

(19)



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(11)

EP 1 321 053 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

25.06.2003 Bulletin 2003/26

(51) Int Cl.7: **A41F 1/00**

(21) Application number: **02027974.1**

(22) Date of filing: **13.12.2002**

(84) Designated Contracting States:

**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
IE IT LI LU MC NL PT SE SI SK TR**

Designated Extension States:

AL LT LV MK RO SI

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(30) Priority: **20.12.2001 IT VA20010047**

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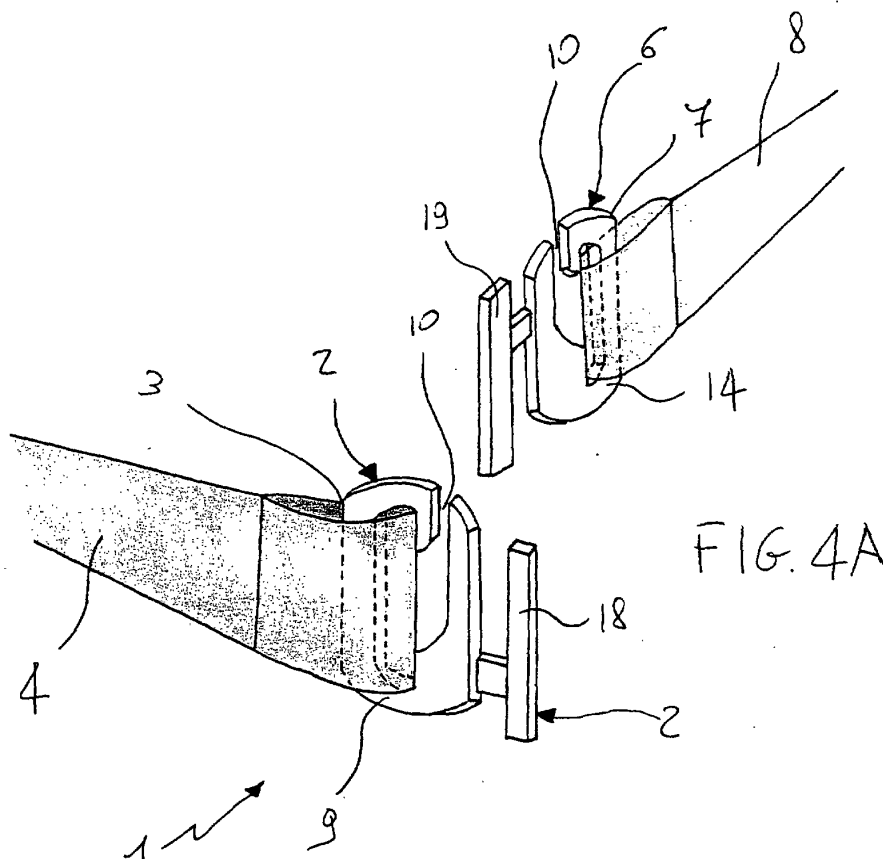
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(54) **Locking device and locking element thereto in particular for garments and the like**

(57) A fastener for garments and the like is disclosed in which a main locking element and a secondary locking element have first and second engagement means arranged to ensure coupling with a respective first and

further part of a garment. The main and secondary locking elements can be removably engaged with each other and with said first and further parts of the garment, respectively.



EP 1 321 053 A2

Description

[0001] The present invention relates to a locking device and a related locking element to be preferably used in garments and the like.

[0002] In particular the locking device of the invention is used as a closure hook for brassières, bathing costumes and underwear in general, as well as for all garments in which on wearing them two parts are required to be held together in a releasable manner.

[0003] It is known that there are on the market locking devices commonly also referred to as fasteners, to be used on brassières for example, that are made up of two locking elements defined by hooks each of which is set for engagement with a respective flap of the brassière and is also provided with an interlocking element adapted to cooperate with the corresponding interlocking element of the other hook in such a manner that, once the garment has been worn, the two flaps of the same garment can be held together following coupling of the respective interlocking portions.

[0004] These locking elements have had a wide spread and are still present on the market in a great number.

[0005] They are generally made of plastic materials that are low in price and are obtained by moulding, for example.

[0006] Each of the locking elements has an eye or closed loop (of rectangular shape, for example) through which, on assembling of the garment, passage of a flap of the brassière is caused, said flap being then stitched to a further part of the brassière itself so as to define a steady and irremovable engagement.

[0007] In other words, once the brassière flap has been sewn in place, the locking element can be no longer separated therefrom. In fact for carrying out this operation it is necessary to unstitch the garment flap or break the locking element so as to draw it out.

[0008] Fasteners of known type however, although widely spread on the market, have some drawbacks and/or aspects susceptible of improvement.

[0009] First of all, it is to be noted that the locking elements of known type cannot be replaced with ease. In fact, due to breaking of same the garment is required to be unstitched and the locking element to be replaced, then a new stitching operation of the garment flap is required to make the hook integral again with the garment.

[0010] In addition, no personalisation of the locking elements can be carried out and neither can be used hooks made of precious materials, exactly due to the fact that they are substantially unreplaceable.

[0011] Accordingly, the present invention aims at substantially solving the mentioned drawbacks.

[0012] It is therefore an object of the present invention to enable a quick and easy replacement of possible faulty or broken elements, as well as to allow personalisation of the garment in which the fastener will take an aesthetic value.

[0013] It is a further object of the invention to enable use of fasteners made of precious materials decorated with stones and/or embodied in particular shapes capable of giving a personal touch to the garment.

[0014] The foregoing and further aims that will become more apparent during the following description are substantially achieved by a fastener in accordance with the appended claims.

[0015] Further features and advantages will be set out in more detail in the course of the following description relating to preferred but not exclusive embodiments of a fastener in accordance with the present invention, in which:

- 15 - Figs. 1 to 9 show different alternative embodiments of a locking element in accordance with the invention;
- Figs. 1a-9a show the fastener in accordance with the invention partly coupled with a garment;
- 20 - Figs. 10 and 11 show a fastener made of a single piece;
- Figs. 10a and 11a show the fastener seen in Figs. 10 and 11 under conditions of partial engagement with a garment;
- 25 - Figs. 12 to 15 show possible applications of the fastener in accordance with the present invention;
- Fig. 16 to 19 show different shapes of locking elements in accordance with the present invention;
- Fig. 20 to 23 show spiral-shaped locking elements;
- 30 - Figs. 24a, 24b and 24c relate to a fastener with screw-threaded hooks;
- Figs. 25a, 25b, 25c and 26 relate to a locking element with a clip closure;
- Figs. 27a, 27b and 28 concern a locking element with a spring closure;
- 35 - Figs. 29a, 29b, 29c, 30, 33 and 34 concern a locking element with a closure taking place through a fitting coupling;
- Figs. 31, 32a, 32b, 32c and 32d concern locking elements with a closure taking place through rotation;
- 40 - Figs. 35 to 39, 41a and 41b relate to further alternative embodiments of the fastener in accordance with the invention;
- Figs. 40, 40a and 40b concern another alternative embodiment in accordance with the present invention; and
- 45 - Figs. 42, 42a and 42b concern a further embodiment in accordance with the present invention.

