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(54) **LUGGAGE HAVING FOUR SIDES OPENED AND CLOSED**

(57) A luggage having four sides opened and closed includes a box body, and a zipper component. The box body includes an upper cover, and a lower cover. The zipper component includes a double-layer zipper, two pull heads, and two inserting rods. The double-layer zipper includes an upper chain, and a lower chain. Each of the two pull heads includes a disengaging side, and an engaging side opposited to the disengaged side. When the two pull heads are disposed on the upper chain and the lower chain, the disengaging sides of the two pull heads are faced each other. The two inserting rods are arranged on the same end of the double-layer zipper. Each of the two inserting rods have a conical structure and includes a body, a first cutting surface, and a second cutting surface. The luggage can be opened at any position of the double-layer zipper.

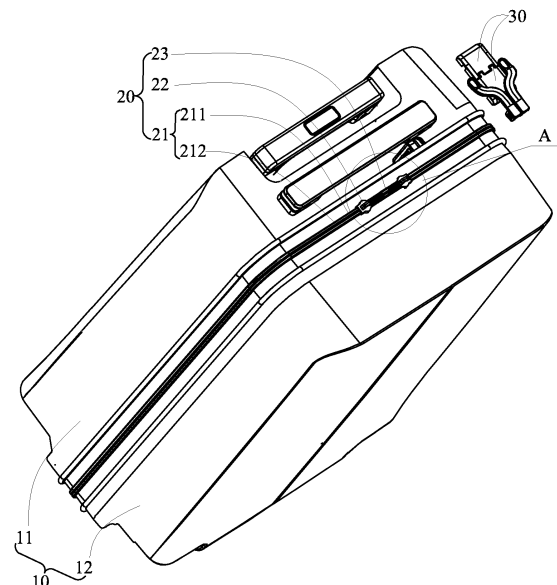


FIG. 1

Description**RELATED APPLICATION**

[0001] This present application claims benefit of the Application 202011530165.1, filed on December 22, 2020.

BACKGROUND

1. Technical field

[0002] The present invention relates to luggage manufacturing technology, and more particularly to a luggage having four sides opened and closed.

2. Description of the related art

[0003] luggage is a commonly article, which not only provides the convenience of carrying items, but also has obvious characteristics of the times and is accompany with obvious fashion characteristics. In order to clearly reflect these characteristics, people continuously develop and experiment with various materials used to make the luggage, structures, aesthetics, and performance. Common luggage is generally portable or push-pull. For portable luggage, they are more convenient to use, but their size is generally small and not be suitable for storing large amounts of items. For push-pull luggage, their volume is large and they store a lot of items so as that their weight is heavy. Therefore, the convenience of use has become a research and development focus for the push-pull luggage.

[0004] However, for existing push-pull luggage, they mainly include a box body and a box cover. The back sides of the box body and the box cover are sewn with fabric or connected with hinges together, and only a front side of the luggage can be opened. When the luggage is placed and stored and the front side is not facing outward, users must first move the luggage and adjust it to the front side facing outward so as to successfully open it. Obviously, it is not convenient to retrieve and place items. In addition, when traveling, sometimes it is inevitable to take things from the luggage, such as by plane or by train. Therefore, when it is necessary to open the luggage, the existing luggage must be placed flat on the ground and then zippered to open it. As a result, it clearly brings a lot of trouble to users.

[0005] Therefore, it is necessary to provide a luggage having four sides opened and closed which makes it possible to solve the above problem.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Many aspects of the embodiments can be better understood with references to the following drawings. The components in the drawings are not necessarily drawn to scale, the emphasis instead being placed upon

clearly illustrating the principles of the embodiments. Moreover, in the drawings, like reference numerals designate corresponding parts throughout two views.

FIG.1 is a partial explosion schematic view of a luggage having four sides opened and closed according to the present invention.

FIG.2 is a schematic view of a pull head of the luggage having four sides opened and closed of FIG. 1.

