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(11)

**EP 1 336 349 A1**

(12)

## EUROPEAN PATENT APPLICATION

(43) Date of publication:  
**20.08.2003 Bulletin 2003/34**

(51) Int Cl.7: **A44B 19/26**

(21) Application number: **02251090.3**

(22) Date of filing: **18.02.2002**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR**  
Designated Extension States:  
**AL LT LV MK RO SI**

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(54) **Accessory item such as a zip fastener**

(57) An accessory item, such as a zip fastener pull tab 10 includes a sensorily distinctive layer 13 adapted to differentiate the pull tab from its surroundings. The

layer preferably consists of a UV curable resin including an additive such as glitter powder, a phosphorescent compound, thermochromic dye or a fragrance.

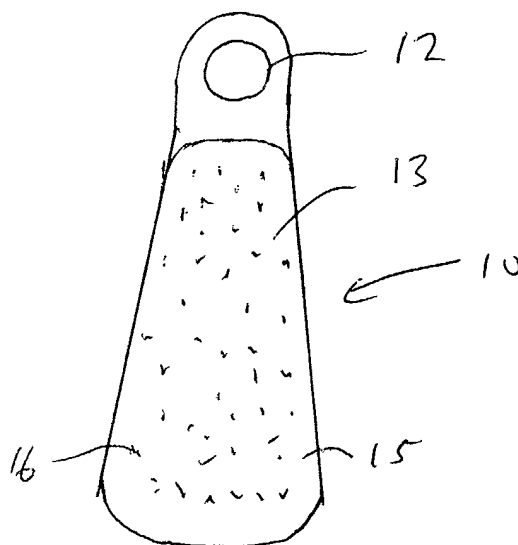


FIGURE 1

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## Description

**[0001]** The present invention relates to accessory items for apparel, baggage and the like, and particularly to fastener pull tabs. More particularly the present invention relates to zip fastener pull tabs with a sensorily distinctive layer applied thereto and a method of transforming a zip fastener pull tab into a sensorily distinctive zip fastener component.

**[0002]** A zip fastener is typically constructed from a slider body that is adapted to move along a row of teeth in order to open or close the fastener. A pull tab is typically attached to the slider to allow a person to open and close the fastener as required.

**[0003]** The pull tabs and slider bodies for fasteners are typically manufactured out of metals or plastics. These pull tabs and slider bodies come in various colours and shapes, particularly to suit the material to which such fasteners are typically applied. While this is useful for matching fasteners to clothing and the like, it does make such pull tabs difficult to differentiate from the apparel item to which it is attached, which can inhibit the ability to manipulate the pull tab and operate the zip fastener.

**[0004]** Further, while it is currently popular to design pull tabs that are thin and streamlined this usually adds to the difficulties in manipulation, as the pull tab is hard to locate and provides minimal leverage.

**[0005]** It is an aim of this invention to overcome or alleviate at least one problem of the prior art.

**[0006]** It is another aim of this invention to provide a fastener that has an improved ability to differentiate itself from the article to which it is applied.

**[0007]** In a first aspect of the invention there is provided a method of forming a sensorily distinctive layer on a surface of an accessory for apparel, bags, or the like, including the steps of: applying a mixture of a resin and at least one sensorily distinctive additive to the accessory surface and curing the mixture to form a hard surface.

**[0008]** In another aspect of the invention there is provided a fastener comprising a slider body with a pull tab, characterised in that the pull tab comprises a resin including at least one additive adapted to differentiate the pull tab. Preferably the additive is at least one of glitter powder, a phosphorescent compound, a thermochromic dye or a fragrance.

**[0009]** The inclusion of the additive such as glitter powder, a phosphorescent compound or thermochromic dye in the resin allows the pull tab to be visually distinctive and hence more readily discernible from its surroundings. Further, the combination of the resin applied to the pull tab surface provides a larger and more prominent pull tab that is easier to identify and manipulate than standard pull tabs.

**[0010]** The use of resin in the formulation enables a strong bond to be formed with the surface of the slider pull tab. In this regard, the present invention is able to

be utilised in relation to existing slider pull tabs with enamelled surfaces, as the resin is also able to bond sufficiently with such a surface. Not all resins will form a strong enough bond with the substrate to withstand normal use, dry cleaning, etc. However suitable resins can be found by trial. Some UV cured resins have been found to be particularly suitable.

**[0011]** In another aspect of the invention, there is provided a fastener comprising a slider body with a pull tab, characterised in that the pull tab consists of a resin including an additive adapted to differentiate the pull tab.

**[0012]** The present invention will now be described with reference to the following nonlimiting preferred embodiments in which:

Figure 1 shows a plan view of one form of zip fastener pull tab according to the present invention.

Figure 2 shows a side view of the zip fastener pull tab of Figure 1.

**[0013]** With reference to Figures 1 and 2, one form of zip pull tab 10 is illustrated. This pull tab has an elongate metal body 11 with a means for attachment 12 to a slider body, which in the illustrated example is an eye extending through one end of the body 11. It is to be appreciated that the pull tab need not be elongate and that other shapes are known.