50 **[0016]** Referring to the drawings, a fastener in particular for garments and the like has been generally identified by reference numeral 1.

[0017] Fastener 1 is set for use in garments such as brassières, bathing costumes and underwear in general as clearly shown in Figs. 12-15. At all events these embodiments are exclusively given by way of non-limiting examples of possible uses. Garment accessories such as handbags, belts, collars and the like can be also men-

tioned as examples.

[0018] This fastener first of all comprises a main locking element (or hook) 2 having first engagement means set to ensure coupling with a respective first part 4 of a garment 5.

[0019] The fastener will also comprise a secondary locking element 6 having second engagement means 7 as well, set to ensure coupling with a further part 8 of a garment 5 to be maintained close to said first part 4 under work conditions of the fastener.

[0020] Advantageously and as can be seen in the accompanying figures, at least one and preferably both of said first and second engagement means 3, 7 can be coupled in a removable manner (and therefore can be merely disengaged depending on the user's convenience) with said first part 4 and further part 8 respectively of garment 5.

[0021] Practically the first engagement means 3 is defined by a first shaped body 9 arranged to enable insertion of said first part 4 of garment 5 and hold it in place as shown in Figs. 1a to 9a.

[0022] In detail, the first shaped body 9 defines an insertion opening 10 adapted to receive and be coupled with garment 5, and a retaining portion 11 designed to keep the main locking element 2 coupled with garment 5 under use conditions of said garment.

[0023] It is apparent that the profile of the shaped body and positioning of the insertion opening and the retaining portion can be different.

[0024] In particular, in Figs. 1 to 9 the first shaped body 9 has a substantially C-shaped outer profile. Said "C" has two opposite sides 12, 13 joined by a central flap actually defining the retaining portion 11.

[0025] The central flap 11 is arranged to receive and support the first part 4 of garment 5 under work conditions of the locking element. Generally, even if not necessarily, the second engagement means is defined by a second shaped body 14 set to enable insertion of the further part 8 of garment 5 and to retain it in place.

[0026] As shown in Figs. 1a-9a, the second shaped body 14 too will have a substantially C-shaped outer profile in which the two opposite sides 15 and 16 are joined by a respective central flap defining the respective retaining portion 17 receiving and supporting the further part 8 of garment 5 under work conditions of the locking element.

[0027] In addition, the locking elements defining the respective fastener are set to be removably engaged with each other, as shown in Figs. 4a and 8a, for example.

[0028] The particular structures allowing the main 2 and secondary 6 locking elements to be linked with each other are of known type and therefore will not be herein further and specifically described.

[0029] It should be noted however that shaped profiles adapted to make the main locking element and secondary locking element identical with each other can be provided, so as to obtain both the fastener components

with a single mould (see Figs. 1 and 1a, for example).

[0030] Different alternative embodiments are then shown in the accompanying drawings. In particular, from the embodiments with reference to Figs. 35 to 39, 40, 40a and 40b, it is possible to understand that the locking elements can be planned and designed with the most different shapes and in such a manner as to create particularly matched forms in terms of colours, materials and shapes.

[0031] Possible design variants as regards the first and second engagement means 3, 7 are then depicted in Figs. 16 to 19 wherein said means are provided to be made with an inverted-C shape in which the insertion opening 10 is defined centrally of two broken arms that, once the garment flap has been inserted, serve to retain said flap in place.

[0032] Said engagement means may also be provided with a spiral shape or the like, as shown in Figs. 20 to 23.

[0033] It can be further seen that the first and/or second engagement means 3, 7 may comprise a closing arm 20 set to keep the insertion opening 10 closed, when the locking element is in engagement with the garment, to prevent the garment itself from slipping off.

[0034] For example, in Figs. 24a, 24b and 24c the closing arm 20 is firmly fixed in place by a screw coupling. Unlike the above embodiments, in the examples shown in Figs. 25a, 25b, 25c and 26 the closing arm 20 is maintained in place by spring means 21.

[0035] In a further alternative embodiment shown in Figs. 27a, 27b and 28 the closing arm 20 keeps the insertion opening 10 closed by use of an appropriate spring the action of which will have to be counteracted at the moment of inserting the garment itself (a condition shown in Fig. 27b).

[0036] Still further alternative embodiments in which a safety closure by means of a closing arm 20 is provided are shown in Figs. 29a, 29b and 29c, in Fig. 30, in Figs. 33 and 34 in which closure takes place through a fitting coupling.

[0037] Also provided may be a closure of the rotation type as depicted in Figs. 31, 32a, 32b, 32c and 32d.

[0038] Some possible uses of the fasteners briefly described above are shown in Figs. 12 to 15 in which said fasteners are employed as closures for brassières and bathing costumes and/or hooking elements for shoulder straps, panties or bikini bottoms.

[0039] It is further to be pointed out that (as depicted in Fig. 14) the removable engagement between the locking elements and garment flaps can be obtained by making the engagement means in the form of a closed loop and offering the possibility of locking and unlocking the garment flap by means of buttons or a pressure-sensitive adhesive tape commonly known as "Velcro" for example, so as to obtain the same situation of releasability as with the fastener.

[0040] Finally, Figs. 10, 10a, 11 and 11a show a further possible embodiment of the fastener where the lat-

ter is defined by a single locking element of one piece construction in which first and second engagement means are joined by an interlocking portion 22.

[0041] The E-shaped interlocking portion and one of the opposite sides of the "C" define the insertion opening 10 for the garment.

[0042] It will be further appreciated that the locking elements can be made of any material such as plastic materials, common metals or precious metals, and said materials can be decorated with more or less precious stones and also shaped in a manner adapted to give them a personal touch.

[0043] Finally, as shown in Figs. 42, 42a and 42b, the fastener can be further personalised using it also as a pendant or hanging ornament, after suitably perforating it (Fig. 42b).

[0044] The invention achieves important advantages.

[0045] First of all the fastener in accordance with the invention allows all the elements constituting it to be fully removed and replaced.

[0046] In case of breaking, replacement of the out-of-order piece can be done with a very simple operation.

[0047] Removability of the different elements also enables creation and accomplishment of "design" pieces or precious pieces that can be re-used on several different garments allowing the aesthetic value of same to be increased.

[0048] Thus fasteners of particular colours, materials or shapes can be envisaged that can be combined with particular garments and/or adapted for the wearer's personal tastes.

[0049] Then the possibility of manufacturing the different components of the fastener through mere moulding operations, as well as the possibility of using said fasteners on garments presently already available for sale enable the article of the invention to offer universality and adaptability to the market without increasing the construction difficulties of same.