FIG.3 is a partial enlarged schematic view of the luggage having four sides opened and closed of FIG. 1 in A.

FIG.4 is a schematic view of an inserting rod of the luggage having four sides opened and closed of FIG. 1.

DETAILED DESCRIPTION

[0007] The present application is illustrated by way of example and not by way of limitation in the figures of the accompanying drawings. It should be noted that references to "an" or "one" embodiment in this application are not necessarily to the same embodiment, and such references mean at least one.

[0008] Referring to FIG. 1 to FIG. 4, a luggage having four sides opened and closed is shown in accordance with an exemplary embodiment of the present invention. The luggage having four sides opened and closed includes a box body 10, a zipper component 20 arranged on the box body 10, and two stoppers 30 disposed on the zipper component 20. It can be understood that the luggage having four sides opened and closed also includes other functional structures, such as handles, pull rod components, pulley components and so on, which are familiar to a person skilled in the art, and will not be described in detail.

[0009] The box body 10 can be a box shaped structure formed by plastic injection molding or fabric sewing. The box body 10 can be a trolley case, a backpack or a shoulder bag, or other types of bags and so on. The box body 10 includes an upper cover 11 and a lower cover 12 fit with the upper cover 11. The upper cover 11 and the lower cover 12 have essentially the same structure, and when the upper cover 11 and the lower cover 12 are buckled together, a space is formed for users to store items.

[0010] The zipper component 20 includes a double-layer zipper 21, two pull heads 22 respectively arranged on the double-layer zipper 21, and two inserting rods 23 arranged on the double-layer zipper 21. As is known to all, the double-layer zipper 21 is an explosion-proof zipper, which makes it impossible to open the luggage without damaging the double-layer zipper 21, no matter what sharp tool is used. When the double-layer zipper 21 is closed, it is possible for the luggage to open and close on all four sides. For luggage with a single layer zipper, it has been confirmed through extensive experiments that the zipper can be opened by using a sharp hard

object to poke the zipper. Therefore, the single layer zipper is unsuitable for opening and closing on four sides of the luggage. Because as long as the single layer zipper is poked open, the entire luggage is completely opened. The double-layer zipper 21 itself is a prior art, such as patent number 201220248939.6 and the title is a single head double-layer zipper, and its structure and working principle will not be explained in detail. Specifically, the double-layer zipper 21 includes an upper chain 211 sewn onto the upper cover 11, and a lower chain 212 sewn onto the lower cover 12. The two pull heads 22 have same structure and their specific structure has been described in the patent 201220248939.6, and will not be repeated here. The pull head 22 includes a disengaging side 221, and an engaging side 222 opposite the disengaging side 221. In order to achieve a goal of four sides openen and closed, when the two pull heads 22 are respectively set on the upper chain 211 and the lower chain 212, the disengaging sides 221 of the two pull heads 22 are facing each other. That is to say, when assembling the two pull heads 22, ends of the upper chain 211 and the lower chain 212 are inserted from the disengaging side 221 of one of the two pull heads 22, and are inserted from the engaging side 222 of the other pull head 22. Therefore, when the two pull heads 22 are arranged on the upper chain 211 and the lower chain 212, the engaging sides 222 of the two pull heads 22 are opposite to each other.

[0011] The two inserting rods 23 are arranged at the same end of the upper chain 211 and the lower chain 212, and both have a conical structure. The inserting rod 23 can be made of metal or plastic material. When teeth of the upper chain 211 and the lower chain 212 are made of plastic, the conical structure of the inserting rod 23 can be formed by sintering, that is to say, by firing or high-temperature hot melting the teeth, and then being extruded into a conical structure by a conical mold. The conical structure can be in the form of a conical platform or a conical tip. If the inserting rod 23 does not have the conical structure, both the inserting rod 23 and the ends of the upper chain 211 and the lower chain 212 have a flush structure. Therefore, when the ends of the upper chain 211 and the lower chain 212 are inserted into the engaging side 222 of the pull head 22, the flush structure will abutt against the connecting columns of the two flat plates of the pull head 22, thereby preventing the engaging side 222 of the pull head from being assembled into the upper chain 211 and the lower chain 212. Since both of the inserting rods 23 have the conical structure, the upper chain 211 and the lower chain 212 can be inserted and assembled from the engaging side 222 of the pull head 22. In the present embodiment, the inserting rod 23 is made of metal for facilitating multiple uses and industrial manufacturing.

