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(72) Inventors:
• **PENG, Guifei**
Taizhou
Zhejiang 317025 (CN)
• **HUANG, Yishu**
Taizhou
Zhejiang 317025 (CN)

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(74) Representative: **Studio Torta S.p.A.**
Via Viotti, 9
10121 Torino (IT)

(71) Applicant: **Zhejiang Weixing Industrial Development Co., Ltd.**
Taizhou, Zhejiang 317025 (CN)

(54) **CLOTHING AND ZIPPER THEREOF**

(57) A zipper for clothes, comprising a slider (1) for engaging or disengaging zipper teeth. The slider (1) is provided with a through hole for a puller (4) to pass through; the puller (4) passes through the through hole and can rotate clockwise or counterclockwise with the slider (1) as an axis; the puller (4) is provided with a limiting portion (3) for preventing the puller from swaying left and right. The zipper can keep the puller stable on both left and right sides when the slider is hardly pulled upward or downward by the hand, thereby achieving a stable process of engaging and disengaging the zipper teeth and ensuring convenience in wearing clothes.

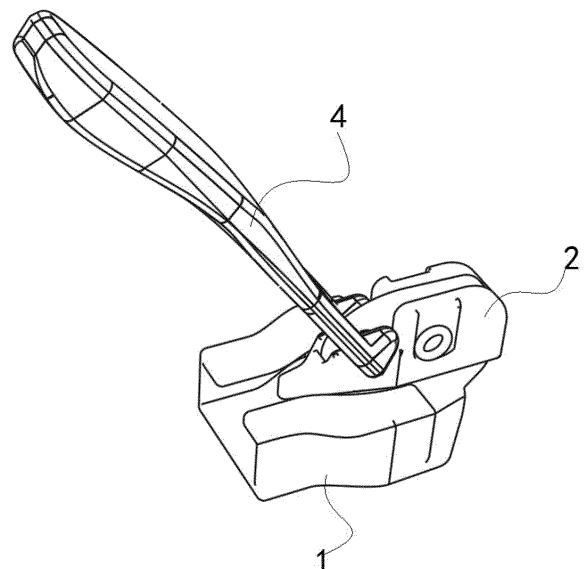


Figure 1

Description

[0001] This application claims the priority to Chinese patent application No. 201621269524.1, titled "GARMENT AND ZIPPER THEREOF", filed with the China National Intellectual Property Administration on November 23, 2016, which is incorporated herein by reference in its entirety.

FIELD

[0002] The present application relates to the field of garments, and in particular to a zipper for garments. The present application further relates to a garment having the zipper.

BACKGROUND

[0003] With the development of economy and scientific technology of human society, the zipper has developed, after a long evolution, from the initially metal material to the non-metal material, from single model and single function to multi models and comprehensive functions, from simple construction to today's delicate, beautiful and colorful construction. Its performance, structure and material are changing with each passing day, and it is widely used in various fields such as aerospace, aviation, military and medical fields and civil use. A little zipper plays an increasingly important role in people's lives, and increasingly shows its importance and vitality.

SUMMARY

[0004] An object of the present application is to provide a zipper which can prevent a puller from swaying left and right during a pulling process. Another object of the present application is to provide a garment having the zipper.

[0005] In order to achieve the above object, a zipper for garments is provided according to the present application. The zipper includes a zipper head base for engaging or disengaging zipper teeth; the zipper head base is provided with a through hole allowing a puller to pass through, and the puller passes through the through hole and is rotatable clockwise or counterclockwise by taking the zipper head base as an axis; and the puller is provided with a position-limiting portion for preventing the puller from swaying left and right. Compared with the above background art, the zipper provided by the present application utilizes the position-limiting portions on the puller to prevent the puller from swaying left and right relative to the zipper head base. Specifically, when it is required to hold the puller to engage or disengage the zipper teeth, the puller can generally rotate relative to the zipper head base to facilitate the hand to apply an upward or downward force. Position-limiting portions are further provided according to the present application, to prevent the puller from swaying left and right. A direction of rotation of the

puller relative to the zipper head base is defined as a first direction, a sway direction of the puller is defined as a second direction, and obviously the second direction is perpendicular to the first direction. With such an arrangement, in a case that the puller is pulled upward or downward by the hand, the left and right sides of the puller are steady, and the process of engaging or disengaging the zipper teeth is steady, ensuring the convenience of dressing. Preferably, the through hole is arranged on an elastic member located on the zipper head base.