Claims

1. A locking device in particular for garments and the like comprising:

- a main locking element (2) having first engagement means (3) set to ensure coupling with a respective first part (4) of a garment (5);
- a secondary locking element (6) having second engagement means (7) set to ensure coupling with a further part (8) of a garment (5) to be maintained close to said first part (4) under work conditions of the locking element, said main and second locking elements being in engagement with each other, preferably in a removable manner, **characterized in that** at least one and preferably both of said first and second engagement means (3, 7) can be cou-

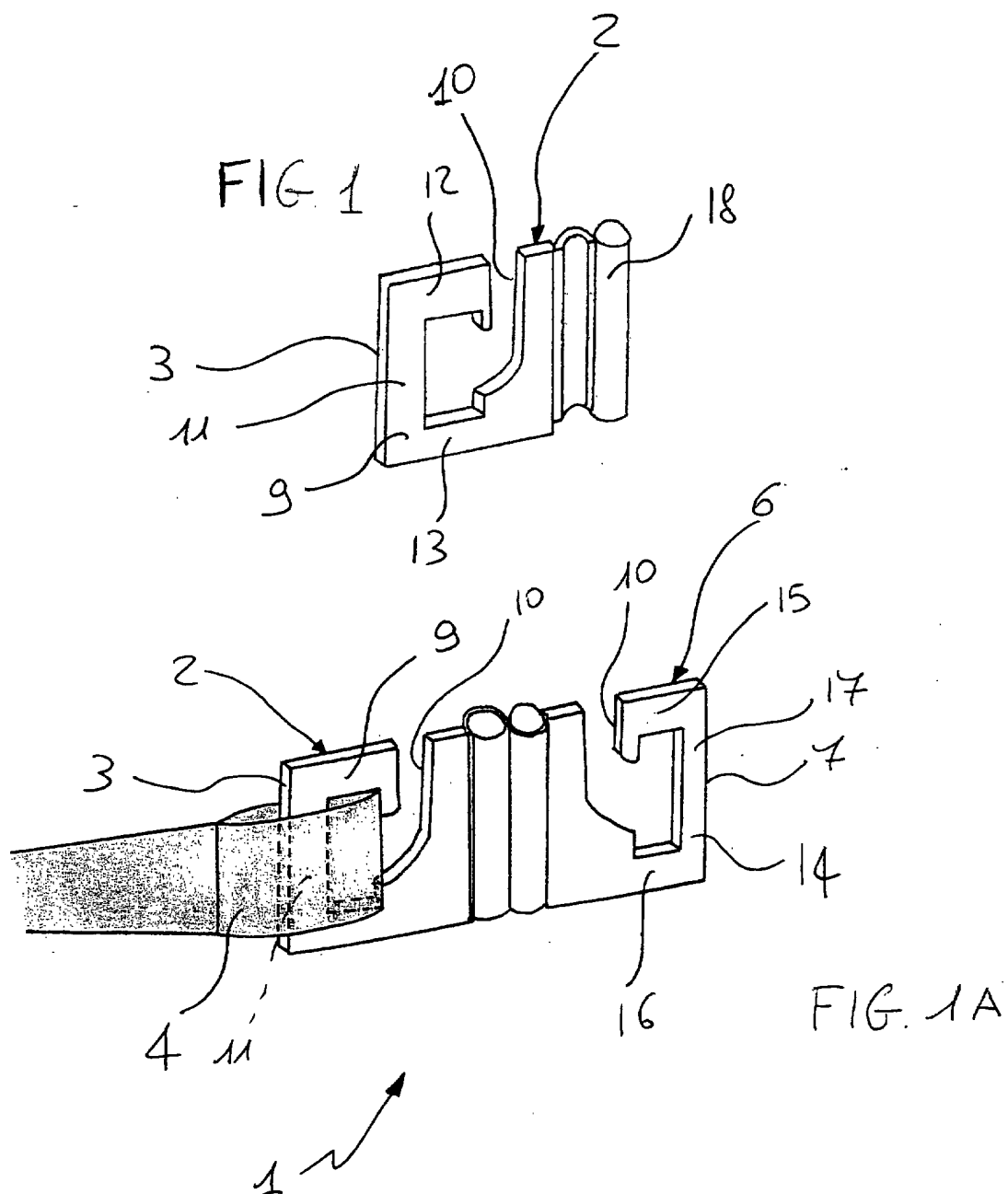
pled in a removable manner with said first part (4) and said further part (8) of the garment (5), respectively.

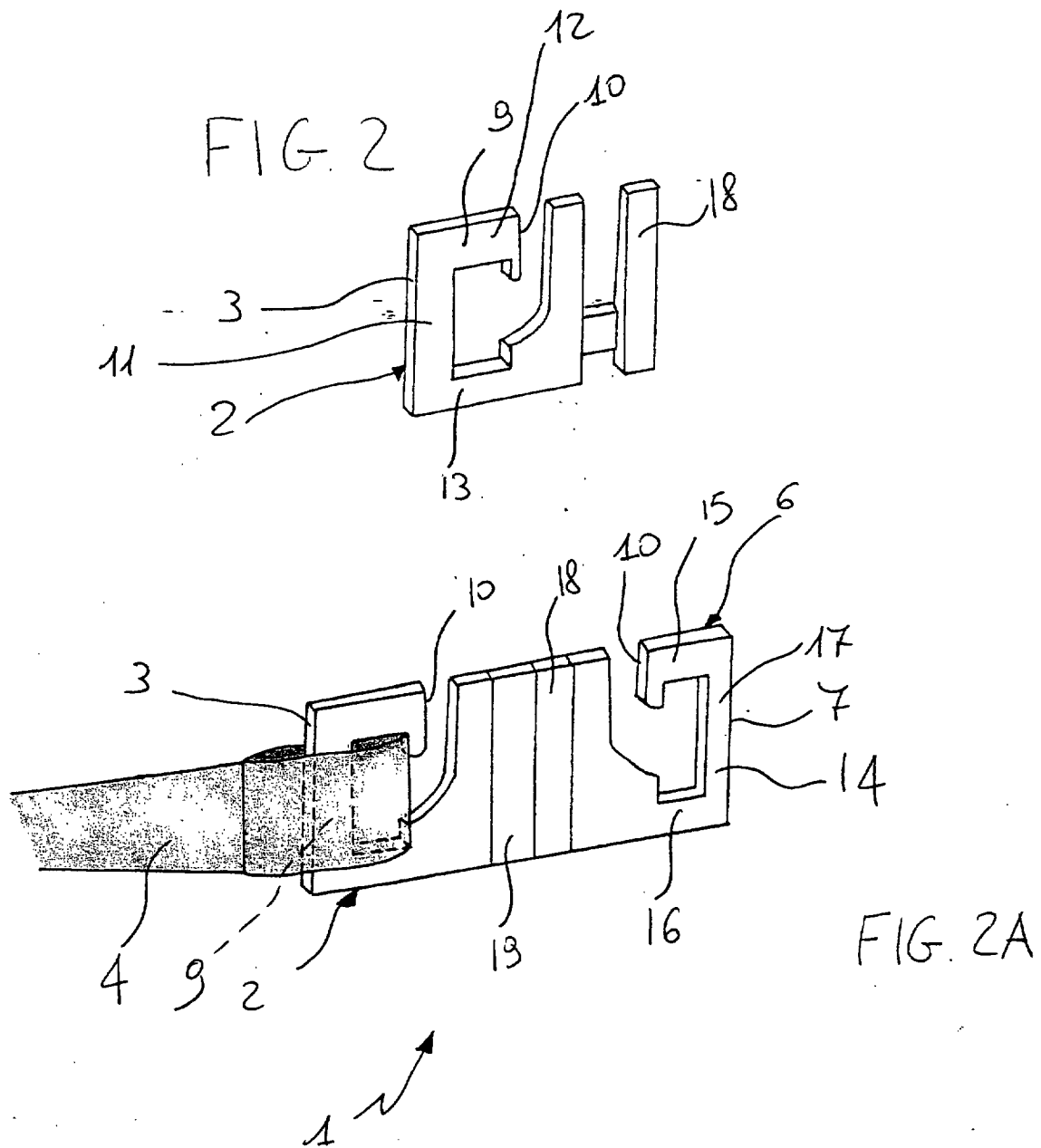
2. A locking device as claimed in claim 1, **characterized in that** the first engagement means (3) is defined by a first shaped body (9) arranged to enable insertion of said first part (4) of the garment (5) and retain it in place.
3. A locking device as claimed in claim 2, **characterized in that** the first shaped body (9) defines an insertion opening (10) to receive the garment (5), an eye or loop thereof for example, and a retaining portion (11) to keep the main locking element (2) coupled with the garment (5).
4. A locking device as claimed in claim 3, **characterized in that** the first shaped body (9) has a substantially C-shaped outer profile.
5. A locking device as claimed in claim 4, **characterized in that** said "C" has two opposite sides (12, 13) joined by a central flap, said central flap being defined by said retaining portion (11) and being arranged to receive and support the first part (4) of the garment under work conditions of the locking element.
6. A locking device as claimed in claim 1, **characterized in that** the second engagement means (7) is defined by a second shaped body (14) arranged to enable insertion of said further part (8) of the garment and retain it in place.
7. A locking device as claimed in claim 6, **characterized in that** the second shaped body (14) defines an insertion opening (10) to receive the garment (5) and a retaining portion (11) to keep the secondary locking element (6) coupled with the garment.
8. A locking device as claimed in claim 7, **characterized in that** the second shaped body has a substantially C-shaped outer profile.
9. A locking device as claimed in claim 8, **characterized in that** said "C" has two opposite sides (15, 16) joined by a central flap, said central flap being defined by a retaining portion (17) and being arranged to receive and support the further part (8) of the garment under work conditions of the locking element.
10. A locking device as claimed in claim 1, **characterized in that** the main and secondary locking elements comprise respective interlocking portions (18, 19) set to engage with each other to ensure a removable coupling of the locking elements.

