

(19)



(11)

EP 2 363 034 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
07.09.2011 Bulletin 2011/36

(51) Int Cl.:
A44B 11/25 (2006.01) **A45C 13/10** (2006.01)
A45C 13/30 (2006.01) **A45F 5/00** (2006.01)
A45F 3/04 (2006.01)

(21) Application number: **10157213.9**

(22) Date of filing: **22.03.2010**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
 HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
 PT RO SE SI SK SM TR**
 Designated Extension States:
AL BA ME RS

(72) Inventor: **Paik, Mr.Jisook
Yongsan-gu (KR)**

(74) Representative: **Eberlein, Jasper
 Von Kreisler Selting Werner
 Deichmannhaus am Dom,
 Bahnhofsvorplatz 1
 50667 Köln (DE)**

(30) Priority: **16.01.2010 KR 20100004130**

(71) Applicant: **Paik, Mr.Jisook
Yongsan-gu (KR)**

(54) **Connecting device of strap and appurtenance**

(57) Disclosed is a connecting device of a strap and an appurtenance. The connecting device includes a plug member and a socket member, which are installed to different objects to be connected to each other. The plug

member and the socket member are coupled to each other via coupling of a rail and a rail groove. The rail has an elastic free end to enable elastic coupling or separation thereof.

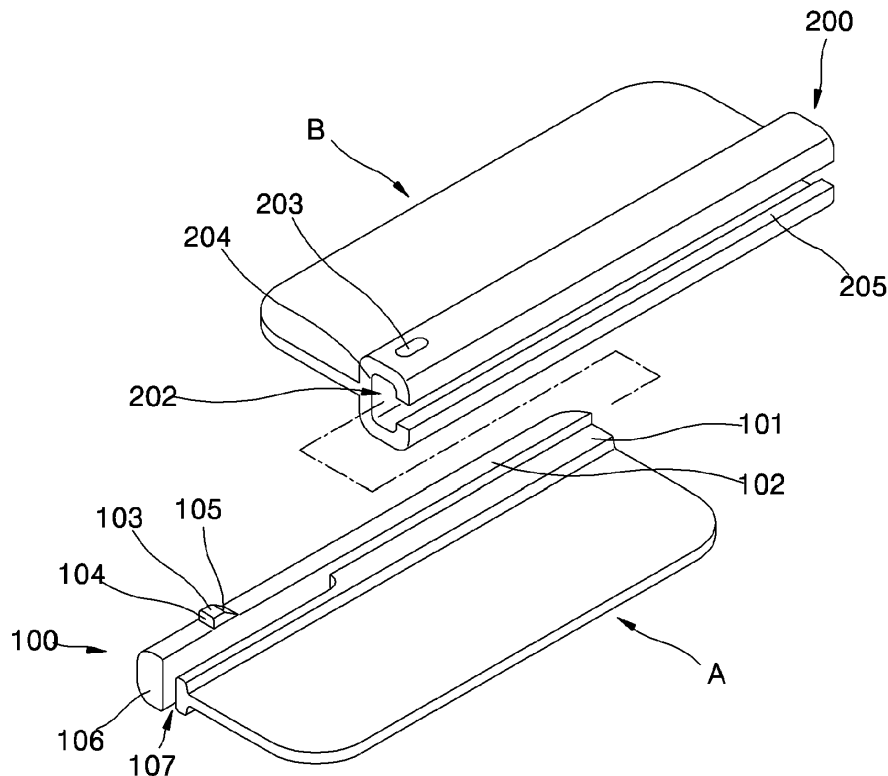


Fig.2

EP 2 363 034 A1

Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a device for connecting a strap and an associated appurtenance to each other, which enables convenient connection or separation of straps or various associated appurtenances provided at backpacks, bags, garments, helmets, and the like.

Description of the Related Art

[0002] A variety of appurtenances have been mounted and used at backpacks, bags, caps, garments, and the like as needed. In an example, as illustrated in Fig. 1, a backpack is provided at several positions with a great number of straps in such a manner that one end of each strap is fixed to the backpack by sewing, and various shapes of appurtenances, such as adjustors and hooks, are connected to the straps so as to be used per different functions thereof. The backpack is further provided with, e.g., fastening belts and belt buckles.

[0003] When being used for a specific activity such as camping, mounting climbing, or the like, a greater number of appurtenances, such as a lantern, cup, alpenstock, and canteen, may be suspended from and carried by the backpack.

[0004] Although all the above mentioned appurtenances are necessary for outdoor activities, unstable suspension and carriage is aesthetically unpleasant and also, restrains person's actions.

[0005] In addition, in the case of the great number of straps basically provided at the backpack, one end of each strap is fixed to the backpack by sewing, whereas the other end of the strap hangs for connection of another strap or appurtenance. However, the hanging ends of most of the straps are not used, and a variety of appurtenances for connection or adjustment of the straps cause an appearance of the backpack to be aesthetically unpleasant. Moreover, since the appurtenances are disorderly arranged, the appurtenances may be easily caught by peripheral objects upon carriage, thus causing inconvenience in person's actions or an accident in the worst case.

[0006] Such straps or appurtenances attached to backpacks or bags provide only limited functions at fixed positions thereof and have no compatibility with other appurtenances having different functions.

[0007] Conventionally, connection between a general strap and several associated appurtenances has been realized, for example, in such a manner that the strap is inserted into and wound around one or more slots perforated in each appurtenance in various ways and in turn, male and female buckles, which are adapted for individual cases, are used to connect the appurtenances to each

other. However, it has been found that the above described conventional connection is significantly troublesome and unstable.

[0008] The above described conventional connection results in an increase in the number of appurtenances and manufacturing costs and has limits to realize an orderly and aesthetically pleasing appearance and convenient use.

10 SUMMARY OF THE INVENTION

[0009] Therefore, the present invention has been made in view of the above problems, and it is an object of the present invention to provide a device for connecting a strap and an appurtenance to each other, which enables convenient attachment/detachment of straps or various associated appurtenances provided at backpacks, etc., thus enabling selective use thereof as occasion demands while maintaining a stable operational status of each appurtenance without abrasion despite repeated connection/separation operations.

[0010] It is another object of the present invention to provide a device for connecting a strap and an appurtenance to each other, which assures firm connection of straps or various associated appurtenances provided at backpacks, etc., resulting in safe use of the backpack.

[0011] In accordance with the present invention, the above and other objects can be accomplished by the provision of a connecting device of a strap and an appurtenance including a plug member including an elongated rail formed at one end thereof with a stopper and a rail support connected to a side surface of the rail, and a socket member including a rail groove configured to receive the rail, a socket longitudinally formed from an entrance of the rail groove, and a retaining hole formed in one end thereof to receive the stopper when the rail is fitted into the rail groove, wherein the end of the rail is spaced apart from the rail support to define an elastic free end, and the stopper is located in a range of the free end.

[0012] Accordingly, it is possible to allow the stopper to be stably caught by the retaining hole in the course of fitting the rail into the rail groove. Also, the rail is able to be separated from the rail groove in a state wherein the stopper is released from the retaining hole as the free end is elastically pushed. This assures smooth separation of the rail without friction between the stopper and the rail groove.

[0013] To space the free end of the rail apart from the rail support, the free end of the rail may protrude outward beyond the rail support.

[0014] This provides the free end of the rail with elasticity, enabling elastic displacement of the stopper included in the free end.

[0015] Alternatively, the rail and the rail support may have the same length and a separation space may be defined between the free end of the rail and the rail support. This provides the free end of the rail with elasticity,

enabling elastic displacement of the stopper included in the free end.