**[0014]** According to one embodiment of the invention, at least one distinctive additive, such as glitter powder, a phosphorescent substance, a thermochromic substance and/or a fragrance, is mixed with a resin. These additives may come in various forms, such as oils, inks, pastes and powders and the size of the powder particles may also differ. The form may affect the resin/additive mixture viscosity, so adjustments in regard to proportions may have to be made accordingly.

**[0015]** The glitter component may be a standard commercially available glitter powder. A suitable thermochromic additive is an ink such as Dynacolor™ screen printing textile ink available from Chromatic Technologies USA. Similarly, Luminova™ phosphorescent powders available from Nemoto & Co in Japan are suitable, as well as pure aromatherapy natural lavender oil as a fragrance.

**[0016]** The ratio of the components depends upon the final viscosity required. Where glitter powder is used, it has been found that a good effect is obtained from a mixture of 25% glitter to 75% resin. Both aluminium and polyester glitter powders give similar results. The glitter powder may be of any colour. Preferably a clear resin is used, although one with a taint or a coloured one is within the scope of the invention. The size of the glitter particles may affect the appearance of the product, and a size of 0.008 to 0.015 is preferred.

**[0017]** Preferably a UV curable resin is used as when fully cured it provides a strong bond with a hard durable surface on the pull tab. A UV resin that provides good

results is one formulated by Threebond UK Limited, code TB 30F-306 and is based on acrylate di-isobornyle and methacrylate. Other suitable resins formulated by the same manufacturer are TB 3052C and TB 3075. The viscosity of such resins without additive is typically 8000 mPas.

**[0018]** Two part polyurethane resins may also be used, however they have long curing times, in the order of 12 to 15 hours. Having such a long cure time means that it is difficult to maintain the resin in a particular shape. Therefore two part polyurethane resins should only be used for coating flat pull tabs.

**[0019]** UV curable resins, on the other hand, are curable very quickly, with curing times of less than one minute possible, depending upon the thickness and extent of the coating area. This allows the resin to be applied and an even surface created before being cured quickly to prevent the resin collecting at one end of the pull tab. Fast curing also means that it is possible to coat non-flat pull tab surfaces. UV resins are therefore more adaptable than UV curable resins.

**[0020]** A further advantage of using UV curable resin is that it can be stored "ready for use" for up to twelve months when stored correctly, such as in UV storage containers and away from direct heat. This is to be compared with standard resins, which come in two parts and have to be mixed before use and then used within twelve to twenty four hours of being mixed. This leads to waste and possible inconsistency in the mixture.

**[0021]** Before applying the resin/glitter mixture to the pull tab, the mixture should be stirred to allow an even spread of glitter throughout the resin, as without continuous agitation the glitter has a tendency to settle. It is also preferable that the surface of the pull tab is clean, dry and free of any chemical coating or lubricant. The surface should have a degree of roughness in order to provide a grippable surface for retaining the resin layer. In this regard, enamelled or electroplated pull tabs may be used. Such pull tabs have sprayed surfaces which exhibit a "micro key" which is the microscopic peaks and troughs on the surface of the sprayed pull tabs. To the naked eye, however, the surface appears smooth. Preferably the resin is of a low enough viscosity and has sufficiently small particles, when present, so that the mixture will fit and flow into these microscopic ridges.

**[0022]** The resin may be applied to the pull tab by dropping a quantity on the pull tab and letting the resin "float" out evenly to the edges of the pull tab. Alternatively, the resin may be applied by sweeping the resin mixture across the surface. This approach may be performed by hand using a brush or via an automated procedure. Provided the quantity of the resin mixture applied to the surface is not excessive, the resin will be held at the edges by surface tension. However, if the pull tab has sharp corners, the resin is unlikely to "float" to fill these, so intervention will be required to drag the resin into the corners. This may be done by hand using a pointed rod or via an automated procedure. The pull

tab may be canted over so that resin accumulates towards one end, forming a thicker region.

**[0023]** A lip on the pull tab may be used to prevent migration of the resins, particularly where the resin used has a slow curing rate. However, in general when fast curing resins are used, such as UV curable resins, a lip is not required.

**[0024]** Figures 1 and 2 illustrate the glitter resin mixture 13 applied to the surface of the pull tab. The mixture has a continuous phase 15 of UV curable resin and dispersed particles of glitter 16. Once the mixture has been applied to the pull tab, it is then passed under a high intensity UV lamp which emits UV light in one or more of the bands UVA, UVB, UVC and UVV. For example, high pressure mercury lamps or metal Hi-lamps emitting UV radiation at the appropriate wavelength may be used. The power used and the curing time depends upon the thickness of the UV resin coating. As a guide, however, the resin will fully cure in 30-35 seconds when exposed to 100 mW per cm<sup>2</sup> at a UVA/UVB wavelength of 300-400nm. Over-curing can lead to brittleness and a weakening of the bond to the pull tab. Conversely under-curing leads to poor adhesion and poor surface finish.

**[0025]** The resultant zip fastener pull tab therefore has a hard resin surface layer which not only provides an aesthetically pleasing result, but a functional advantage by virtue of the pull tab's distinctiveness.