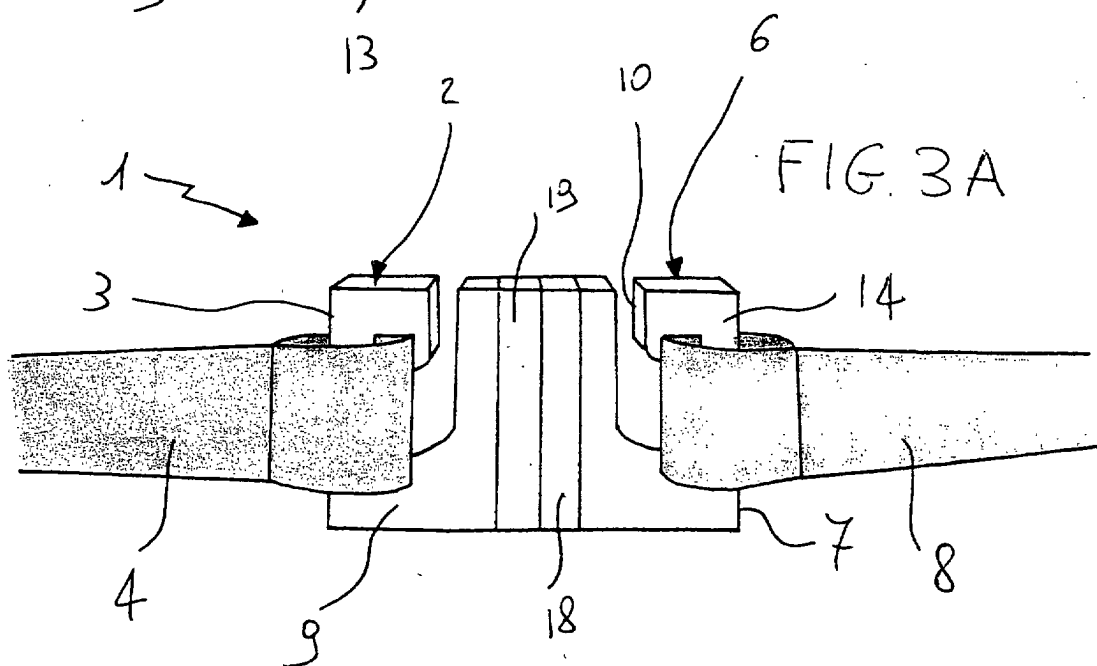
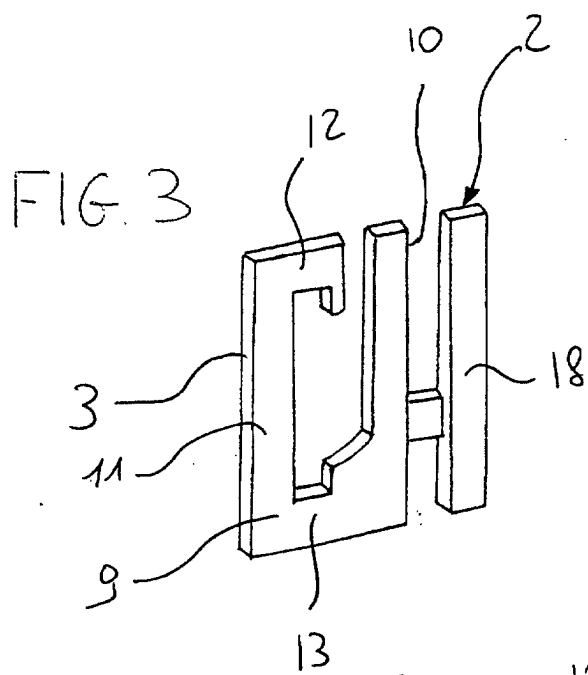
11. A locking device as claimed in anyone of the preceding claims, **characterized in that** the first and/or second engagement means (3, 7) comprise a closing arm (20) arranged, under engagement conditions of the locking element with the garment, to keep the insertion opening (10) closed to prevent the garment itself from slipping off. 5
12. A locking device as claimed in claim 11, **characterized in that** the closing arm (20) is maintained in place by spring means (21) and/or screws and/or means suitable for fitting coupling or the like. 10
13. A locking element in particular for garments and the like as claimed in anyone of the preceding claims, comprising: 15
- first engagement means (3) set to ensure coupling with a respective first part (4) of a garment (5); and 20
 - second engagement means (7) set to ensure coupling with a further part (8) of a garment to be maintained close to said first part under work conditions of the locking element, **characterized in that** coupling between the first engagement means (3) and the first part (4) of the garment and between the second engagement means (7) and the further part (8) of the garment is an engagement of the removable type. 25
- 30
14. A locking element as claimed in claim 13, **characterized in that** it comprises an interlocking portion (22) joining the first shaped body (9) and second shaped body (14), said first and second shaped bodies and interlocking portion preferably defining a body of one piece construction. 35
15. An element as claimed in claim 14, **characterized in that** said interlocking portion (22) and one of the opposite sides of the "C" define an insertion opening (10) of the garment. 40
16. A locking element as claimed in claim 1, **characterized in that** it is made of, and/or decorated with precious materials and/or precious stones, preferably having personalizing and/or ornamental shapes. 45