[0006] Preferably, the elastic member is provided with a friction surface configured to be in sliding frictional contact with the position-limiting portion.

[0007] Preferably, the puller is provided with an end hole for nesting with the through hole, and the through hole is arranged perpendicular to the end hole.

[0008] Preferably, two of the position-limiting portions are symmetrically arranged at two sides of the through hole.

[0009] Preferably, the position-limiting portions are integrally formed with the puller.

[0010] Preferably, a hand holding portion is arranged at an end of the puller away from the through hole.

[0011] A garment is further provided according to the present application, and the garment includes the zipper described in any of the above aspects.

[0012] Preferably, the garment is a sportswear.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] For more clearly illustrating embodiments of the present application or technical solutions in the conventional technology, the drawing referred to describe the embodiments or the conventional technology will be briefly described hereinafter. Apparently, the drawings in the following description are only some examples of the present application, and for those skilled in the art, other drawings may be obtained based on the provided drawing without any creative efforts.

Figure 1 is a schematic view of a zipper in use according to an embodiment of the present application; Figure 2 is a schematic view of a puller shown in Figure 1; and

Figure 3 is a schematic view of the zipper in Figure 1 viewed from another angle.

DETAILED DESCRIPTION OF EMBODIMENTS

[0014] Technical solutions of embodiments of the present application will be clearly and completely described hereinafter in conjunction with the drawings of the embodiments according to the present application. Apparently, the embodiments described are only some embodiments of the present application, rather than all embodiments. Any other embodiments obtained by those skilled in the art and based on the embodiments of the present application without any creative work fall

in the scope of protection of the present application.

[0015] In order to allow the person skilled in the art to better understand solutions of the present application, the present application is described further in detail hereinafter in conjunction with the drawings and embodiments.

[0016] Referring to Figures 1 to 3, Figure 1 is a schematic view of a zipper in use according to an embodiment of the present application; Figure 2 is a schematic view of a puller shown in Figure 1; and Figure 3 is a schematic view of the zipper in Figure 1 viewed from another angle.

[0017] A zipper for garments is provided according to the present application. It is well known that, a zipper is a fastener generally including two tapes each having a row of metal or plastic teeth, and is used for connecting the edges of an opening (such as a garment or a pocket). The zipper has a slider which can pull the two rows of teeth into an interlocking position, to seal the opening. The above metal teeth or plastic teeth are zipper teeth, and a zipper head base is pulled upward or downward relative to the zipper teeth to realize the engagement or disengagement of the zipper teeth. The puller is connected to the zipper head base and is to be held by people by hand to be pulled upward or downward, thereby realizing the engagement and disengagement of the zipper teeth.

[0018] As can be seen from Figure 1 and Figure 2 of the specification, the zipper head base 1 is provided with a through hole, and the through hole is arranged for the puller 4 to pass through, so that the puller 4 can rotate relative to the zipper head base 1. The rotation direction is defined as a first direction in the present application.

[0019] When dressing, people normally hold the puller 4 and pull the puller 4 upward along the length direction of the body, to achieve the engagement of the zipper teeth. The puller 4 includes a first end and a second end, the first end cooperates with the through hole of the zipper head base 1 to realize rotation, and the second end is away from the through hole. Before being pulled upward along the length direction of the body, the second end of the puller 4, under the action of gravity, tends to face downward and is below the zipper head base 1. Thus, it is required to hold the second end by hand to rotate the puller 4 relative to the zipper head base 1, to ensure that the second end is above the zipper head base 1, such that the puller 4 can be pulled upward, thereby achieving the engagement of the zipper teeth.