[0016] The free end of the rail may be thinner than a remaining region of the rail to enhance elasticity thereof. A grip may be formed at a distal position of the free end and may take the form of an expanded portion.

[0017] The stopper included in the free end may have an inclined surface facing a fixed end of the rail and a vertical surface facing the free end of the rail. The inclined surface of the stopper assures smooth coupling of the rail and the rail groove and the vertical surface of the stopper maintains a firmly coupled state of the rail and the rail groove.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view illustrating an exemplary conventional backpack;

Fig. 2 is an exploded perspective view of a connecting device according to an embodiment of the present invention;

Fig. 3 is a plan view of a plug member illustrated in Fig. 2;

Fig. 4 is a front view of the plug member illustrated in Fig. 3;

Fig. 5 is a plan view illustrating a plug member according to an alternative embodiment of the present invention;

Fig. 6 is a front view of the plug member illustrated in Fig. 5;

Fig. 7 is a sectional view illustrating a rail of a plug member according to an alternative embodiment of the present invention;

Fig. 8 is a perspective view illustrating a plug member according to an alternative embodiment of the present invention;

Fig. 9 is a plan view of the plug member illustrated in Fig. 8;

Fig. 10 is a sectional view taken line C-C of Fig. 8;

Fig. 11 is a sectional view illustrating a rail of

a plug member according to an alternative embodiment of the present invention;

5 Figs. 12 to 14 are sectional views illustrating an operation of the connecting device according to the present invention;

Fig. 15 is a perspective view illustrating a plug member and a socket member for connection of different straps according to an alternative embodiment of the present invention;

15 Fig. 16 is a perspective view illustrating a plug member and a socket member for connection of buckles according to an alternative embodiment of the present invention;

20 Figs. 17 and 18 are perspective views illustrating different appurtenances provided with a plug member according to alternative embodiments of the present invention;

Figs. 19 to 27 are perspective views illustrating different appurtenances provided with a socket member according to alternative embodiments of the present invention; and

Fig. 28 is a view illustrating a use example in which shoulder straps of a backpack are connected to each other by chest straps.

DETAILED DESCRIPTION OF THE INVENTION

40 **[0019]** Hereinafter, preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings.

[0020] Fig. 2 is an exploded perspective view of a connecting device according to an embodiment of the present invention, Fig. 3 is a plan view of a plug member illustrated in Fig. 2, and Fig. 4 is a front view of the plug member illustrated in Fig. 3. Referring to the drawings, the connecting device according to the present invention includes a plug member 100 serving as a male member and a socket member 200 serving as a female member. The plug member 100 and the socket member 200 are provided at respective ends of a first object A and a second object B, so as to be connected to or separated from each other.

55 **[0021]** In the drawings, the first object A and the second object B are illustrated as being thin fixing plates according to an exemplary configuration of the present embodiment. The fixing plates are made of synthetic resins and

are adapted to be attached to, e.g., garments, belts, backpacks, bags, and various straps by sewing.

[0022] The plug member 100 includes a rail support 101 and a rail 102. The rail support 101 is integrally formed with the first object A.

[0023] The rail 102 protrudes from an outer edge of the rail support 101 to define a movement path having a predetermined width. A stopper 103 protrudes from one end of the rail 102. In the present embodiment, the stopper 103 has a vertical surface 104 facing a free end of the rail 102 and an inclined surface 105 facing an opposite fixed end of the rail 102.

[0024] The movement path of the rail 102 is preferably a straight path, but may be a curved path.

[0025] The socket member 200 to be coupled with the plug member 100 is integrally formed at one end of the second object B. The socket member 200 has an elongated rail groove 202 into which the rail 102 of the plug member 100 can be fitted. The rail groove 202 is defined in one end thereof with a C-shaped entrance 204, through which one end of the rail 102 begins to be fitted. The socket member 200 also has an elongated slot 205 having the same length as the rail groove 202 starting from an open end of the C-shaped entrance 204.

[0026] The entrance 204 of the rail groove 202 preferably has the same contour as a lateral contour of the rail 102. The slot 205 has a smaller width than that of the rail groove 202 and functions as a passage for movement of the rail support 101.

[0027] Although the slot 205 may be selectively formed in a side surface, upper surface or lower surface of the rail groove 202, the slot 205 preferably has a shape corresponding to a connecting structure of the rail 102 and the rail support 101.

[0028] A retaining hole 203 corresponding to the stopper 103 of the rail 102 is provided near one end of the rail groove 202. When the rail 102 is completely fitted into the rail groove 202, the stopper 103 is inserted into the retaining hole 203 to maintain a coupled state of the rail 102 and the rail groove 202. The other end of the rail groove 202 opposite to the entrance 204 may be closed to define a closure wall 206. In this case, once the plug member 100 and the socket member 200 are coupled with each other, it is possible to prevent the rail 102 from escaping from the rail groove 202 even if the rail 102 is forcibly pushed against resistance of the stopper 103. Specifically, the closure wall 206 sets a movement limit when the rail 102 is pushed in a given direction so as to be fitted into the rail groove 202 and also, functions to stably limit a coupling position of the rail 102.

[0029] One end of the rail 102 of the plug member 100 is spaced apart from the rail support 101 and defines a free end 106 having elasticity. The stopper 103 is located in a range of the free end 106.

[0030] More specifically, as illustrated in the drawings, a separation space 107 is defined between the rail support 101 and one end of the rail 102 and a remaining region of the rail 102 except for the end of the rail 102

comes into contact with the rail support 101. With provision of the separation space 107, the end of the rail 102 is separated from the rail support 101 so as to define the free end 106 and the remaining region of the rail 102 is connected to the rail support 101 so as to define the fixed end of the rail 102. The free end 106 has elasticity.

[0031] With this configuration, the elastic free end 106 of the rail 102 may act to minimize frictional resistance caused when the stopper 103 comes into contact with an inner periphery of the retaining hole 203 in the course of fitting the rail 102 into the rail groove 202.

[0032] Figs. 5 and 6 illustrate an alternative configuration of the free end of the rail. Referring to Figs. 5 and 6, one end of the rail 102 of the plug member 100 protrudes outward beyond the rail support 101 to define the free end 106. The stopper 103 is located in a range of the free end 106.

[0033] Referring to Fig. 7 in a sectional view, in order to provide the free end 106 of the rail 102 according to the present invention with sufficient elasticity, the free end 106 of the rail 102 is thinner than the remaining region of the rail 102.

[0034] As will be appreciated from the above described embodiments of the present invention related to different configurations of the free end of the rail, the free end is defined at an opposite side of a leading end of the rail that begins to be fitted into the rail groove of the socket member.

[0035] Figs. 8 to 10 are views illustrating an alternative embodiment of the present invention in which a grip is provided at the free end of the rail. In the drawings, a grip 108 is attached to the free end 106 of the rail 102 of the plug member 100 and takes the form of an expanded plate. The expanded plate-shaped grip 108 has concave upper and lower surfaces to assure a stable grip operation.

[0036] Fig. 11 illustrates an alternative configuration of the grip provided at the free end of the rail. As illustrated, the grip 108 may take the form of an expanded portion extending from the free end 106 of the rail 102 and the upper surface of the grip 108 may be inclined such that an outer end thereof protrudes upward.

[0037] The above described configurations of the grip 108 have the effect of allowing the grip 108 provided at the free end 106 of the rail 102 to stably come into contact with and be caught by a user's finger tip when a user operates the free end 106 with his/her finger. In particular, when it is desired to separate the plug member 100 from the socket member 200, the user is able to easily pull the socket member 200 out by pushing and pulling the grip 108 with his/her finger.