**[0026]** With a liquid or paste additive, the additive may be dispersed substantially continuously throughout the resin phase.

**[0027]** Multiple curing can be achieved by passing a batch of several sliders through a UV light tunnel or chamber which has an equal and even light intensity across the surface of each of the pull tabs. Reflective sides may be placed around the UV source to reflect the light into potential shadow areas.

**[0028]** Variations and additions are possible within the general inventive concept as will be apparent to those skilled in the art.

**[0029]** It will be appreciated that the broad inventive concept of the present invention may be applied to any conventional type of pull tab or other accessory and that the exact embodiment shown is intended to be merely illustrative and not limitative. For example, instead of applying the resin mixture to an existing pull tab, the resin mixture may be moulded in the form of a pull tab and cured. A mould to which the resin does not bond should be used, such as a PTFE mould.

**[0030]** The invention could also be applied to other items, and is particularly suited to apparel items, including buckles, clasps, hooks, etc for garments, bags and the like, having surfaces for application of the resin mixture.

## Claims

1. A method of forming a sensorily distinctive layer on a surface of a pull tab for a zip fastener slider, including the steps of:
 

applying a mixture of a resin and at least one sensorily distinctive additive to the surface;

curing the mixture.
2. The method of claim 1 wherein the resin is a UV curable resin.
3. An accessory for an item of apparel, a bag, or the like, having a surface **characterised in that** the surface includes a layer with a sensorily distinctive additive.
4. The apparel accessory of claim 3 wherein the accessory is a zip fastener comprising a slider body with a pull tab, **characterised in that** it is the surface of the pull tab that includes the layer which is adapted to differentiate the pull tab from its surroundings.
5. The zip fastener of claim 3 or 4 wherein the layer is a UV resin and the additive includes at least one of glitter powder, a phosphorescent compound, thermochromic dye or a fragrance.
6. A zip fastener comprising a slider body with a pull tab, **characterised in that** the pull tab comprises a resin including at least one additive adapted to differentiate the pull tab.
7. A zip fastener comprising a slider body with a pull tab, **characterised in that** the pull tab consists of a resin including an additive adapted to differentiate the pull tab.
8. The zip fastener of claim 6 or 7 wherein the resin is a UV cured resin and the additive includes at least one of glitter powder, a phosphorescent compound, thermochromic dye or a fragrance.
9. An apparel accessory item such as a zip fastener comprising a slider body with a pull tab, **characterised in that** the surface of the pull tab includes a sensorily distinctive layer adapted to differentiate the pull tab from its surroundings. The layer preferably consists of a UV curable resin including an additive such as glitter powder, a phosphorescent compound, thermochromic dye or a fragrance.

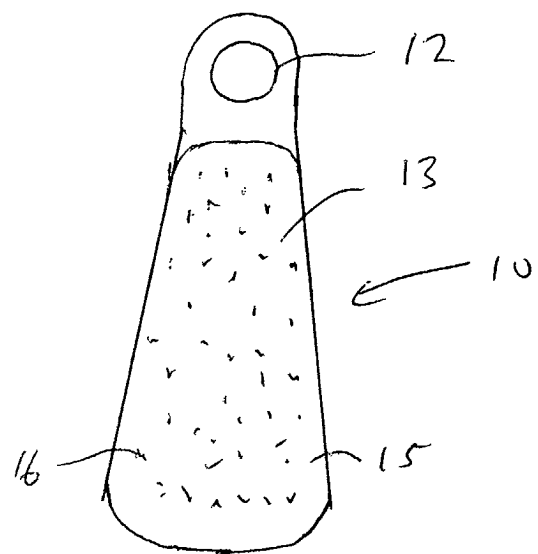


FIGURE 1

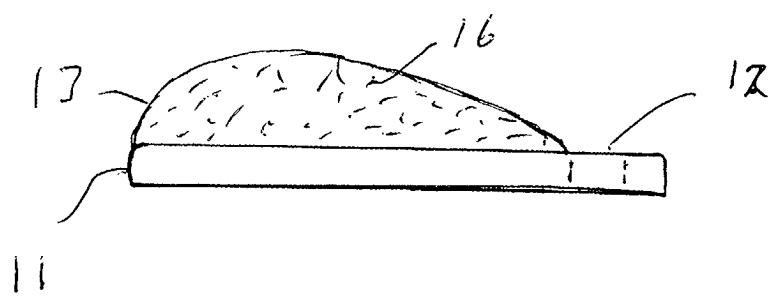


FIGURE 2



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# EUROPEAN SEARCH REPORT

Application Number  
EP 02 25 1090

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                    |                                  |                                              |
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| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/> Y : particularly relevant if combined with another document of the same category<br/> A : technological background<br/> O : non-written disclosure<br/> P : intermediate document</p> <p>T : theory or principle underlying the invention<br/> E : earlier patent document, but published on, or after the filing date<br/> D : document cited in the application<br/> L : document cited for other reasons<br/> &amp; : member of the same patent family, corresponding document</p> |                                                                                                                    |                                  |                                              |

EPO FORM 1503 03.82 (P04C01)

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