end of the stem is attached to the cap of the container where the correction fluid is stored. The foam sleeve has absorbent qualities that enhances the storage of correction fluid during the transfer from container to the application surface. The applicator can be inserted into the

container so that the foam sleeve is touching or almost touching the bottom of the container, and deep enough so that the foam sleeve is at least partially immersed in correction fluid even when the quantity of fluid is low. The applicator provides a means of applying correction fluid onto a substrate such as paper, in an even layer resulting in a dry film with a substantially smooth surface that allows for future marking with several types of writing implements.

[0007] One aspect of this invention relates to a correction fluid applicator comprising a grip designed to be held by a user, a foam sleeve made from a flexible material, and a stem attached at a proximal end to the grip, and a distal end having an applicator tip adapted to slide into and be so fixed to the foam sleeve.

[0008] Yet another aspect to this invention relates to a correction fluid application system comprising a container with an opening, the container able to store a quantity of correction fluid; an applicator comprising a foam sleeve made from a flexible material and a stem with a distal end adapted to slide into the foam sleeve; and a cap fixed to a proximal end of the stem such that when the cap is placed over the said opening of the container, the stem extends through said opening and substantially into the container.

[0009] A further aspect of this invention relates to a correction fluid application system whereby the cap can be screwed onto an outer surface of the container, thus blocking the said opening and providing substantial water-tightness within the container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

Figure 1 shows an overall view of the correction fluid application system in an embodiment of this invention.

Figure 2 shows an exploded perspective view of the applicator in an embodiment of this invention.

Figure 3a shows a side view of the applicator in an embodiment of this invention.

Figure 3b shows a front view of the applicator in an embodiment of this invention.

Figure 3c shows a side cross-sectional view with an enlarged area of the applicator in an embodiment of this invention.

Figure 4a shows a front view of the stem in an embodiment of this invention.

Figure 4a shows a side cross-sectional view of the stem in an embodiment of this invention.

Figure 5a shows a perspective view of the foam sleeve in an embodiment of this invention.

Figure 5b shows a side view of the foam sleeve in an embodiment of this invention.

Figure 5c shows a front cross-sectional view of the foam sleeve in an embodiment of this invention.

Figure 5d shows a side cross-sectional view of the foam sleeve in an embodiment of this invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0011] Referring to Figure 1, there can be seen a correction fluid application system with a container (40) having a reservoir for storage of a correction fluid. The container has a neck (42) at the top end which has a smaller diameter than the diameter of the container body. This neck (42) has an opening at the top. A cap (30) has a threaded section on an inner surface so as to engage a matching threaded section (44) on the neck (42) of the container (40). The cap (30) also acts as a grip designed to be held by a user. Attached to the cap (30) is a proximal end of a stem (20), with a distal end of the stem (20) attached to a foam sleeve (10), said foam sleeve (10) sliding over and covering the distal end of the stem (20). An insert (60) adapted to slide into the neck (42) prevents spillage of correction fluid when the applicator is inserted and taken out of the container (40) by removing excess fluid before the foam leaves the container (40).

[0012] In Figure 2, the applicator includes a stem (20) having at the proximal end a hollow cylinder (24) for attachment with a cap (30). At the distal end of the stem (20) is the applicator tip (22) which is tapered from the substantially cylindrical shape of the middle portion of the stem (20) into a substantially flat tip with a width enlarged from the diameter of an adjoining portion of the stem (20). This is to enhance the attachment of the applicator tip (22) with the foam sleeve (10). The substantially flat shape of the applicator tip (22) also makes easier the application of correction fluid onto flat surfaces.

[0013] Figures 3a through 3c show the stem (20) assembled with the cap (30), the hollow cylinder (24) of the stem (20) attached securely to the inside of the cap (30). The foam sleeve (10) slides over the applicator tip (22) at a distal end of the stem (20), completely covering the applicator tip (22) and past the point where the applicator tip (22) joins the cylindrical portion of the stem (20).

[0014] In Figure 3c the enlargement of the distal end of the stem (20) shows a small gap between the end of the applicator tip (22) and the cup of the foam sleeve (10). This gap provides for more flexibility and storage of correction fluid.

