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(54) Top end stop for concealed slide fastener
Oberer Endanschlag für verdeckten Reissverschluss
Butée d'arrêt supérieure pour fermeture à curseur cachée

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(73) Proprietor: YKK CORPORATION
Chiyoda-ku, Tokyo (JP)

(72) Inventors:
• Kondo, Naoki
Kurobe-shi, Toyama-ken (JP)

• Fujisaki, Yoshinori
Kurobe-shi, Toyama-ken (JP)

(74) Representative:
Patentanwälte
Leinweber & Zimmermann
Rosental 7
80331 München (DE)

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EP-A- 0 237 068
DE-A- 2 305 058
US-A- 3 818 575
US-A- 3 972 095

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The present invention relates to a concealed slide fastener having the inner edges of the fastener tapes folded rearwards, thereby defining on the rear surface of the fastener tapes a fold line and a row of fastener elements attached to the rearwardly folded portion and comprising a top end stop formed by fusing synthetic resin onto said folded portion.

A concealed slide fastener of this type is disclosed in US-A-3 818 575 forming the basis for the preamble of the appending claim 1. In this conventional concealed slide fastener, the top end stop is fused onto only one side of the fastener tape. This means that after long periods of use, there is a strong possibility that it will fall away from the fastener tape. Also, since the top end stop and the fastener tape are parallel with each other, it is very difficult to insert such concealed slide fastener into the sewing machine foot guide.

With the foregoing problems in view, an object of this invention is to provide a top end stop for a concealed slide fastener which does not come away from the fastener tape even after long periods of use, and which can be easily inserted into the sewing machine foot guide so that the sewing efficiency can be increased. Also, the top end stop will come into contact with the slider guide flange in response to the opening and closing operation of the slider, and thus serves to put the remaining edge portion of the fastener tape inwardly for compensation so that the concealed slide fastener can appear attractive when viewed from the outside.

According to the invention, a concealed slide fastener as defined above and which satisfies these requirements is characterized in that said top end stop is formed by wrapping a U-shaped piece of synthetic resin around said folded portion and fusing said U-shaped piece, wherein said U-shaped piece is fused at its open ends through the folded portion, such fused-through portion being shifted from said fold line towards the centre-line of the fastener, and said folded portion with said fused-through portion being positioned such that an end of the U-shaped piece opposite the fused-through portion is raised at an angle to the fastener tape.

By constructing the concealed slide fastener top end stop of this invention as described above, when the slider is slid along the fastener chain in the closing direction, its guide flange comes into contact with the side of the top end stop, i.e., the upper stopper. Moreover, the base side of the top end stop, i.e., the fused-through portion come into contact with the central guide column of the slider so that the slider is stopped. At this time both of the outside edges are applied with pressure in the closing direction and the folding-side of the top end stop is therefore urged into the slider and the remaining edge surface of the fastener tape can be used for compensation in the inner direction.

FIG. 1 is a fragmentary plan view of a concealed slide fastener;
FIG. 2 is a rear view of the concealed slide fastener of FIG. 1;
FIG. 3 is a fragmentary rear view of the concealed slide fastener of FIG. 2, showing a slider in cross section;
FIG. 4 is a cross-sectional view taken along line II-1 of FIGS. 2 and 3;
FIG. 5 is a plan view of a top end stop of the concealed slide fastener;
FIG. 6 is a cross-sectional view taken along line II-2 of FIG. 5; and
FIG. 7 is a cross-sectional view showing the manner in which a sewing machine foot guide is used.

Detailed Description

The following is a detailed description, with reference to the accompanying drawings, of embodiments of a concealed slide fastener top end stop according to this invention.

In this concealed slide fastener, as shown in FIG. 3, the inner edge of each of confronting fastener tapes is folded around to form a fold 'l' to which, for example, fastener elements 2 in the form of coiled or zigzag-shape filaments are sewn. In the case of coiled fastener elements 2, core threads 3 are customarily sewn in between the fastener elements 2. A slider 4 is threaded onto this fastener chain as shown in FIGS. 1 and 2, in such a way that when the fastener chain is closed, the fastener chain elements 2 are not visible when viewed from the front side, as shown in FIG. 1.