[0020] In the above process, the rotation direction in which the second end is rotated from a position below the zipper head base 1 to a position above the zipper head base 1 is defined as the first direction.

[0021] During the rotation of the second end, since generally there is a certain gap between the second end and the through hole of the zipper head base 1, the puller 4 sways left and right relative to the zipper head base 1 during the rotation in the first direction. The swaying direction is defined as a second direction in the present application. Apparently, the second direction is perpen-

dicular to the first direction.

[0022] A position-limiting portion is arranged on the puller 4 according to the present application, and the position-limiting portion and the through hole of the zipper head base 1 form a hinge-like form, thereby preventing the puller 4 from swaying in the second direction. Therefore, the left and right sides of the puller are steady when the puller is pulled upward or downward by hand, achieving a steady process of engaging or disengaging the zipper teeth and ensuring the convenience of dressing.

[0023] The position-limiting portion may be embodied as a protrusion 3 shown in Figures 1 and 2 of the specification. The through hole of the zipper head base 1 is arranged in an elastic member 2, and the elastic member 2 is located above the zipper head base 1, as shown in Figure 1 of the specification. The elastic member 2 and the zipper head base 1 can be integrally formed, and both are preferably metal parts to ensure the service life of the zipper.

[0024] As shown in Figure 1 of the specification, the elastic member 2 is provided with a vertical portion having a certain thickness in the horizontal direction as shown in Figure 1 of the specification. The through hole passes through the vertical portion in the horizontal direction, two sides of the through hole in the thickness direction thereof are respectively provided with two protrusions 3, and inner side walls of the two protrusions 3 are in sliding frictional contact with the two sides of the vertical portion in the thickness direction thereof. In the process of rotating the puller 4 in the first direction, the two protrusions 3 are always in contact with two sides of the vertical portion in its thickness direction, thereby ensuring that the left and right sides of the puller are stable, achieving the steady process of engaging or disengaging the zipper teeth, and ensuring the convenience of dressing.

[0025] The first end of the puller 4 may be provided with an end hole 5, as shown in Figure 2 of the specification. The end hole 5 and the through hole are nested with each other, and the through hole is arranged perpendicular to the end hole 5, as shown in Figure 3 of the specification. It can be seen that the mutually perpendicular end hole 5 and through hole can achieve the above technical effects.

[0026] As shown in Figure 3 of the specification, a width of the end hole 5 is greater than or equal to the thickness of the through hole, so that the puller 4 can rotate relative to the elastic member 2 in the first direction; and when the width of the end hole 5 is equal to the thickness of the through hole, the angle of rotation of the puller 4 relative to the elastic member 2 in the second direction can be further reduced, and combining the action of the protrusions 3, the phenomenon of swaying can be further avoided.

[0027] Two protrusions 3 may be symmetrically arranged at two sides of the through hole, that is, the two position-limiting portions 5 are symmetrically arranged at two sides of the end hole 5. The protrusions 3 and the puller 4 can be integrally formed.

[0028] The second end of the puller 4 may be provided with a hand holding portion, that is, a hand holding portion to be held by hand is arranged at the end away from the through hole, which achieves the purpose of conveniently pulling the puller 4 upward or downward. The hand holding portion may be embodied as a corrugated uneven portion for increasing the friction between the puller 4 and the hand, thereby improving the success rate of holding the puller 4.

[0029] A garment having a zipper provided by the present application includes the zipper described in the above specific embodiments, and other parts of the garment can refer to the conventional technology, and are not described herein. The above garment may be a sportswear, an outdoor wear or other types of garment.

[0030] It should be noted that, relationship terms herein such as first and second are merely used to distinguish an entity from other entities and do not require or imply that there are any such actual relationships or sequences between these entities.