[0015] The stem (20) is flexible to a certain degree, this flexibility necessary for a more effective fluid applicator and comfort during use. The flexibility of the stem

depends on a few factors including material composition, diameter and length of the stem. A softer material used to make the stem will result in a more flexible applicator, and vice versa. A stem with a thicker diameter will result in a less flexible applicator, and vice versa. A longer stem will result in a more flexible stem, and vice versa. Stems may be made of polymeric materials such as a low density or high density polyethylene or polypropylene.

[0016] Besides stem flexibility, other factors that affect the flexibility of the applicator as a whole include the composition and thickness of the foam portion. Generally, the softer the foam the greater the flexibility of the foam applicator. A thicker foam portion results in a less flexible applicator tip. The foam may be a soft open cell foam such as, for example, a polyether/polyurethane, polyester/polyurethane, polyether, or polyester foam.

[0017] Figures 4a and 4b show a stem (20) in an embodiment of this invention with the hollow cylinder (24) at the proximal end and the applicator tip (22) at the distal end of the stem (20).

[0018] In figures 5a through 5d, there is shown a foam sleeve (10) in an embodiment of this invention.

[0019] The correction fluid being applied in this embodiment may be either an organic solvent- or water-based correction fluid. The correction fluid includes an additional material to produce opaqueness in the fluid.

[0020] While the invention has been described with respect to specific embodiments, those skilled in the art will recognize that changes can be made in form and detail without departing from the spirit and scope of the invention. For example, the various parts such as stems, caps and containers may be constructed from any appropriate material. In lieu of correction fluid, our invention can be used in conjunction with other liquids such as liquid adhesives, ink and paint. Accordingly, all such changes come within our invention.

Claims

1. A correction fluid applicator comprising:

a grip (30), the grip (30) designed to be held by a user;
a sleeve (10) made from a flexible material; and
a stem (20) attached at a proximal end to the grip (30), and a distal end of the stem (20) adapted to slide into and be so fixed to the sleeve (10).

2. A correction fluid applicator according to claim 1 wherein there is a gap between an end surface of the stem (20) and an inner surface of the sleeve (10) facing the said end surface of the stem (20).

3. A correction fluid applicator according to claims 1 and 2 wherein the sleeve (10) is made from soft polyurethane foam.

4. A correction fluid applicator according to claims 1 and 2 wherein the sleeve (10) is made from soft polyester foam. preceding claims wherein the foam is able to absorb and store a quantity of corrective fluid for subsequent dispensation.
5. A correction fluid applicator according to claims 1 and 2 wherein the sleeve (10) is made from any one of polyether/polyurethane, polyester/polyurethane, or polyether foam. 5
6. A correction fluid applicator according to claims 1 and 2 wherein the sleeve (10) is made from a combination of any one of polyether/polyurethane, polyester/polyurethane, or polyether foam. 10
7. A correction fluid applicator according to any one of claims 3 through 6 wherein the foam is stable to organic solvents. 15
8. A correction fluid application system comprising: 20
 a container (40) with an opening, the container (40) able to store a quantity of fluid within;
 an applicator comprising a sleeve (10) made from a flexible material, and a stem (20) with an applicator tip (22) at a distal end of the stem (20), the applicator tip (22) adapted to slide into the sleeve (10); and 25
 a cap (30) fixed to a proximal end of the stem (20) such that when the cap (30) is placed over the said opening of the container (40), the stem (20) extends through said opening and substantially into the container (40). 30
9. A correction fluid application system according to claim 8, wherein the opening is located on the top of the container (40), and when the cap (30) is placed over the said opening, the sleeve (10) reaches close to the bottom of the container. 35
10. A correction fluid application system according to claim 8 wherein the cap (30) can be screwed onto an outer surface of the container (40), thus blocking the said opening and providing substantial watertightness within the container (40). 40
 45
11. A correction fluid applicator according to any of claims 8, 9 or 10 wherein the sleeve (10) is made from soft polyurethane foam.
12. A correction fluid applicator according to any of claims 8, 9 or 10 wherein the sleeve (10) is made from soft polyester foam. 50
13. A correction fluid applicator according to any of claims 8, 9 or 10 wherein the foam is stable to organic solvents. 55
14. A correction fluid applicator according to any of the