[0038] In an alternative embodiment of the present invention, two or more retaining holes 203 may be provided in the rail groove 202 of the socket member 200 to enable selective insertion of the stopper 103 and consequently, to allow the plug member 100 to be fixed at an arbitrary position. Each of the retaining holes 203 has an open end to be connected to the slot 205.

[0039] Figs. 12 to 14 illustrate an operation of the above described connecting device according to the present invention. Referring to the drawings, the rail 102 of the plug member 100 is longitudinally fitted into the rail groove 202 of the socket member 200. The rail 102 is fitted into the rail groove 202 via smooth sliding motion thereof. The stopper 103 is moved while coming into contact with an inner surface of the rail groove 202 and is smoothly inserted into and elastically caught by the retaining hole 203 without friction owing to elastic bending of the free end 106 of the rail 102.

[0040] Specifically, the inclined surface 105 of the stopper 103 facing the fixed end of the rail 102 realizes smooth insertion of the stopper 103. On the other hand, once the vertical surface 104 of the stopper 103 facing the opposite free end 106 of the rail 102 is caught by the retaining hole 203, the vertical surface 104 makes it difficult for the stopper 103 to be moved backward, thus preventing unintentional separation of the stopper 103.

[0041] With the coupling of the rail 102 and the rail groove 202, the first object A and the second object B, to which the plug member 100 and the socket member 200 are integrally formed respectively, can be simply connected to each other.

[0042] When it is desired to separate the plug member 100 and the socket member 200 from each other, the stopper 103 escapes from the retaining hole 203 as the free end 106 of the rail 102 is pushed to overcome elasticity thereof and simultaneously, the plug member 100 is pulled out of the rail groove 202 of the socket member 200 so as to be separated from the socket member 200. Figs. 15 to 18 illustrate various objects usable with the plug member or the socket member according to the present invention. The plug member or the socket member may be selectively applied on a per object basis.

[0043] Firstly, Fig. 15 illustrates an alternative embodiment of the present invention in which the connecting device of the present invention is applied to straps, such as belts or bands, provided at backpacks, etc.

[0044] Here, the belts or bands are attached to backpacks or school bags. In the case of a backpack, various functional belts or bands, such as a shoulder band, a chest band, and a waist belt, are used for different purposes. In the following description, the term "strap" refers to one of the above mentioned various belts and bands.

[0045] In the embodiment as illustrated in Fig. 15, a plug member 130 serving as a male member and a socket member 230 serving as a female member are integrally formed with fixing plates 31 and 32 and in turn, the fixing plates 31 and 32 are attached respectively to different straps S1 and S2 to enable separable connection of both the straps S1 and S2.

[0046] That is, with the plug member 130 and the socket member 230 provided at the different straps S1 and S2, the two straps S1 and S2 can be simply connected to each other without other connectors.

[0047] Fig. 16 illustrates an alternative embodiment of the present invention in which the connecting device of

the present invention is applied to buckles installed to ends of two straps, such as belts or bands, attached to articles, such as backpacks, school bags, or helmets, to connect or separate the two straps to or from each other.

5 In the embodiment as illustrated in Fig. 16, the buckles include a male buckle 41 and a female buckle 42, and a plug member 140 is provided at the male buckle 41.

[0048] Figs. 17 and 18 illustrate different appurtenances 51 and 52 that are mainly used with straps, such as belts or bands, provided at bags or backpacks according to alternative embodiments of the present invention. In the drawings, each of the appurtenances 51 and 52 is provided with a plug member 151 or 152. These embodiments are given by way of example and functions and configurations thereof are applicable in various ways.

[0049] Figs. 19 to 27 illustrate different appurtenances 61 to 69 provided with various shapes of socket members according to alternative embodiments of the present invention. Referring to the drawings, socket members 261 to 269 are provided at the appurtenances 61 to 69, such as hooks, elevating buckles, various strap adjusters, and buckles. These embodiments are also given by way of example and functions and configurations thereof are applicable in various ways.

25 **[0050]** Fig. 28 illustrates a use example in which shoulder straps of a backpack are connected to each other by chest straps. As illustrated in Fig. 28, the connecting device according to the present invention is applicable to various appurtenances. More specifically, one of the chest straps is provided with a whistle 71 and in turn, the whistle 71 is formed with the socket member 42 such that a male buckle 41 formed with the plug member 41 is fastened to the whistle 71. An opposite end of each chest strap is provided with an elevating buckle having the socket member according to the present invention such that the socket member is connected to the plug member sewed to the associated shoulder strap.

[0051] As apparent from the above description, the present invention provides a device for connecting a strap and an appurtenance to each other, which realizes connection of straps or various associated appurtenances via a simple fitting operation and can maintain a firmly coupled state thereof.

[0052] Further, the connecting device of the strap and the appurtenance is free from abrasion despite repeated use thereof and thus, can stably maintain the coupling of the strap and the appurtenance for a long time.

[0053] Furthermore, the connecting device of the strap and the appurtenance according to the present invention can achieve use convenience via simple operation thereof and has no risk of unintentional separation, resulting in stable use thereof.

[0054] Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. A connecting device of a strap and an appurtenance comprising:
- a plug member including an elongated rail formed at one end thereof with a stopper and a rail support connected to a side surface of the rail; and
- a socket member including a rail groove configured to receive the rail, a socket longitudinally formed from an entrance of the rail groove, and a retaining hole formed in one end thereof to receive the stopper when the rail is fitted into the rail groove,
- wherein the end of the rail is spaced apart from the rail support to define an elastic free end, and the stopper is located in a range of the free end of the rail so as to be released from the retaining hole when the free end is pushed to separate the plug member from the socket member.
2. The connecting device according to claim 1, wherein a separation space is defined between the free end of the rail and the rail support.
3. The connecting device according to claim 1, wherein the free end is thinner than a fixed end of the rail integrally formed with the rail support, so as to enhance elasticity thereof.
4. The connecting device according to claim 3, wherein the stopper has an inclined surface facing the fixed end of the rail, and a vertical surface facing the free end of the rail.
5. The connecting device according to claim 1, wherein a grip is formed at a distal position of the free end and has a larger expanded shape than a cross section of the rail, and a surface of the grip is formed with a concave recess.
6. The connecting device according to claim 1, wherein a thin fixing plate extends rearward from the rail support of the plug member and is sewed to an object along with the plug member, and an object having the socket member is connected to the rail of the plug member sewed at a fixed position.
7. The connecting device according to claim 1, wherein a thin fixing plate extends rearward from a surface of the socket member and is sewed to an object along with the socket member, and an object having the plug member is connected to the rail groove of the socket member sewed at a fixed position.
8. The connecting device according to claim 1, wherein the plug member or the socket member integrally protrudes from one end of the strap or the appurtenance, the strap and the appurtenance being objects to be connected to each other.
9. The connecting device according to claim 8, wherein the appurtenance is a strap adjustor or a backpack buckle to be connected to the strap so as to adjust a length of the strap or to be connected to another strap appurtenance.
10. The connecting device according to claim 8, wherein the strap appurtenance is a hook to enable connection of a variety of articles.