[0031] The garment and the zipper thereof according to the present application are described in detail hereinbefore. The principle and the embodiments of the present application are illustrated herein by specific examples. The above description of examples is only intended to help the understanding of the method and spirit of the present application. It should be noted that, for those skilled in the art, several modifications and improvements may be made to the present application without departing from the principle of the present application, and these modifications and improvements are also deemed to fall into the scope of protection of the present application defined by the claims.

Claims

1. A zipper for garments, comprising a zipper head base for engaging or disengaging zipper teeth; wherein, the zipper head base is provided with a through hole allowing a puller to pass through, and the puller passes through the through hole and is rotatable clockwise or counterclockwise by taking the zipper head base as an axis; and the puller is provided with a position-limiting portion for preventing the puller from swaying left and right.
2. The zipper according to claim 1, wherein the through hole is arranged on an elastic member located on the zipper head base.
3. The zipper according to claim 2, wherein the elastic member is provided with a friction surface configured to be in sliding frictional contact with the position-limiting portion.
4. The zipper according to claim 1, wherein the puller is provided with an end hole for nesting with the

through hole, and the through hole is arranged perpendicular to the end hole.

5. The zipper according to any one of claims 1 to 4, wherein two of the position-limiting portions are symmetrically arranged at two sides of the through hole.
6. The zipper according to claim 5, wherein the position-limiting portions are integrally formed with the puller.
7. The zipper according to claim 5, wherein a hand holding portion is arranged at an end of the puller away from the through hole.
8. A garment, comprising the zipper according to any one of claims 1 to 7.
9. The garment according to claim 8, wherein the garment is a sportswear.