[0012] The inserting rod 23 includes a body 231, a first cutting surface 232 disposed on a sidewall of the body 231, and a second cutting surface 233 disposed on the other sidewall between the first cutting surface 232 and

the body 231. The body 231 may have a bular structure, which is resepectively sleeved at the ends on the same side of the upper chain 211 and the lower chain 212. The first cutting surface 232 is arranged on one sidewall of the body 231 and has a wedge-shaped structure so as to form the conical structure. The second cutting surface 233 is arranged on the side sidewall between the first cutting surface 232 and the body 231 and the second cutting surface 233 is also wedge-shaped so as to forming the conical structure. When the two inserting rods 23 are assembled onto the upper chain 211 and the lower chain 212, the first cutting surface 232 of the two insert rods 23 is arranged facing each other, and the second cutting surface 233 must be located on the same side of the two inserting rods 23 so as that the inserting rods 23 can be inserted into the pull head 22 from the engaging side 222 thereof. When assembling the two pull heads 22, the two inserting rods 23 are inserted from the disengaging side 221 of one of the two pull heads 22 and from the engaging side 222 of another pull head 22, thereby causing the two pull heads 22 to be set in opposite directions.

[0013] The stoppers 30 can be made of soft materials, such as leather, cloth, leather, etc. The two stoppers 30 are respectively arranged at connecting points of the two ends of the double-layer zipper 21. Specifically, the two soft materials are respectively wrapped at the connecting points of the two ends of the double-layer zipper 21. That is to say, the two inserting rods 23 and one end of the upper chain 211 and the lower chain 212 are respectively wrapped by the two soft materials, and the two soft materials are sewn on the upper cover 11 and the lower cover 12 respectively. The stoppers 30 not only make the entire luggage look beautiful, but also prevents the two pull heads 22 from falling off from both ends of the double-layer zipper 21 respectively. Furthermore, the two ends of the upper chain 211 and the lower chain 212 are flush with each other, and the two stoppers 30 are separately arranged on the upper chain 211 and the lower chain 212. Therefore the upper cover 11 and the lower cover 12 can be opened in the connecting points of the two ends of the double-layer zipper 21, thereby achieving the purpose of opening and closing at any position. Moreover, it can be understood that the stoppers 30 can also be made of two metal sheets, which are respectively arranged on the inner and outer sides of the upper cover 11 and the lower cover 12, and are fixed with screws or rivets.

[0014] Furthermore, as with existing luggage, the luggage having four sides opened and closed may also includes a lock (not shown). The lock may is set next to the connecting points at both ends of the double-layer zipper 21. The lock is used to lock the luggage with pull tabs of the pull heads 22 to prevent it from being intentionally or unintentionally opened by outsiders without permission.