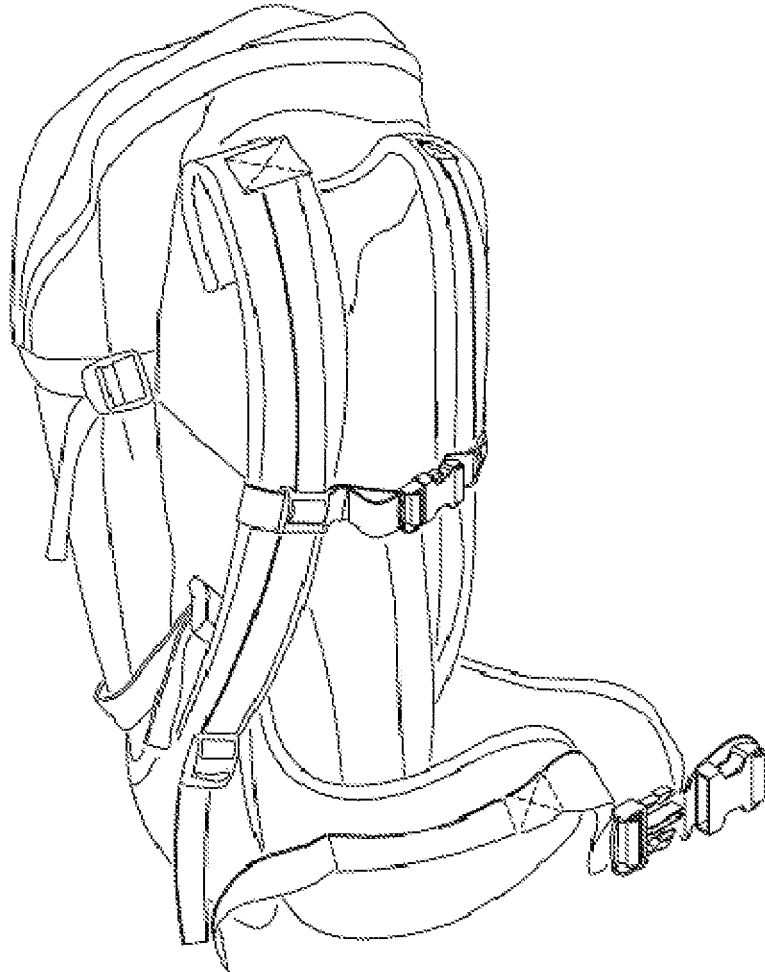


Fig.1

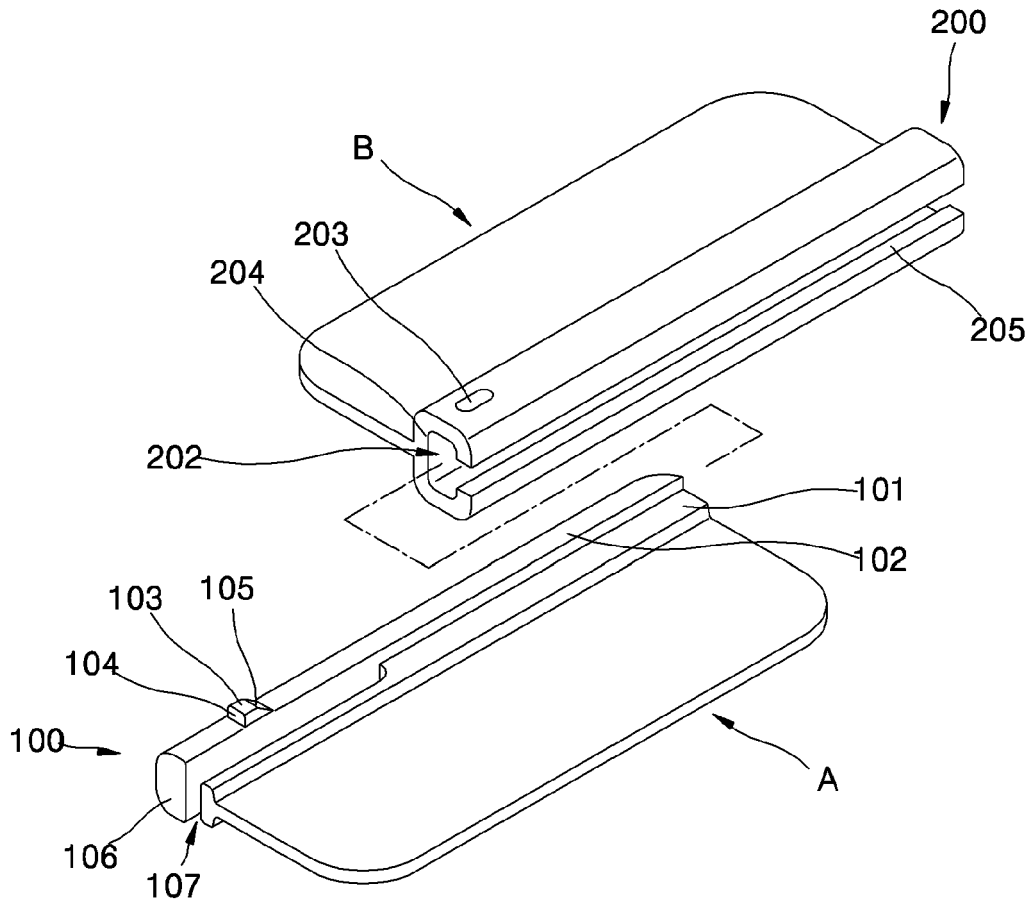


Fig.2

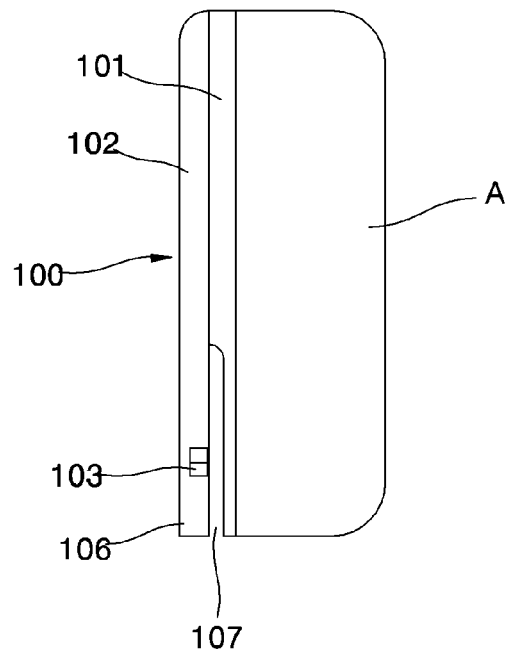


Fig.3

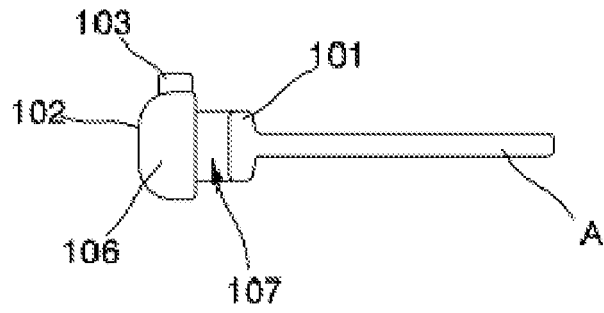


Fig.4

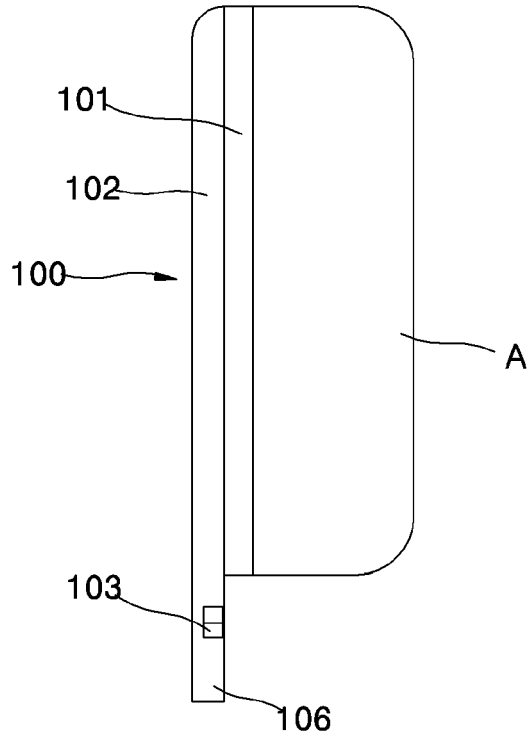


Fig.5

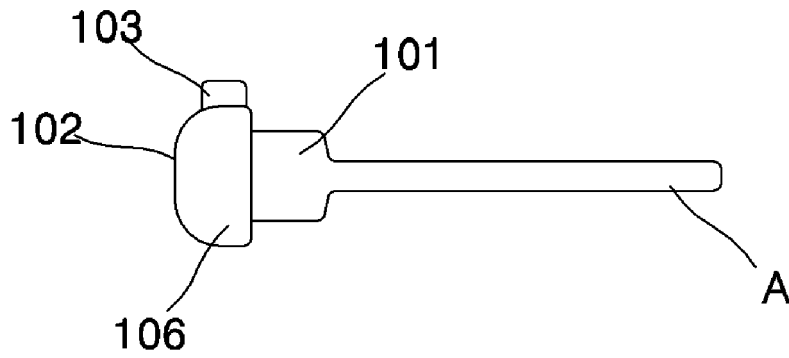


Fig.6

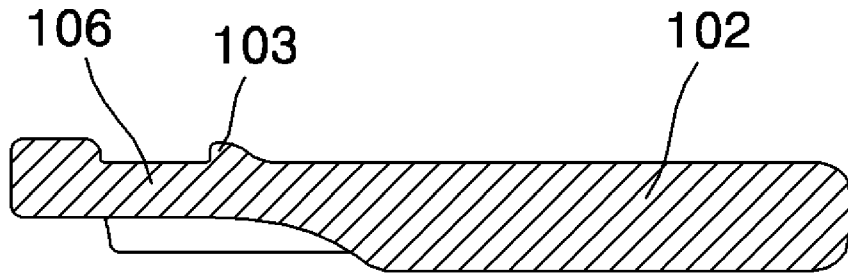


Fig.7

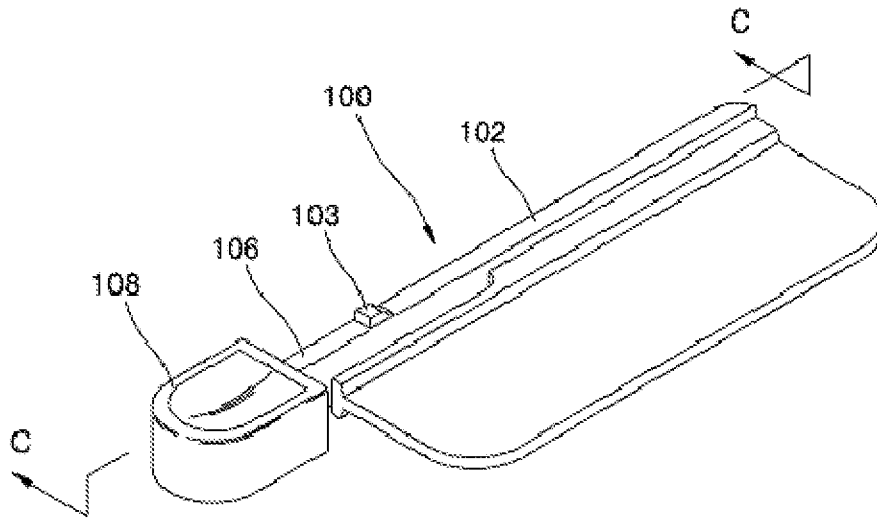


Fig.8

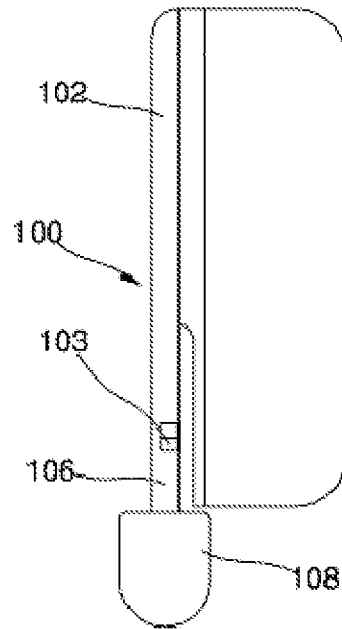


Fig.9

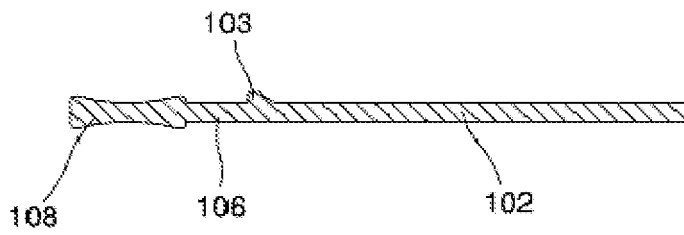


Fig.10

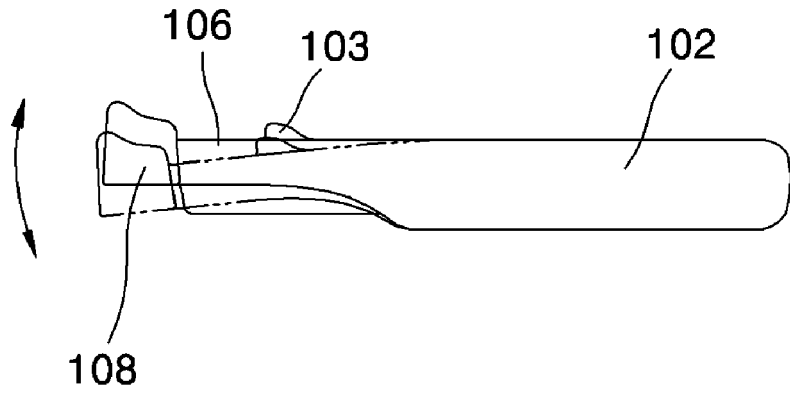


Fig.11