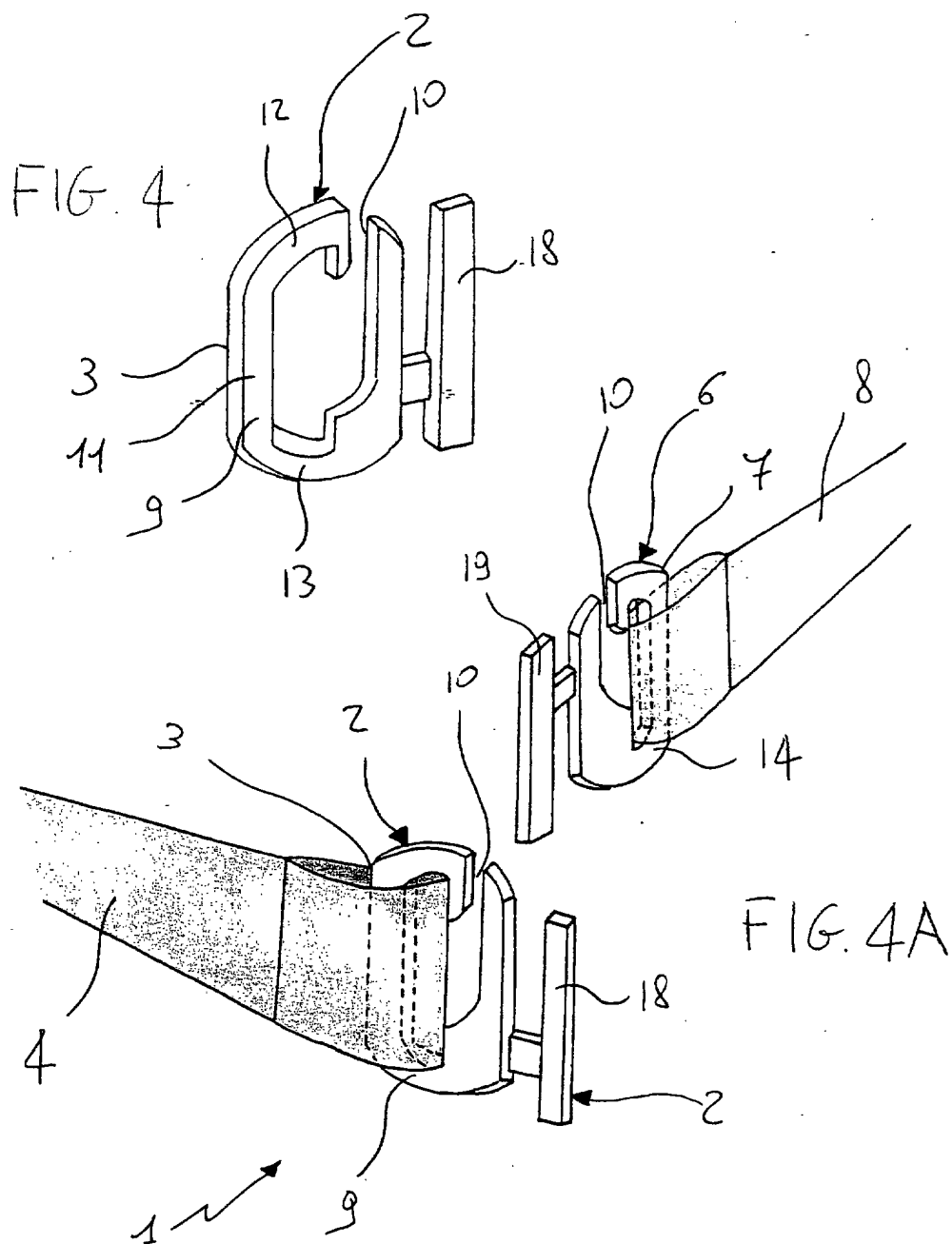
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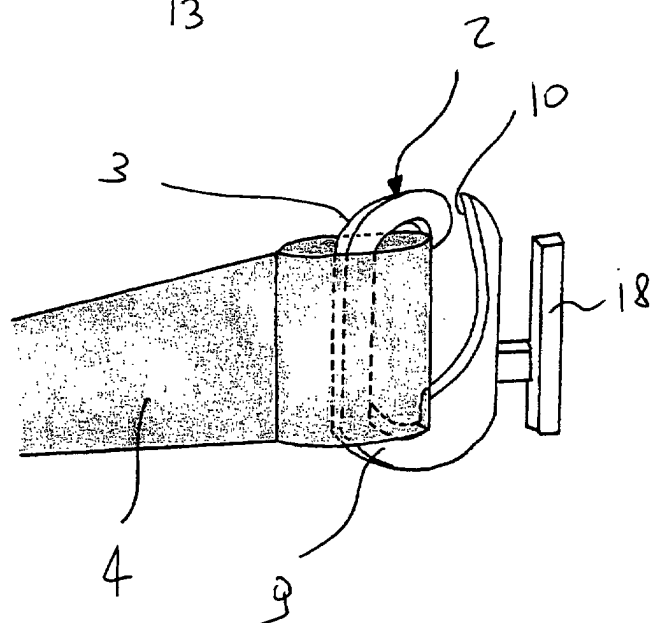
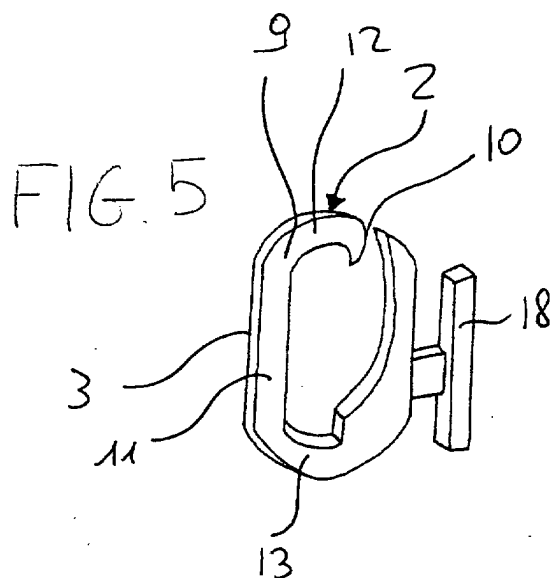


