

Description

This invention relates to slide fasteners and particularly such a slide fastener which exhibits an ornamental effect.

Ornamentally attractive slide fasteners have hitherto been proposed for use on a variety of articles such as garments, shoes, bags and the like. Such slide fasteners feature coupling elements, a component part thereof, which are formed from either metals of various intrinsic colors, plated or otherwise chemically surface-treated, or plastics materials plated or colored with use of coloring agent.

While plating is popular for providing glossy metallic appearance on the slide fastener coupling elements, this process is intricate and rather costly.

DE-A-2 729 088 on which disclosure the preamble of independent claim 1 is based discloses a slide fastener comprising a pair of stringer tapes, rows of discrete coupling elements secured respectively to longitudinal inner edges of the stringer tapes and a slider reciprocally movable along the rows of coupling elements. A decorative coat is printed on an upper surface of the coupling element. For this purpose colour material present on the surface of paper is heated up and vaporized and thereby transferred to the coupling elements. This results in coating the upper surface of the coupling elements and eventually neighbouring regions, in particular the adjacent edge regions.

In US-A-1 902 416 it is described to apply a coating to all of the exterior surfaces of the coupling elements of a slide fastener. This may be based on the object to provide a smooth exterior for rounding out the relatively sharp exterior edges normally present on metal coupling elements. In particular, the coating also is to cover the front edge near the interlocking socket which is normally left sharp or rough.

US-A-3 340 121 is directed to applying decorative metallic coatings from a transfer sheet to a metal body. Apparently the metallic layer is provided with an adhesive layer. The metal body is not described in detail. However, it obviously has a certain stiffness, since the transferred layer is applied by using a pressing element with a resilient cushion for distributing force uniformly over the surfaces of the metal body contacted by the transfer sheet.

The present invention seeks to provide a slide fastener having ornamentally finished coupling elements which can be provided in a relatively simple and less costly manner and which have decorative surface layers immune to separation in sliding contact with a slider and at the same time being provided with a detachable coat.

As claimed, the slide fastener of the invention comprises a pair of stringer tapes, rows of discrete coupling elements secured respectively to longitudinal inner edges of the stringer tapes and a slider reciprocally movable along the rows of coupling elements. A decorative coat is deposited over an upper surface of the coupling elements and covers the upper surface of the coupling elements. According to the invention, each of the coupling elements has at one end a bulged coupling head portion, a barrel portion and a heel portion. The decorative coat extends over a flat horizontal barrel region and further the neighbouring edge surfaces thereof, the decorative coat extending at least partially beyond a corner region into a vertical rear end region of the heel portion, beyond a corner region into a vertical front end region of the coupling head portion, and further partially into opposite vertical side regions of the coupling element. The remaining surfaces of the vertical front region, of the vertical rear end region and of the opposite side regions are not covered by the coat.

According to the invention an important aspect thereof is that the coverage of the decorative coat ensures freedom of separation or detachment of the coat from the skin of the coupling element even when the fastener is repeatedly opened or closed by manipulation of the slider. This feature is realized by leaving the latter (i.e. vertical) portions of the coupling element apart from the corner regions. The portions left free may be the engagement recesses of the vertical front end region of the coupling head. Since the coating is not continuous, it can be easily taken off.

The above and other objects and features of the invention will appear clear from the following detailed description taken in conjunction with the accompanying drawings which illustrates by way of example a preferred embodiment which the invention may assume in practice.

Figure 1 is a fragmentary plan view of a slide fastener;

Figure 2 is a transverse cross-sectional view taken on the line II-II of Figure 1;

Figure 3 is a longitudinal cross-sectional view taken on the line III-III of Figure 1;

Figure 4 is a diagrammatic cross-sectional view schematically illustrating a heat transfer film employed in accordance with the invention;

Figure 5 is a diagrammatic cross-sectional view schematically illustrating an apparatus for applying the heat transfer film of Figure 4 to a row of discrete fastener coupling elements;

Figure 6 is a diagrammatic cross-sectional view illustrating how unwanted segments of the heat transfer film are separated and removed; and

Figure 7 is a transverse cross-sectional view of a fastener coupling element having both of its

surfaces deposited with a decorative layer.