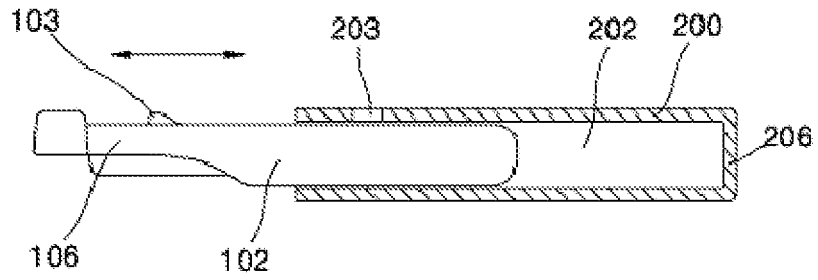


Fig.12

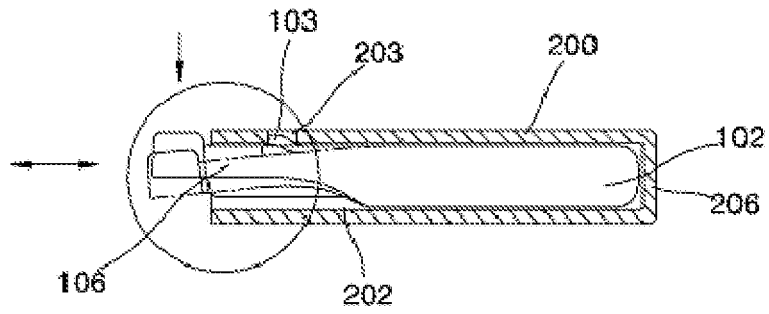


Fig.13

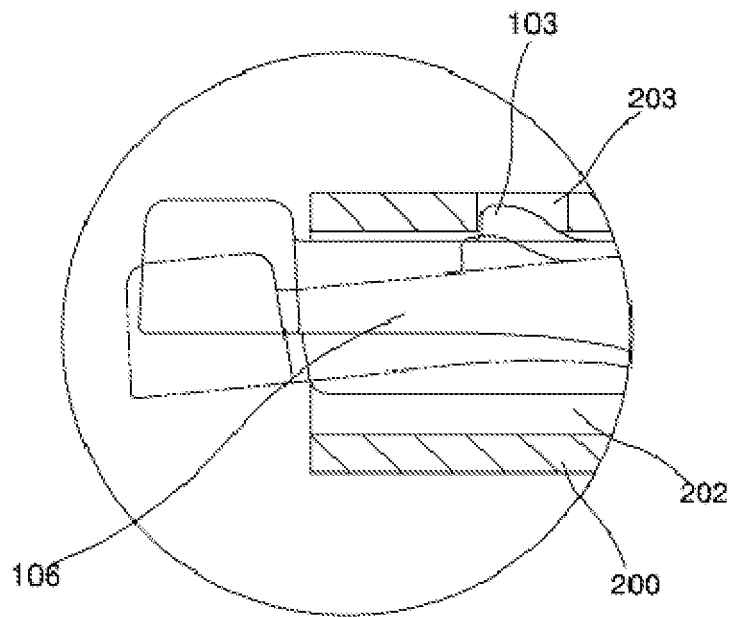


Fig.14

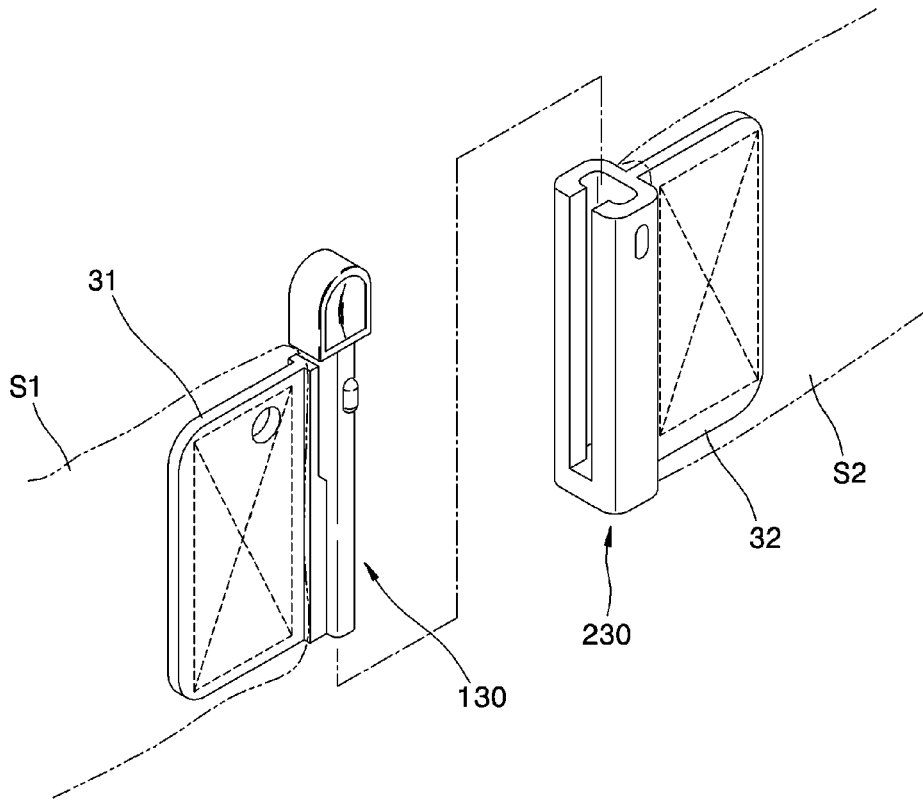


Fig. 15

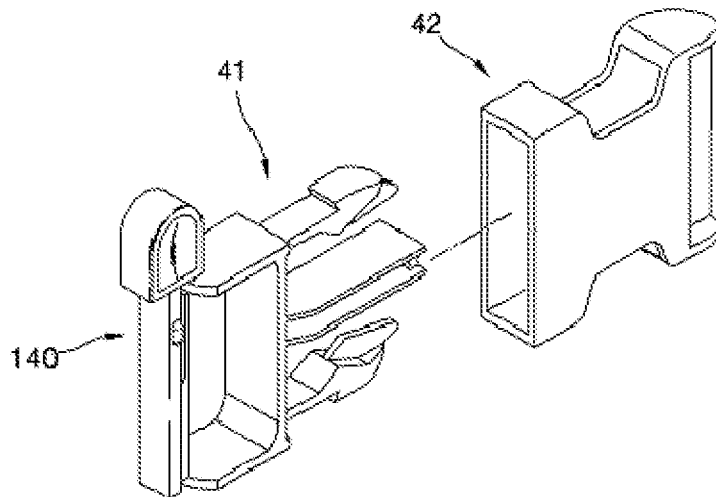


Fig. 16

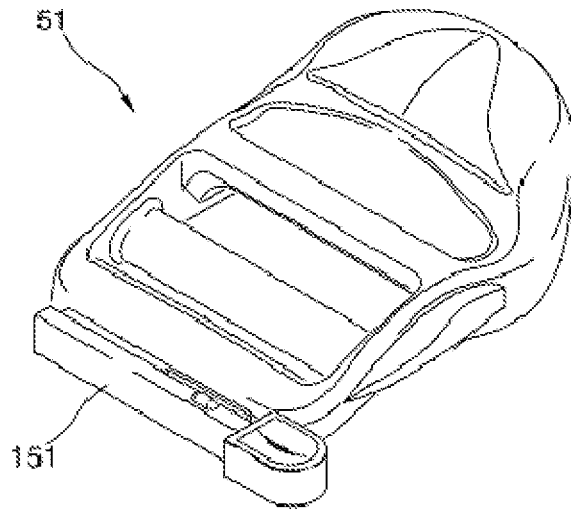


Fig. 17

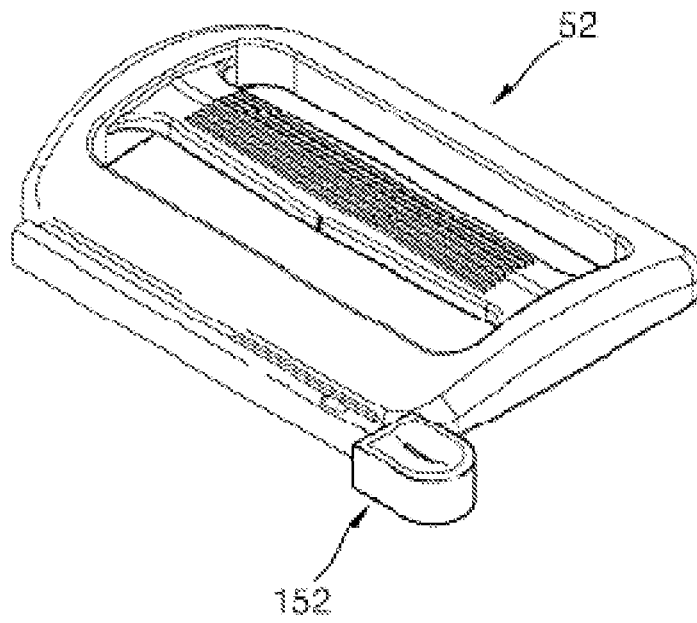


Fig. 18

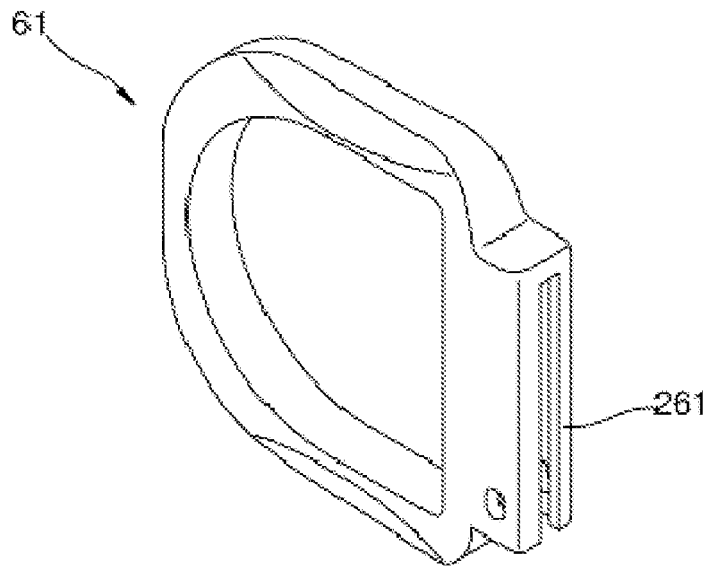


Fig.19

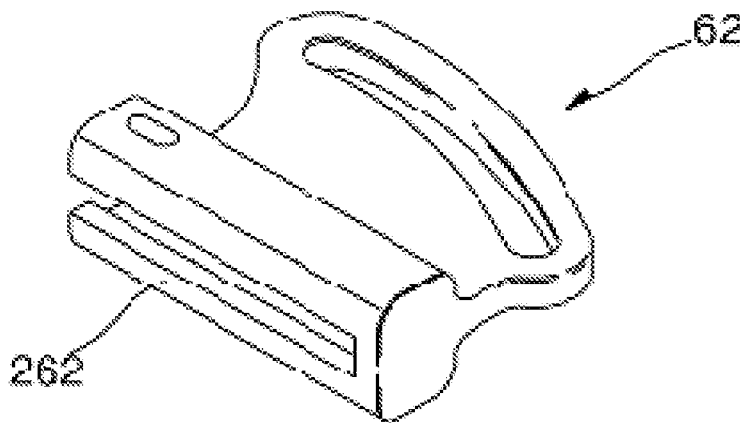


Fig.20

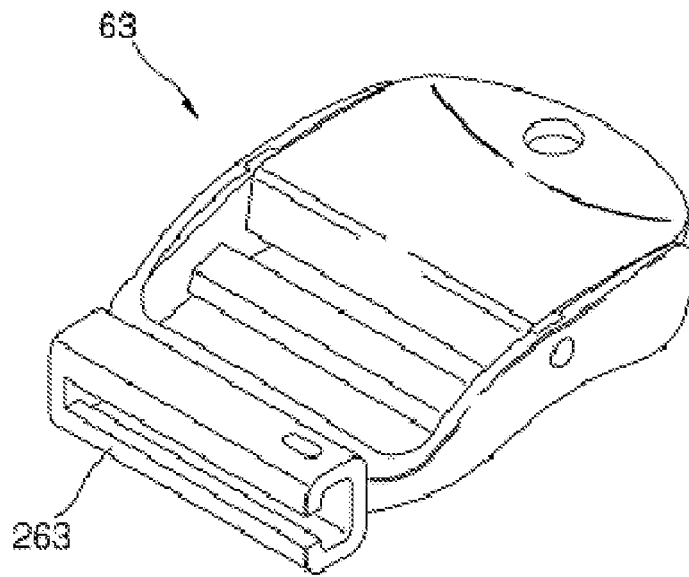


Fig.21

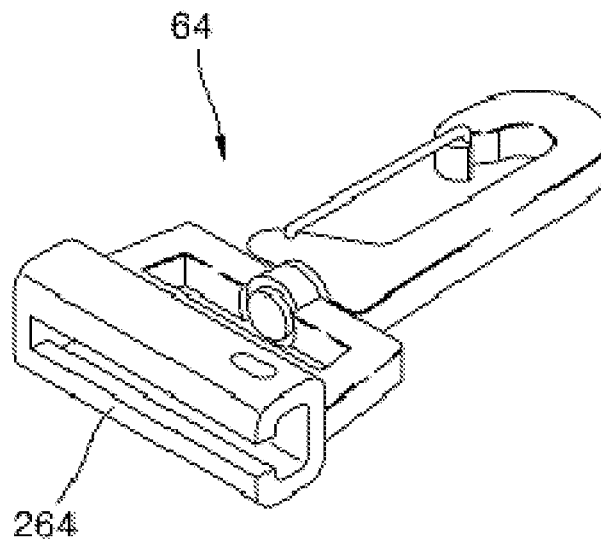