FIG. 5A

FIG. 6

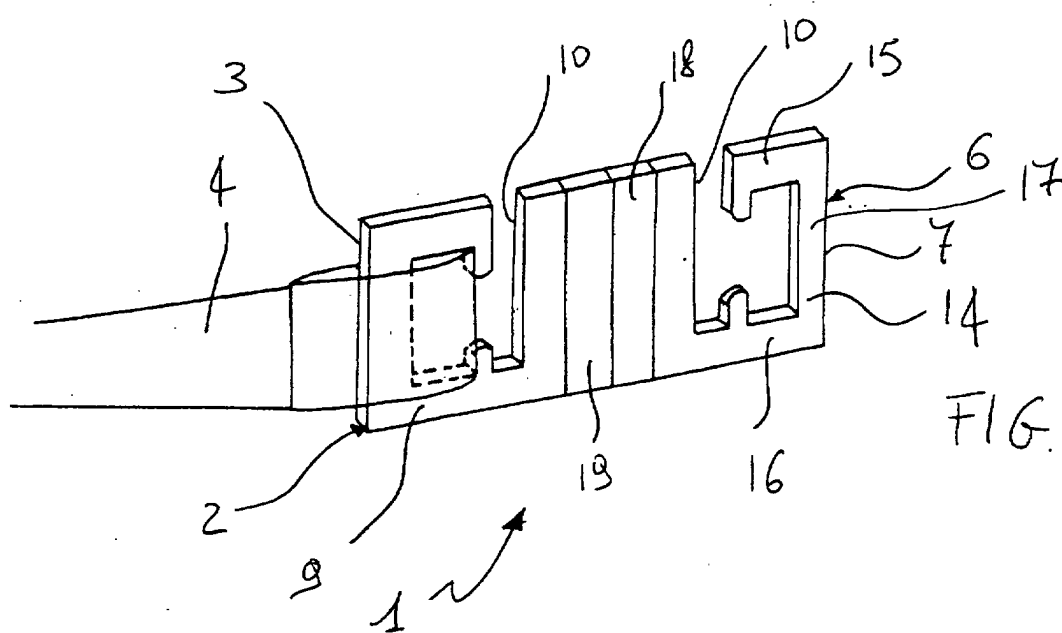
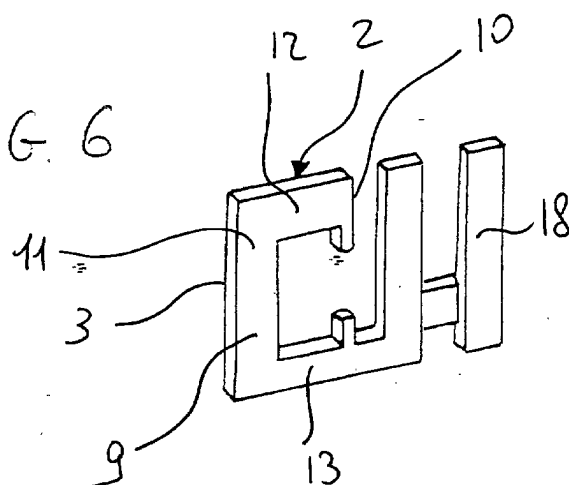
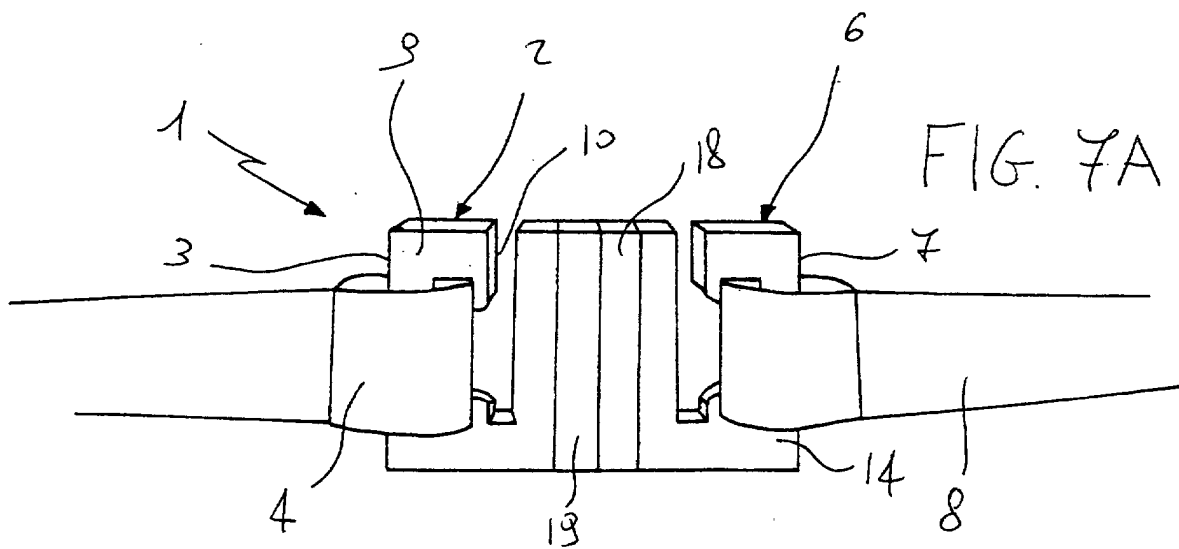
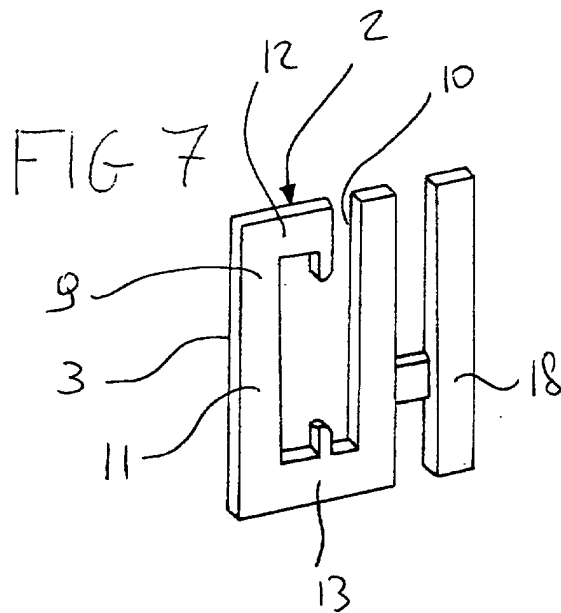