Referring now to the drawings and Figure 1 in particular, there is shown a slide fastener 10 which comprises a pair of stringer tapes 11 and 12 carrying rows of discrete coupling elements E along their respective longitudinal beaded inner edges 13 and 14, a slider 15 reciprocally movable along the rows of elements E to couple or uncouple the latter so as to close or open the slide fastener 10 in a manner well known in the art. The coupling elements may be formed from a metallic or plastic material into individual units each having at one end a bulged coupling head portion E₁, a barrel portion E₂ and a heel portion E₃ at the opposite end. The barrel portion E₂ is utilized to mount the element E astride the beaded edge 13, (14) of the stringer tape 11, (12). The coupling head portion E₁ of one element E is engageable with corresponding head portions of two neighboring elements. The heel portions E₃ serve as guide rails along which the slider 15 is guidedly moved.

There is provided a decorative coat 16 deposited over an upper surface E₄ of each element E₁ as shown in Figures 2 and 3, which coat is formed from a composite heat transfer film 17 comprising a cover layer 18 such as of polyester, a releasing layer 19, a protective layer 20 such as of lacquer, a depositing metal layer 21 and heat-sensitive adhesive layer 22 superimposed one on another in this order as shown in Figure 4.

According to an important aspect of the invention, the decorative coat 16 when deposited on the upper surface E₄ of the coupling element E extends over a flat horizontal barrel region E₅ beyond a corner region E₆ into a vertical front end region E₇ of the coupling head E₁ and beyond a corner region E₈ into a vertical rear end region E₉ of the heel E₃ as shown in Figure 2. The decorative coat 16 further extends partially into opposite vertical side regions E₁₀ of the coupling element E as shown in the longitudinal cross-section of Figure 3. This coverage of the decorative coat 16 ensures freedom of separation or detachment of the coat 16 from the skin of the coupling element E even when the fastener 10 is repeatedly opened or closed by manipulation of the slider 15.

If desired, the decorative coat 16 may be applied in a similar manner to both upper surface E₄ and lower surface E₁₁ of the coupling element E as shown in Figure 7 in which instance there may be used a decorative coat 16 of one color for the upper surface E₄ and a decorative coat 16 of another color for the lower surface E₁₁ of the coupling element E so that the resulting slide fastener may be applied desirably for example to a reversibly designed garment.

Figure 5 schematically illustrates an apparatus comprising a heating roller 23 peripherally lined

with silicone resin 24 and a guide roller 25. A chain of stringer tape 11, (12) carrying a row of elements E with the composite heat transfer film 17 laid thereover is fed into the nip between the two rollers 23 and 25 and subjected to heat and pressure such that the adhesive layer 22 melt into and merge with the layers 20 and 21, in which instance the silicone lining 24 of the heating roller 23 deforms on contact with the coupling elements E via the film 17 and urges the film 17 to move toward and cover the peripheral regions E₇, E₉ and E₁₀ of each individual coupling element E. Upon cooling, the cover layer 18 is peeled together with the releasing layer 19 from the decorative coat 16 which has been deposited on the coupling elements E.

While the row of coupling elements E may be treated on a flat surface by the flexible heating roller 23, it is preferable to use an arcuate surface roller such as one shown in Figure 5 which makes it possible to widen the gap between adjacent elements E thereby facilitating deposition of the composite film 17 over the intended peripheral regions E₇, E₉ and E₁₀ of the coupling elements E and thereby allowing progressive application of pressure to successive elements E so as to prevent rupture of the decorative coat 16 which would otherwise develop if pressure was applied simultaneously over flatly arranged elements E.

Claims

1. A slide fastener (10) comprising a pair of stringer tapes (11, 12), rows of discrete coupling elements (E) secured respectively to longitudinal inner edges (13, 14) of the stringer tapes (11, 12) and a slider (15) reciprocally movable along the rows of coupling elements (E), wherein a decorative coat (16) is deposited over an upper surface (E₄) of the coupling element (E), and covers the upper surface of the coupling elements, characterised in that each of the coupling elements (E) having at one end a bulged coupling head portion (E₁), a barrel portion (E₂) and a heel portion (E₃), and the decorative coat (16) extends over a flat horizontal barrel region (E₅) further the neighbouring edge surfaces thereof, the decorative coat (16) extending beyond a corner region (E₆) into a vertical rear end region (E₉) of the heel portion (E₃), beyond a corner region (E₈) into a vertical front end region (E₇) of the coupling head portion (E₁), and further partially into opposite vertical side regions (E₁₀) of the coupling element (E), wherein the remaining surfaces of the vertical front region (E₇), of the vertical rear end region (E₉) and of the opposite side regions (E₁₀) are not covered by the coat.