This embodiment is for a top end stop 8 which will prevent a slider from being removed from a concealed slide fastener. The fold 'l' is formed along the inner edge of the fastener tape. A U-shaped piece 5 of thermoplastic synthetic resin such as polyamide is then wrapped around the inner edge of a part of the fold 'l' which is known as a space 6 free of any fastener elements 2 attached. In doing this, a leg portion 7 of a fastener element 2 and part of a connecting portion c are sandwiched between the U-shaped piece 5. The U-shaped piece 5 is then fused to the fastener tape 1 while it is in contact with this fastener tape 1, with the folding-side end portion of the U-shaped piece 5 projecting from the connecting portion c of the fastener element 2 to an extent A. Thus a top end stop 8 is formed as a slider stopper.

A fused-through portion 9 is formed when the opposed ends of the U-shaped stopper part 5, i.e. the ends which are fused to the fastener tape 1 next to the coupling heads h of the fastener elements 2, actually fuse through the fastener tape 1 and fuse with each other. The fused-through portion 9 is shifted inwardly by the portion B of the folded-in part 7 which is made in the fas-
tener tape 1 at the point in which the fastener element 2 is attached. The result of this is shown in FIG. 6 and is as follows. The fastener element 2 is installed parallel to the fastener tape 1. On the other hand, when the U-shaped piece 5 is installed, it is held at a fixed angle with respect to the fastener tape 1, and therefore ends up being installed at a fixed angle different from that of the fastener element 2 with respect to the fastener tape 1.

By using this kind of construction for the top end stop 8, as is shown in FIGS. 3 and 4, when the slider 4 is moved in the closing direction, the front ends of its guide flanges 10 will come into contact with the top end stops 8, and their corresponding fused-through portions 9 will come into contact with a central guide column 11 of the slider 4 and the sliding motion of the slider will come to a halt.

In FIGS. 3 and 4, reference numeral 12 designates an upper wing which joins onto the guide flange 10 of the slider 4, and the dash-and-two-dot line indicates the sewn portion where the fastener elements 2 are sewn with the core threads 3. Also, in FIG. 7, reference numeral 14 designates the sewing machine foot guide which is used while the concealed slide fastener is being sewn to items such as clothing; and 15 designates a guide channel into which the fastener element 2 is inserted so that the fold '1' in the fastener tape 1 is held up during the sewing process.

The adoption of the construction described above as the concealed slide fastener top end stop in this embodiment has the following results.

A U-shaped piece 5 is wrapped around an edge of a fastener tape 1 and is fused to this tape in such a manner that the open ends of the U-shaped piece 5 actually fuse through the fastener tape 1. The fused-through portion 9 is shifted within the portion B of the folded-in part 7 which is made in the fastener tape 1 at the portion in which the fastener element 2 is installed, so that it is at a fixed angle to the fastener element 2. So, for example, the fastener element 2 is parallel to the fastener tape 1 and the top end stop 8 is then formed at a fixed angle C to the fastener tape 1. In this case, there is no fear of the top end stop 8 coming away from the fastener tape 1 even after long periods of use. Also, the front end of the top end stop 8 is raised up due to it being at an angle C to the fastener tape 1 and the fastener element 2. The sewing efficiency can therefore be improved as the fastener element 2 can be inserted into the guide channel 15 in the sewing machine foot guide 14 much more easily during the sewing process.

An end of the fused U-shaped piece 5 is connected on a slant to the fastener element 2, with a projecting portion extending a distance A, thus forming a top end stop 8 which the guide flange 10 of the slider 4 comes into contact with. When the slider 4 is then closed, the remaining edge portion of the fastener tape 1 will be put inwardly for compensation, thus giving an attractive and neat finish to the openings in products which are made using this kind of concealed slide fasteners.

Claims

1. A concealed slide fastener having the inner edges of the fastener tapes (1) folded rearwards thereby defining on the rear surface of the fastener tapes a fold line (7) and a row of fastener elements (2) attached to the rearwardly folded portion, and comprising a top end stop (8) formed by fusing synthetic resin onto said folded portion, characterized in that said top end stop (8) is formed by wrapping a U-shaped piece (5) of synthetic resin around said folded portion (1) and fusing said U-shaped piece (5), wherein said U-shaped piece (5) is fused at its open ends through the folded portion (1), such fused-through portion (9) being shifted (B) from said fold line (7) towards the centre-line of the fastener, and said folded portion (1) with said fused-through portion (9) being positioned such that an end of the U-shaped piece (5) opposite the fused-through portion (9) is raised at an angle (C) to the fastener tape.