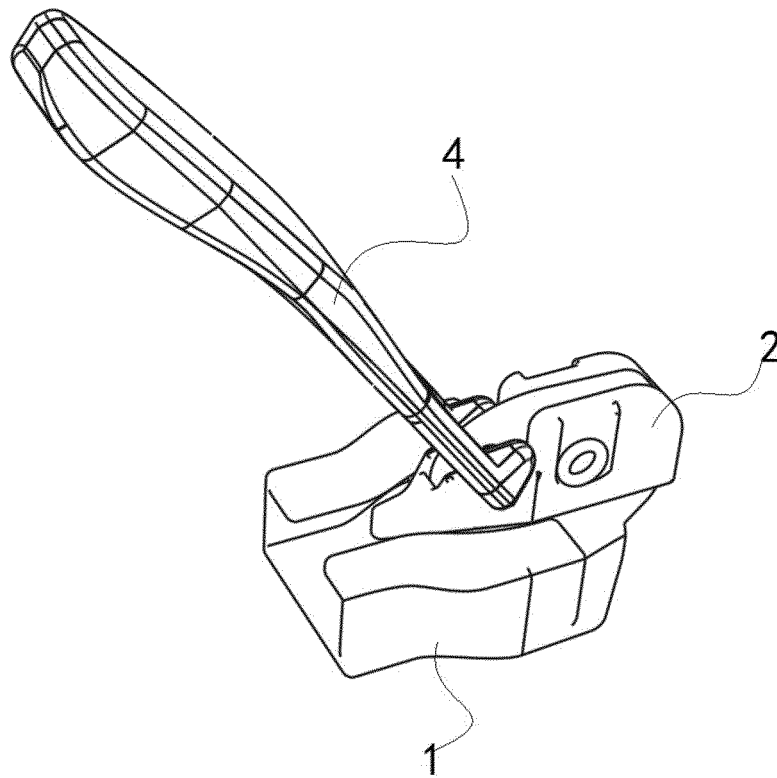


Figure 1

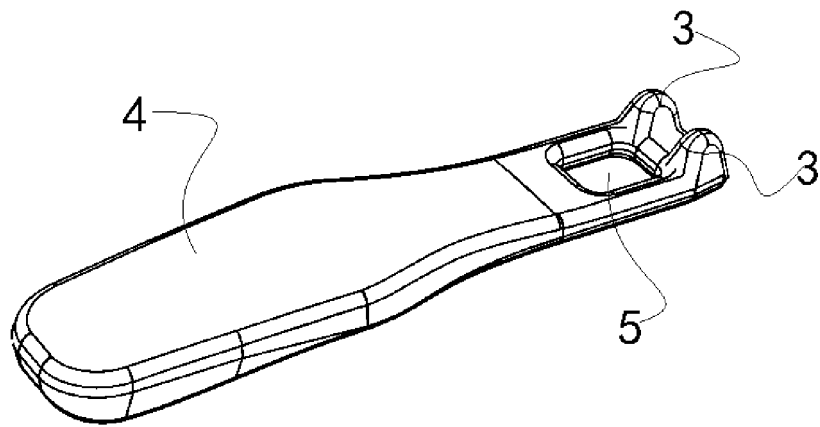


Figure 2

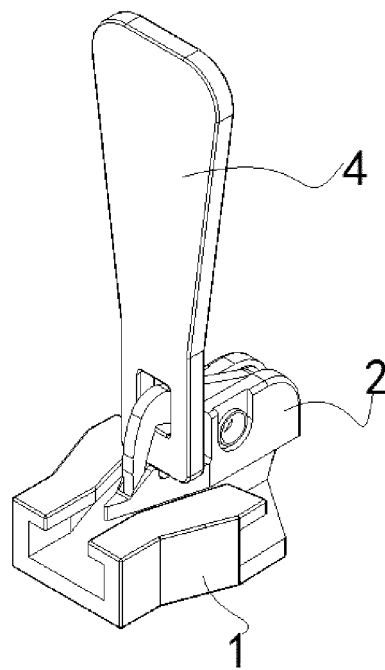


Figure 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2017/080996

A. CLASSIFICATION OF SUBJECT MATTER

A44B 19/26 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A44B 19/-

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT, WPI, EPODOC, CNKI: zip, slider, tab, rotate+, pivot+, limit+, avoid+, wobble, spring, 拉链, 孔, 枢转, 拉片, 拉头, 弹片, 凸, 限位, 晃

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2015150724 A1 (J & P COATS LTD.), 08 October 2015 (08.10.2015), description, page 2, last paragraph, page 3, paragraphs 1-2 and page 4, paragraph 3, and figures 1-5	1-9
A	US 3896538 A (YOSHIDA KOGYO KK.), 29 July 1975 (29.07.1975), entire document	1-9
A	CN 104754979 A (YKK CORPORATION), 01 July 2015 (01.07.2015), entire document	1-9
A	CN 203828208 U (FUJIAN SBS ZIPPER SCIENCE & TECHNOLOGY CO., LTD.), 17 September 2014 (17.09.2014), entire document	1-9
A	CN 101406338 A (FUJIAN SBS ZIPPER SCIENCE & TECHNOLOGY CO., LTD.), 15 April 2009 (15.04.2009), entire document	1-9
A	CN 205547646 U (IDEAL FASTENER (GUANGDONG) INDUSTRIES LTD.), 07 September 2016 (07.09.2016), entire document	1-9

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

“E” earlier application or patent but published on or after the international filing date

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

01 August 2017

Date of mailing of the international search report

21 August 2017

Name and mailing address of the ISA
State Intellectual Property Office of the P. R. China
No. 6, Xitucheng Road, Jimenqiao
Haidian District, Beijing 100088, China
Facsimile No. (86-10) 62019451

Authorized officer

SUN, Min

Telephone No. (86-10) 62413596

INTERNATIONAL SEARCH REPORT
 Information on patent family members

 International application No.
 PCT/CN2017/080996

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
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CN 101406338 A	15 April 2009	None	
CN 205547646 U	07 September 2016	None	

Form PCT/ISA/210 (patent family annex) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

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