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2. A slide fastener (10) according to claim 1, characterised in that the decorative coat (16) is derived from a composite heat transfer film (17) comprising a cover layer (18), a releasing layer (19), a protective layer (20), a depositing metal layer (21), and heat-sensitive adhesive layer (22) superimposed one another in this order.

Patentansprüche

1. Reißverschluß (10), umfassend zwei Tragbänder (11, 12), Reihen aus einzelnen Kuppelgliedern (E), die an den inneren Längsrändern (13, 14) der Tragbänder (11, 12) befestigt sind, und einen entlang der Reihen von Kuppelgliedern (E) hin- und herbewegbaren Schieber (15), wobei eine dekorative Beschichtung (16) auf eine Oberseite (E₄) des Kuppelglieds (E) aufgebracht ist und die Oberseite der Kuppelglieder bedeckt, dadurch gekennzeichnet, daß jedes Kuppelglied (E) an einem Ende einen ausgebauchten Kupplungskopf (E₁), einen Walzenbereich (E₂) und einen Hackenbereich (E₃) hat und daß sich die dekorative Beschichtung (16) über einen ebenen horizontalen Walzenabschnitt (E₅) weiter zu den benachbarten Randflächen desselben erstreckt, wobei sich die dekorative Beschichtung (16) über einen Eckenabschnitt (E₈) in einen vertikalen hinteren Endabschnitt (E₉) des Hackenbereichs (E₃), über einen Eckenabschnitt (E₈) in einen vertikalen vorderen Endabschnitt (E₇) des Kupplungskopfes (E₁) und ferner teilweise in gegenüberliegende vertikale Seitenabschnitte (E₁₀) des Kuppelglieds (E) erstreckt, wobei die verbleibenden Oberflächen des vertikalen vorderen Endabschnitts (E₇), des vertikalen hinteren Endabschnitts (E₉) und der gegenüberliegenden seitlichen Abschnitte (E₁₀) von der Beschichtung nicht bedeckt sind.
2. Reißverschluß (10) nach Anspruch 1, dadurch gekennzeichnet, daß die dekorative Beschichtung (16) von einer wärmeübertragbaren Verbundfolie (17) gebildet ist, umfassend eine Deckschicht (18), eine Ablöseschicht (19), eine Schutzschicht (20), eine metallische Aufbringschicht (21) und eine wärmeempfindliche Klebstoffschicht (22), die in dieser Reihenfolge übereinanderliegend angeordnet sind.

Revendications

1. Fermeture à glissière (10) comprenant une paire de rubans (11, 12) de bandes d'accrochage, des rangées d'éléments d'accouplement discrets (E) fixées respectivement aux bords inté-

rieurs longitudinaux (13, 14) des rubans (11, 12) de bandes d'accrochage et un curseur (15) pouvant être déplacé en va-et-vient le long des rangées des éléments d'accouplement (E), un revêtement décoratif (16) étant déposé sur la surface supérieure (E₄) de l'élément d'accouplement (E) et recouvrant cette surface supérieure des éléments d'accouplement, caractérisée en ce que chacun des éléments d'accouplement (E) comporte, à une de ses extrémités, une partie tête d'accouplement protubérante (E₁), une partie corps (E₂) et une partie talon (E₃), et le revêtement décoratif (16) s'étend sur une région horizontale plate (E₅) de la partie corps et, en outre, sur les surfaces marginales voisines de cette région, le revêtement décoratif (16) s'étendant au-delà d'une région d'angle (E₈) jusque dans une région d'extrémité arrière verticale (E₉) de la partie talon (E₃), au-delà d'une région d'angle (E₈), jusque dans une région d'extrémité avant verticale (E₇) de la partie tête d'accouplement (E₁), et, en outre, partiellement jusque dans des régions latérales verticales opposées (E₁₀) de l'élément d'accouplement (E), les surfaces restantes de la région avant verticale (E₇), de la région d'extrémité arrière verticale (E₉) et des régions latérales opposées (E₁₀) n'étant pas recouvertes par le revêtement.

2. Fermeture à glissière (10) selon la revendication 1, caractérisée en ce que le revêtement décoratif (16) est formé d'un film composite (17) de transfert de chaleur comprenant une couche de recouvrement (18), une couche de détachement (19), une couche protectrice (20), une couche de métal de dépôt (21), et une couche adhésive (22) sensible à la chaleur, ces couches étant superposées dans cet ordre.