[0015] As described above, the luggage provided by the present embodiment can be opened and closed on

all four sides due to the use of a double-layer zipper 21, which is an explosion-proof zipper. When the double-layer zipper 21 is closed, no matter what sharp tool is used, the luggage cannot be opened without damaging the double-layer zipper 21, making it possible for the luggage to be opened and closed on all four sides. Furthermore, since the two ends of the upper chain 211 and the lower chain 212 of the double-layer zipper 21 are respectively equipped with one inserting rod 23, and the inserting rods 23 have the conical structure, which is opposite to the other end of the upper chain 211 and the lower chain 212. Since the inserting rod 23 is used, both of the opposing pull heads 22 can be assembled onto the double-layer zipper 23. Specifically, the two inserting rods 23 are inserted from the disengaging side 221 of one of the two pull heads 22 and from the engaging side 222 of another pull head 22. Therefore, the disengaging sides 221 of the two pull heads 22 are opposite to each other so as to allow the two pull heads 22 to open or close in opposite directions. As a result, the two pull heads 22 can be located at any position except for the connecting points of the two ends of the upper chain 211 and the lower chain 212, thereby achieving the goal of opening and closing on all four sides. Since the two inserting rods 23 can be inserted from the disengaging side 221 of one of the two pulling heads 22 and from the engaging side 222 of another pull head 22, the connecting points of the two ends of the upper chain 211 and the lower chain 212 are no longer overlapped but in a flush state. Therefore, the luggage can also be opened at the connecting points of the two ends of the upper chain 211 and the lower chain 212 so as to allowing the luggage to be opened at any position.

[0016] While the disclosure has been described by way of example and in terms of exemplary embodiment, it is to be understood that the disclosures is not limited thereto. To the contrary, it is intended to lamp shade various modifications and similar arrangements (as would be apparent to those skilled in the art). Therefore, the scope of the appended claims should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements.

Claims

1. A luggage having four sides opened and closed, comprising:

a box body, the box body comprising an upper cover, and a lower cover fit with the upper cover; and
a zipper component disposed on the box body, the zipper component comprising a double-layer zipper, two pull heads arranged on the double-layer zipper respectively, and two inserting rods disposed on the double-layer zipper, the double-layer zipper comprising an upper chain fixed on

the upper cover, and an lower chain fixed on the lower cover and engaged with the upper chain, the two pull heads having same structure and each of the two pull heads comprising a disengaging side, and an engaging side opposite to the disengaging side, when the two pull heads are disposed on the upper chain and the lower chain, the disengaging sides of the two pull heads are faced each other, the two inserting rods having same structure and being arranged on a same end of the double-layer zipper, each of the two inserting rods having a conical structure, when the double-layer zipper is assembled onto the upper and lower covers respectively, another end of the double-layer zipper is arranged opposite to the conical structure of the two inserting rods.

2. The luggage having four sides opened and closed as claimed in claim 1, wherein when the two pull heads are respectively arranged on the upper chain and the lower chain, the engaging sides of the two pull heads are opposite to each other.
3. The luggage having four sides opened and closed as claimed in claim 1, wherein when the two pull heads are assembled, the two inserting rods are inserted from the disengaging side of one of the two pull heads and from the engaging side of another.
4. The luggage having four sides opened and closed as claimed in claim 1, wherein the luggage having four sides opened and closed further comprises two stoppers, the stoppers are respectively arranged at the connecting points of the two ends of the double-layer zipper.
5. The luggage having four sides opened and closed as claimed in claim 4, wherein the two stoppers are made of soft materials, the two soft materials are respectively wrapped at the connecting points of the two ends of the double-layer zipper.
6. The luggage having four sides opened and closed as claimed in claim 5, wherein the two ends of the upper chain and the lower chain are flush with each other, and the two stoppers are respectively arranged on the upper chain and the lower chain and separated with each other.
7. The luggage having four sides opened and closed as claimed in claim 1, wherein each of the two inserting rods comprises a body, a first cutting surface disposed on a sidewall of the body, and a second cutting surface disposed on the other sidewall between the first cutting surface and the body, the first and second cutting surfaces enabling the inserting rod to form the conical structure.

8. The luggage having four sides opened and closed as claimed in claim 7, wherein the two first cutting surfaces of the two inserting rods facing each other, the two cutting surfaces of the two inserting rods being located on the same side of the two inserting rods.