Fig.22

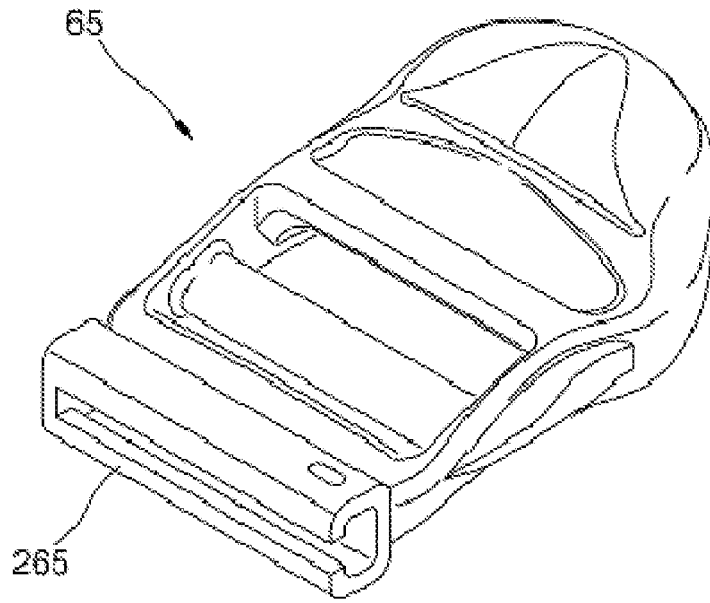


Fig.23

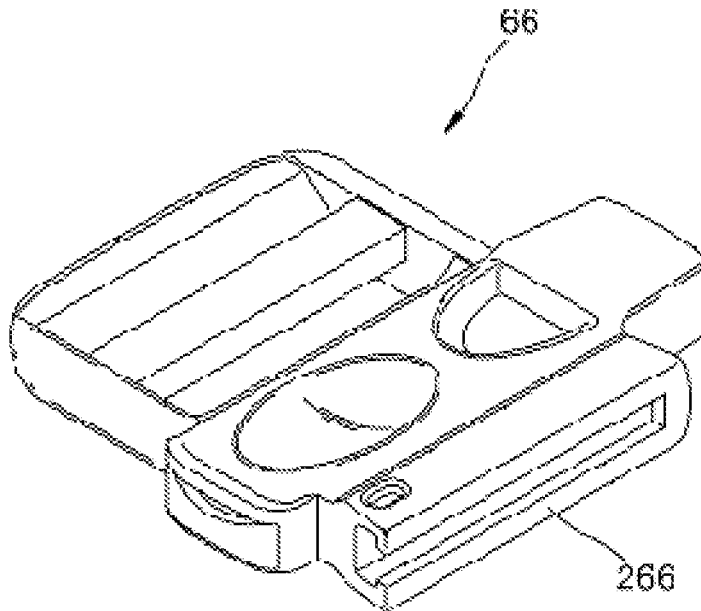


Fig.24

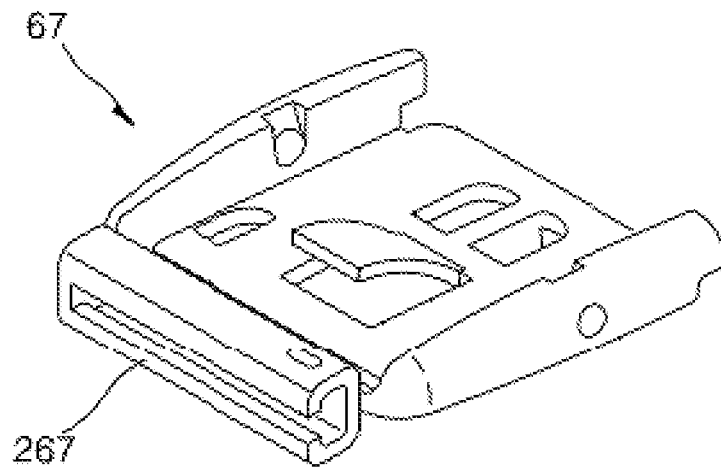


Fig.25

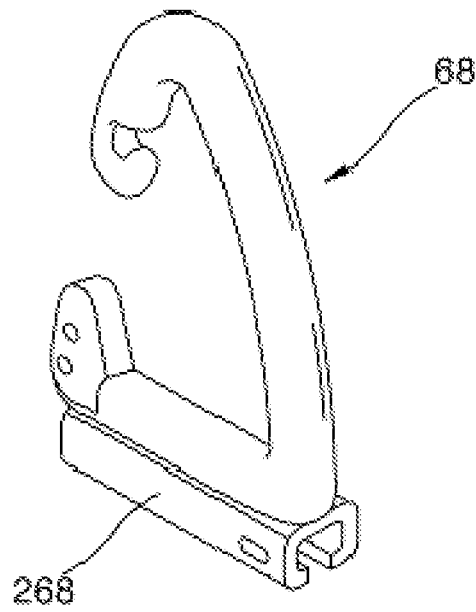


Fig.26

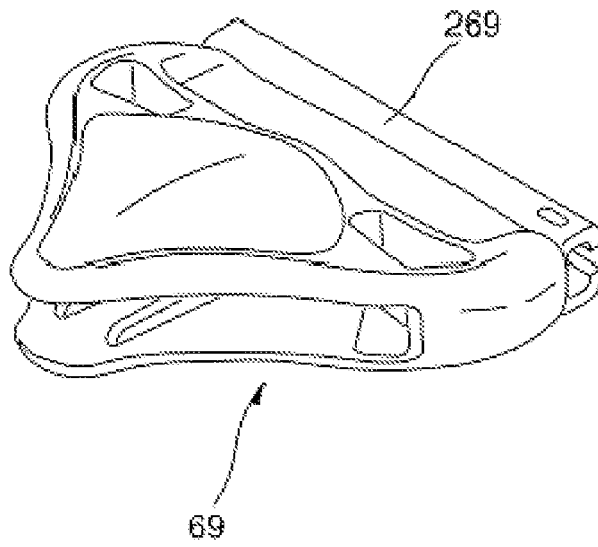


Fig.27

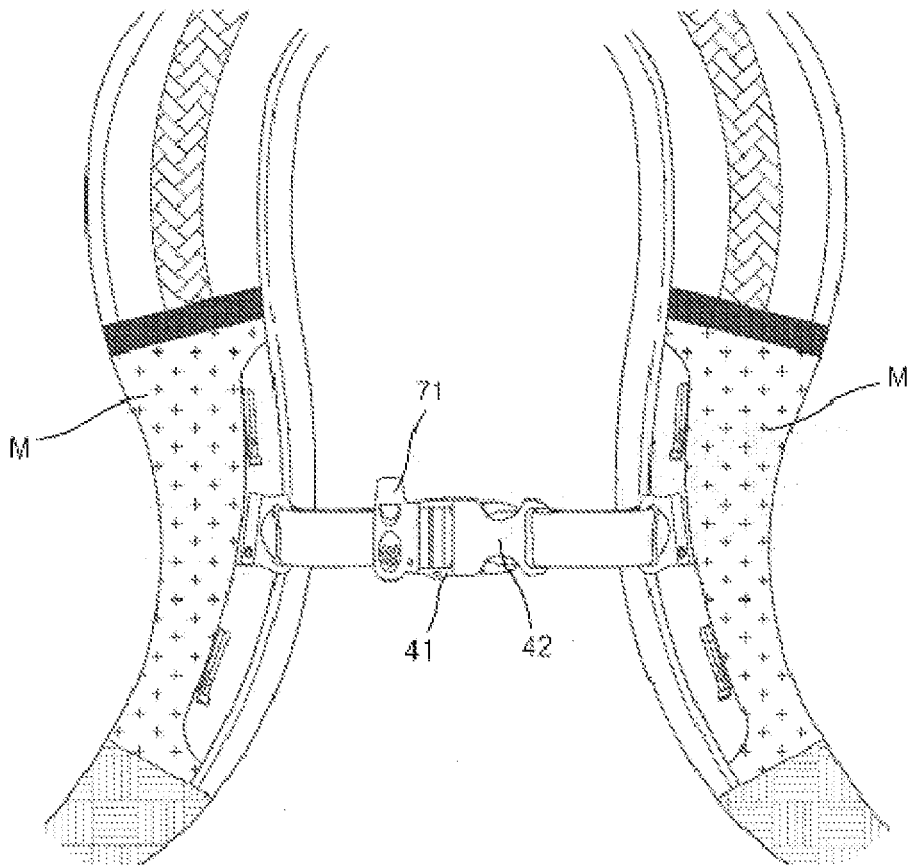


Fig.28



EUROPEAN SEARCH REPORT

Application Number
EP 10 15 7213

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 095 656 A2 (AMERICAN CORD & WEBBING CO INC [US]) 7 December 1983 (1983-12-07) * figures 1-3 *	1-10	INV. A44B11/25 A45C13/10 A45C13/30 A45F5/00