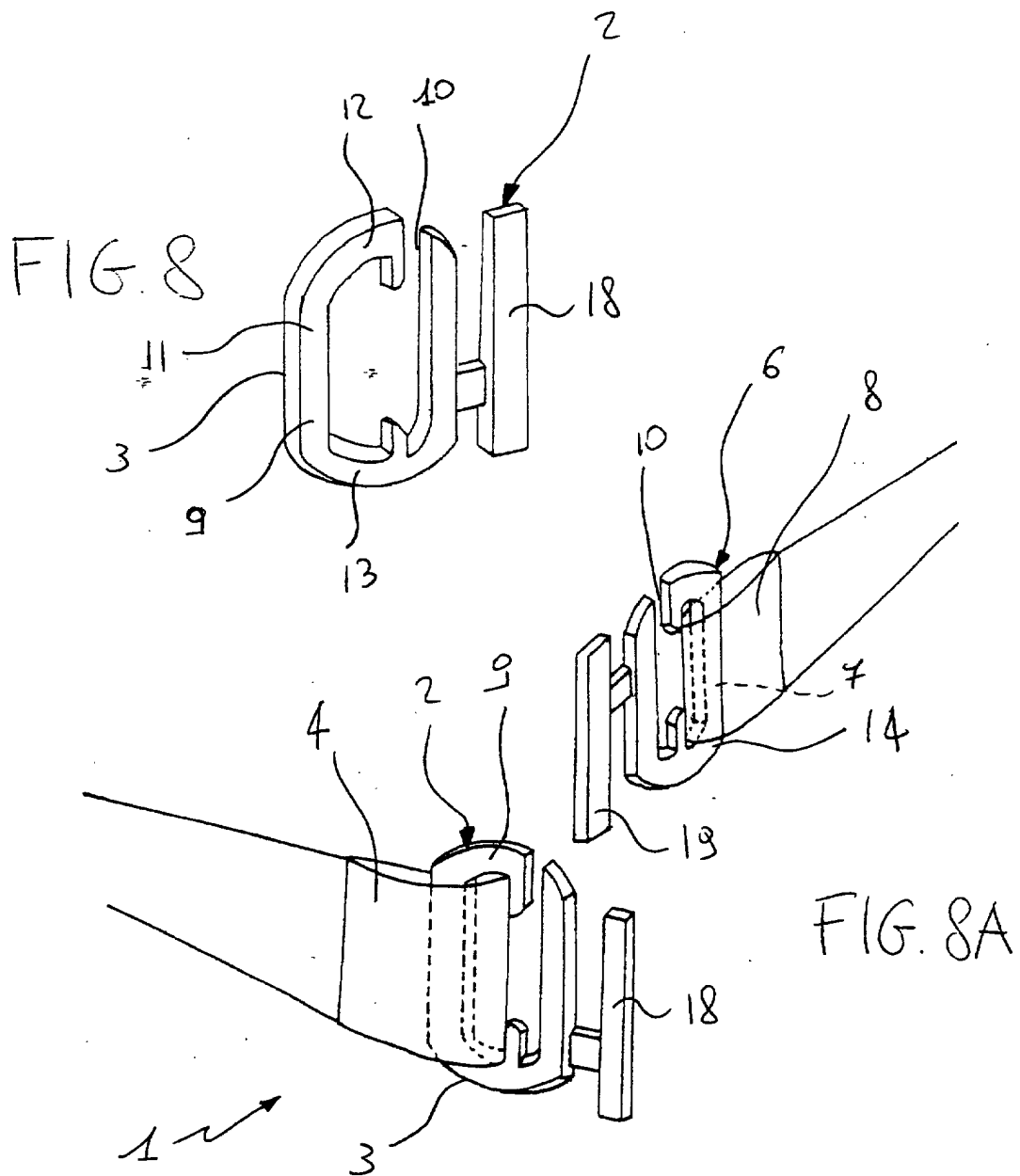
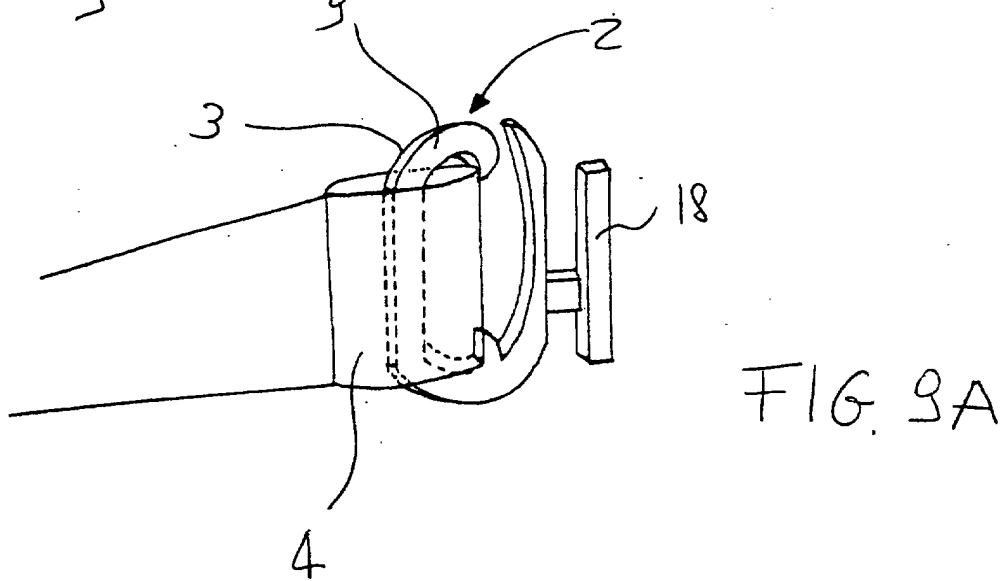
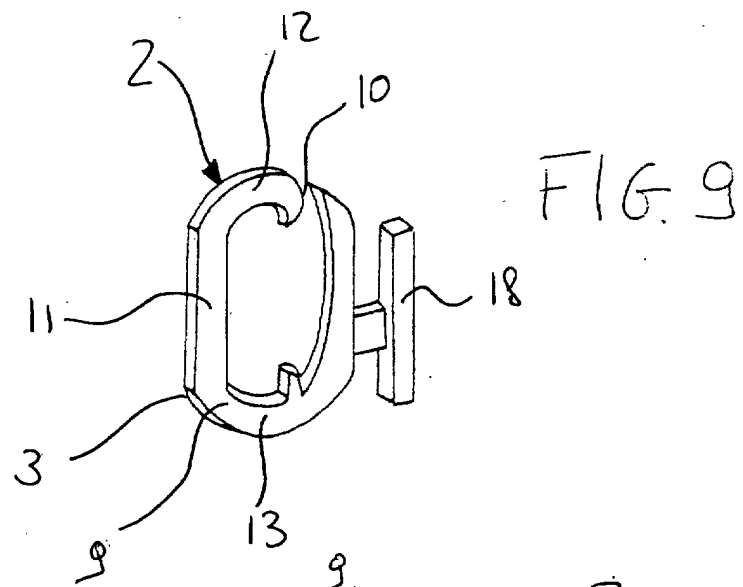
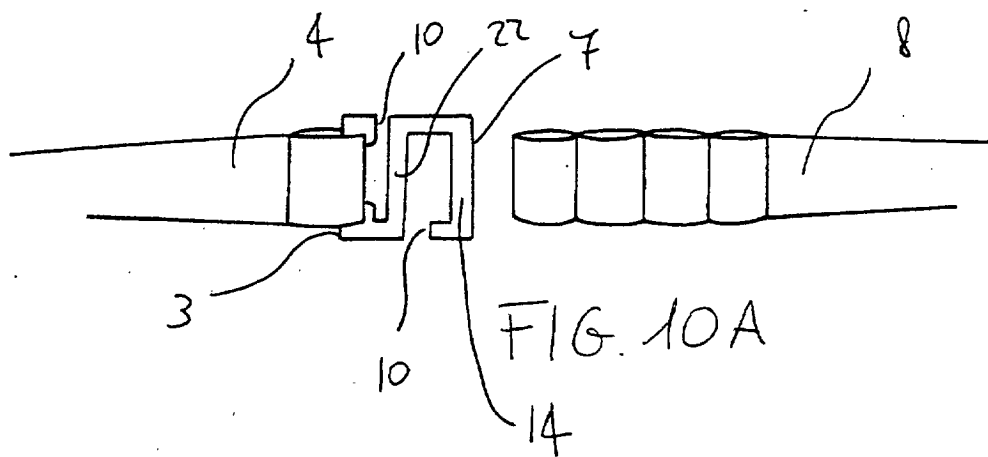
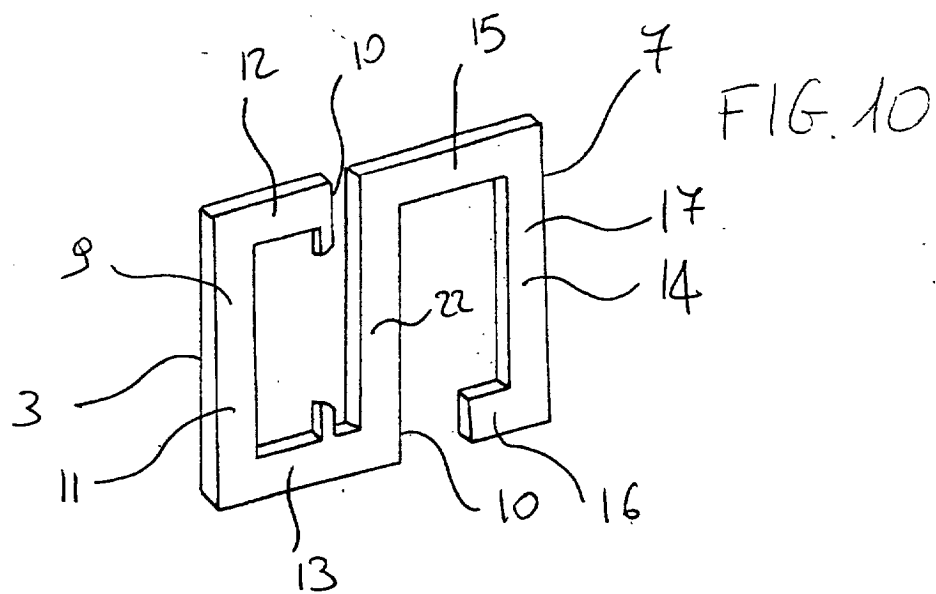