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9. The luggage having four sides opened and closed as claimed in claim 1, wherein teeth of the upper chain and the lower chain are made of plastic, the conical structure of the inserting rod can be formed by sintering.

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10. The luggage having four sides opened and closed as claimed in claim 1, wherein the luggage having four sides opened and closed further comprises a lock, the lock is disposed next to the connecting points at both ends of the double-layer zipper.

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Amended claims under Art. 19.1 PCT

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1. A luggage having four sides opened and closed, comprising:

a box body, the box body comprising an upper cover, and a lower cover fit with the upper cover; and

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a zipper component disposed on the box body, the zipper component comprising a double-layer zipper, two pull heads arranged on the double-layer zipper respectively, and two inserting rods disposed on the double-layer zipper, the double-layer zipper comprising an upper chain fixed on the upper cover, and a lower chain fixed on the lower cover and engaged with the upper chain, the two pull heads having same structure and each of the two pull heads comprising a disengaging side, and an engaging side opposited to the disengaging side, when the two pull heads are disposed on the upper chain and the lower chain, the disengaging sides of the two pull heads are faced each other, the two inserting rods having same structure and being arranged on a same end of the double-layer zipper, each of the two inserting rods having a conical structure and comprising a body, a first cutting surface disposed on a sidewall of the body, and a second cutting surface disposed on the other sidewall between the first cutting surface and the body, the first and second cutting surfaces enabling the inserting rod to form the conical structure, the two first cutting surfaces of the two inserting rods facing each other, the two cutting surfaces of the two inserting rods being located on the same side of the two inserting rod, when the double-layer zipper is assembled onto the upper and lower covers respectively, another end of the double-layer zipper is arranged opposite

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to the conical structure of the two inserting rods, when the two pull heads are assembled, the two inserting rods are inserted from the disengaging side of one of the two pull heads and from the engaging side of another.

2. The luggage having four sides opened and closed as claimed in claim 1, wherein when the two pull heads are respectively arranged on the upper chain and the lower chain, the engaging sides of the two pull heads are opposite to each other.

3. The luggage having four sides opened and closed as claimed in claim 1, wherein the luggage having four sides opened and closed further comprises two stoppers, the stoppers are respectively arranged at the connecting points of the two ends of the double-layer zipper.

4. The luggage having four sides opened and closed as claimed in claim 3, wherein the two stoppers are made of soft materials, the two soft materials are respectively wrapped at the connecting points of the two ends of the double-layer zipper.

5. The luggage having four sides opened and closed as claimed in claim 4, wherein the two ends of the upper chain and the lower chain are flush with each other, and the two stoppers are respectively arranged on the upper chain and the lower chain and separated with each other.

6. The luggage having four sides opened and closed as claimed in claim 1, wherein teeth of the upper chain and the lower chain are made of plastic, the conical structure of the inserting rod can be formed by sintering.

7. The luggage having four sides opened and closed as claimed in claim 1, wherein the luggage having four sides opened and closed further comprises a lock, the lock is disposed next to the connecting points at both ends of the double-layer zipper.