2. A concealed slide fastener top end stop according to claim 1, wherein said fused-through portion (9) of said U-shaped piece (5) is at an angle to the fastener tape (1) different from that of the fastener elements (2).

3. A concealed slide fastener top end stop according to claim 1, wherein the heel portion of said U-shaped piece (5) projects obliquely in the direction opposite to the centre-line of the fastener from connecting portions (c) of the fastener elements (2), said top end stop (8) being formed so as to be engageable with a guide flange (10) of a slider (4).

Patentansprüche

1. Verdeckter Reißverschluß, bei dem die Innenränder der Tragbänder (1) nach hinten umgealtet sind, wodurch auf der Rückseite der Tragbänder eine Faltlinie (7) bestimmt ist, wobei eine Reihe von Kuppelgliedern (2) an dem nach hinten umgealtetem Bereich befestigt ist, und umfassend ein oberes Begrenzungsteil (8), das durch Verschweißen eines Kunststoffs auf dem umgealtetem Bereich gebildet ist, dadurch gekennzeichnet, daß das obere Begrenzungsteil (8) durch Herumlegen eines U-förmigen Teils (5) aus Kunststoff um den umgealtetem Bereich (1) herum und durch Verschweißen des U-förmigen Teils gebildet ist, wobei das U-förmige Teil (5) an seinen offenen Enden durch den umgealtetem Bereich (1) hindurch verschweißt ist, so daß der durchgehend verschweißte Bereich (9) von der Faltlinie (7) zu der Mittellinie des Reißverschlusses hin verlagert (B) ist, und wobei der umgealtetem Bereich (1) mit dem durchgehend verschweißten Bereich (9) derart angeord-
net ist, daß das dem durchgehend verschweißten Bereich (9) gegenüberliegende Ende des U-förmigen Teils (5) gegenüber dem Tragband (1) einen von den Kuppelgliedern (2) abweichenden Winkel (C) angehoben ist.

2. Oberes Begrenzungsteil für einen verdeckten Reißverschluß nach Anspruch 1, wobei der durchgehend verschweißte Bereich (9) des U-förmigen Teils (5) zu dem Tragband (1) einen von den Kuppelgliedern (2) abweichenden Winkel einnimmt.

3. Oberes Begrenzungsteil für einen verdeckten Reißverschluß nach Anspruch 1, wobei der Fersenbereich des U-förmigen Teils (5) von Verbindungsbereichen (c) der Kuppelglieder (2) in einer der Mittellinie des Reißverschlusses gegenüberliegenden Richtung schiefwinklig vorspringt, wobei das obere Begrenzungsteil (8) so geformt ist, daß es mit einem Führungsflansch (10) eine Scheibers (4) in Eingriff gelangen kann.

Revendications

1. Fermeture à glissière invisible dont les bords intérieurs des rubans (1) sont pliés vers l’arrière en définissant ainsi sur la surface arrière des rubans de la fermeture à glissière une ligne de pliage (7) et dont une rangée d’éléments d’accouplement (2) est fixée à la partie pliée vers l’arrière, et comprenant une butée d’extrémité supérieure (8) formée par fusion d’une résine synthétique sur ladite partie pliée, caractérisée en ce que ladite butée d’extrémité supérieure (8) est formée par mise en place d’une pièce en U (5) de résine synthétique autour de ladite partie pliée (1) et par fusion de ladite pièce en U (5), ladite partie en U (5) étant reliée par fusion à ses extrémités ouvertes à travers la partie pliée (1°), cette partie (9) traversée par la résine fonduë étant déportée (8) par rapport à ladite ligne de pliage (7) en direction de l’axe de la fermeture à glissière, et ladite partie pliée (1°) avec ladite partie (9) traversée par la résine fonduë étant positionnée de telle sorte que l’extrémité de la pièce en forme de U (5) qui est située à l’opposé de la partie (9) traversée par la résine fonduë se trouve soulevée suivant un angle C par rapport au ruban de la fermeture à glissière.

2. Butée d’extrémité supérieure de fermeture à glissière invisible selon la revendication 1, dans laquelle ladite partie (9), traversée par la résine fonduë, de la pièce en U (5) forme avec le ruban (1) de la fermeture à glissière un angle différent de celui des éléments d’accouplement (2).

3. Butée d’extrémité supérieure de fermeture à glissière invisible selon la revendication 1, dans laquelle la partie talon de ladite pièce en U (5) fait
FIG. 2