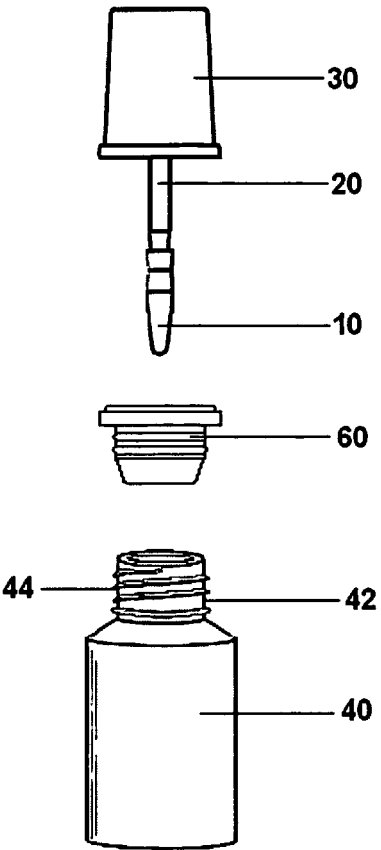


Figure 1

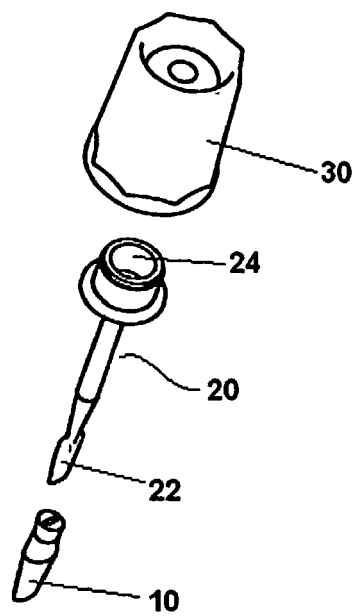


Figure 2

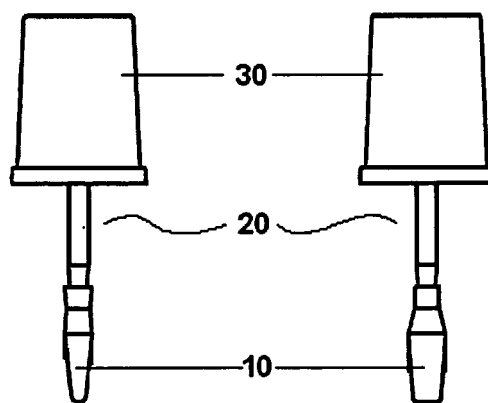


Figure 3a

Figure 3b

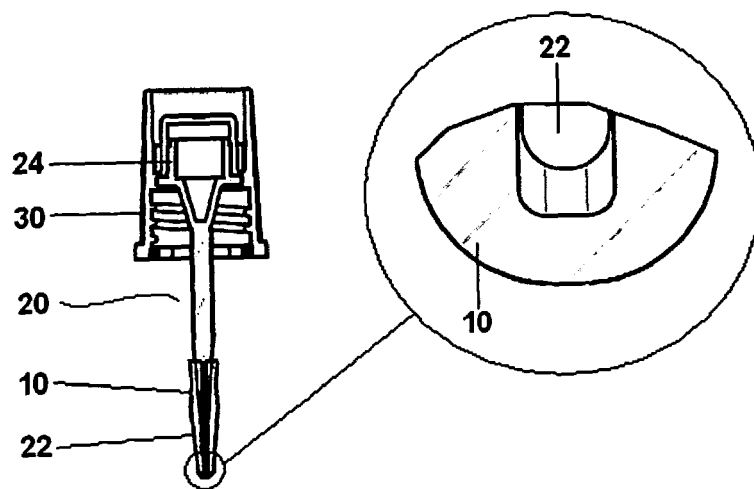


Figure 3c

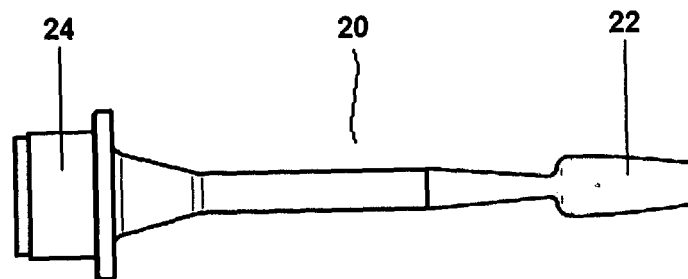


Figure 4a

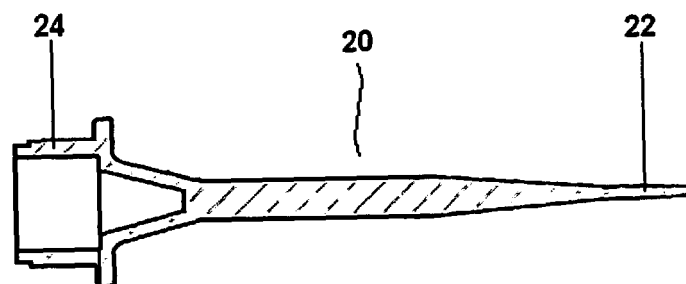


Figure 4b

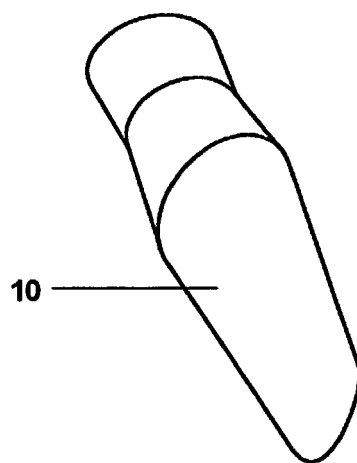


Figure 5a

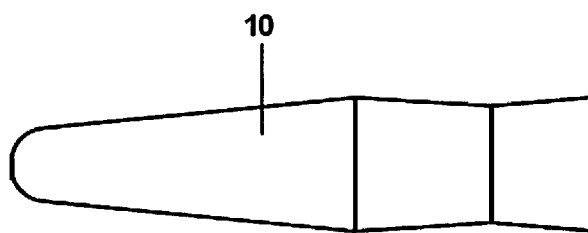


Figure 5b

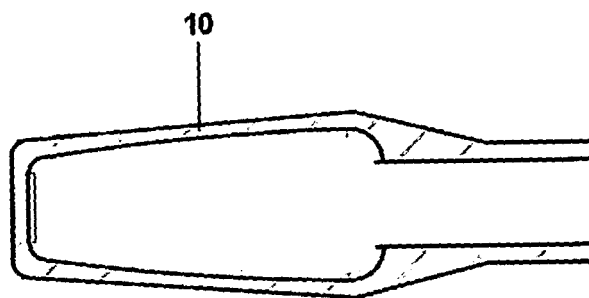


Figure 5c

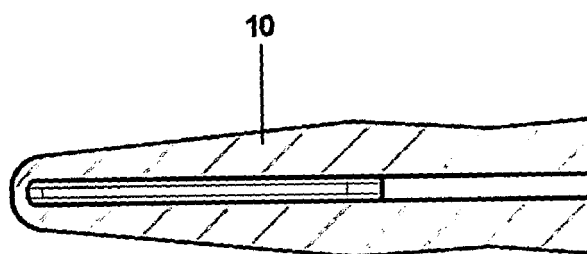


Figure 5d



EUROPEAN SEARCH REPORT

Application Number
EP 09 25 0507

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 97/21554 A (GILLETTE CO [US]; LIGHTFOOT MARK ROGER [GB]) 19 June 1997 (1997-06-19) * page 4, line 3 - page 7, line 5; figures *	1,8	INV. B43L19/00
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			TECHNICAL FIELDS SEARCHED (IPC)
			B43L B42D B43M
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 25 June 2009	Examiner Louvion, Bernard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 25 0507

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25-06-2009

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