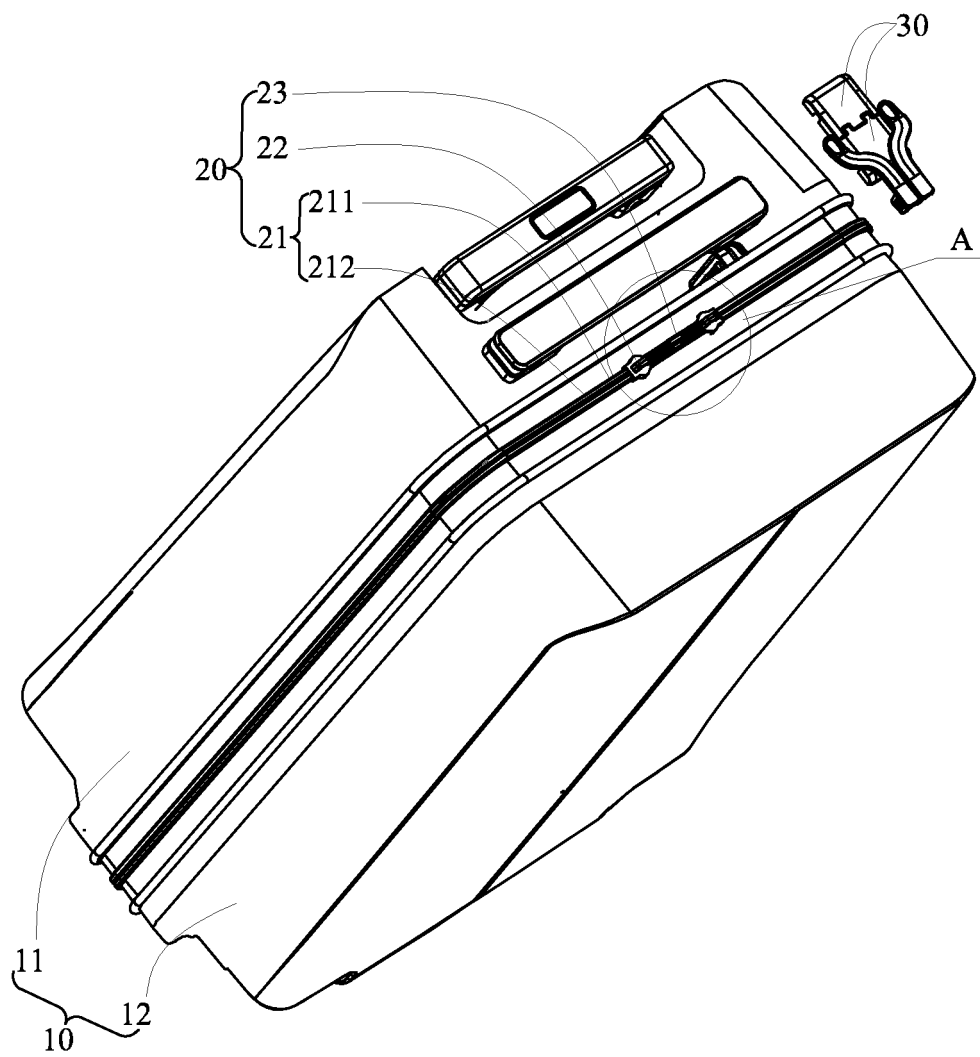


FIG. 1

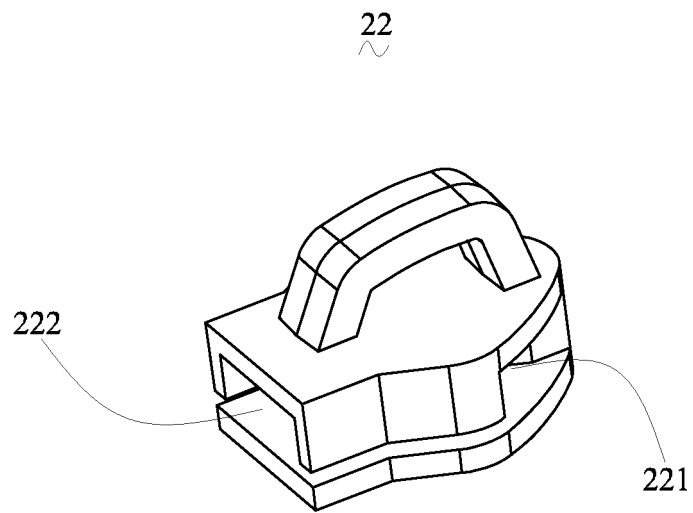


FIG. 2

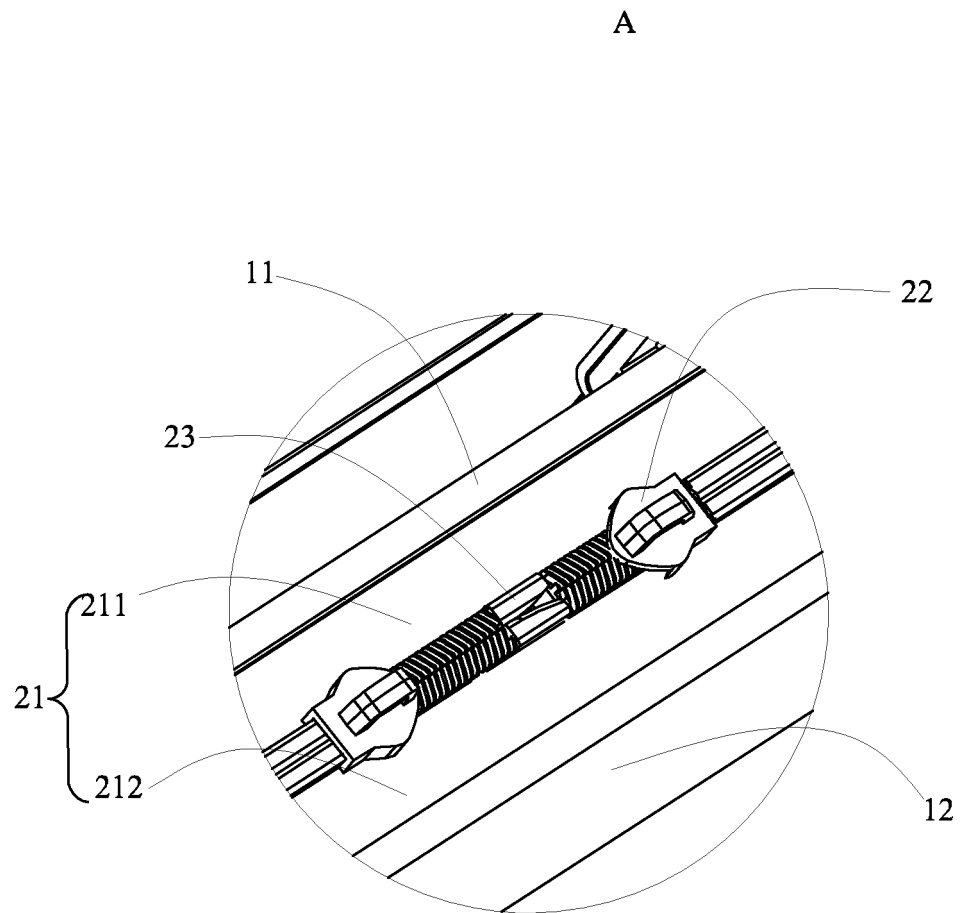


FIG. 3

23

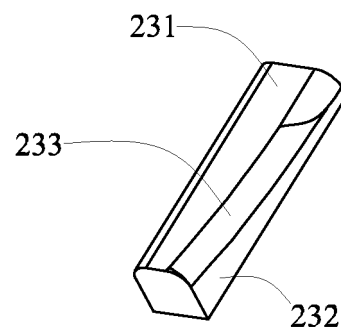


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2020/139333

A. CLASSIFICATION OF SUBJECT MATTER

A45C 13/10(2006.01)i; A44B 19/38(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)

A45C13/-; A44B19/-

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, USTXT, EPTXT, WOTXT: 箱包, 行李, 拉链, 拉头, 滑动头, 插棒, 插管, 插销, 相向, 双向, 相对, 锥, 斜, 楔, 组装, 安装, 止齿, bag, luggage, zipper, bolt, taper, latch, plug, wedge

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Y	CN 202603814 U (SHANGHAI EASTDRAGON FABRIC & GARMENT CO., LTD.) 19 December 2012 (2012-12-19) description, paragraphs [0003] to [0004], figures 1-5	1-10
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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No.

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

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