A	----- US 3 979 801 A (TAREAU GEORGES) 14 September 1976 (1976-09-14) * column 1, line 49 - column 2, line 36; figures 1,1A *	1-10	ADD. A45F3/04
A	----- US 4 790 050 A (ISHII SUSUMU [JP]) 13 December 1988 (1988-12-13) * column 2, lines 37-43; figures 1,5,7 *	1-10	
			TECHNICAL FIELDS SEARCHED (IPC)
			A44B A45C A45F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 July 2011	Examiner Lommel, André
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

1
EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 15 7213

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-07-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
EP 0095656	A2	07-12-1983	EP 0172585 A2	26-02-1986
			ES 272521 U	16-04-1984

US 3979801	A	14-09-1976	FR 2290860 A1	11-06-1976

US 4790050	A	13-12-1988	AU 584005 B2	11-05-1989
			AU 1388488 A	13-10-1988
			BR 8801606 A	08-11-1988
			CA 1308539 C	13-10-1992
			DE 3866754 D1	23-01-1992
			EP 0287060 A1	19-10-1988
			ES 2027336 T3	01-06-1992
			HK 98694 A	23-09-1994
			JP 5010654 Y2	16-03-1993
			JP 63161514 U	21-10-1988
			KR 900008812 Y1	28-09-1990