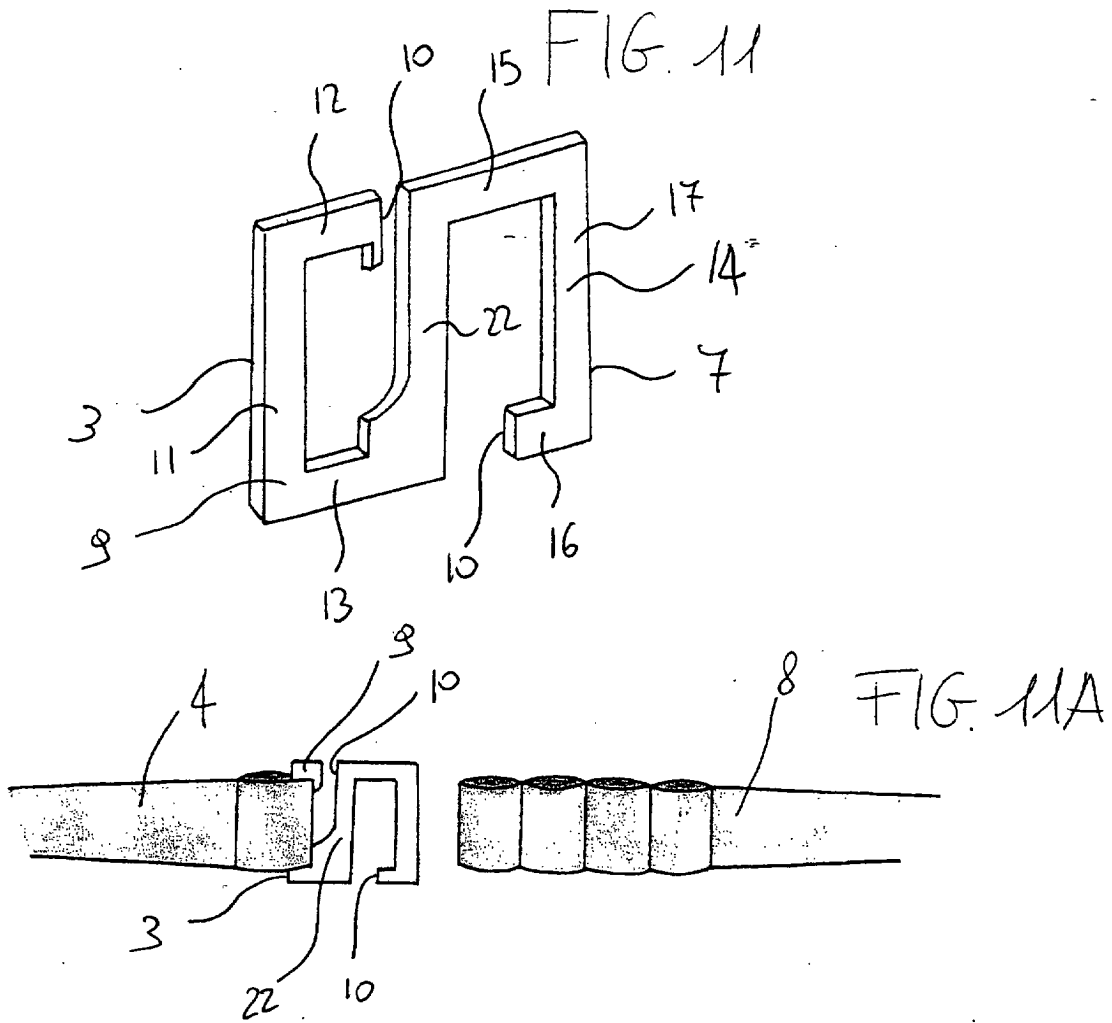
FIG. 6A











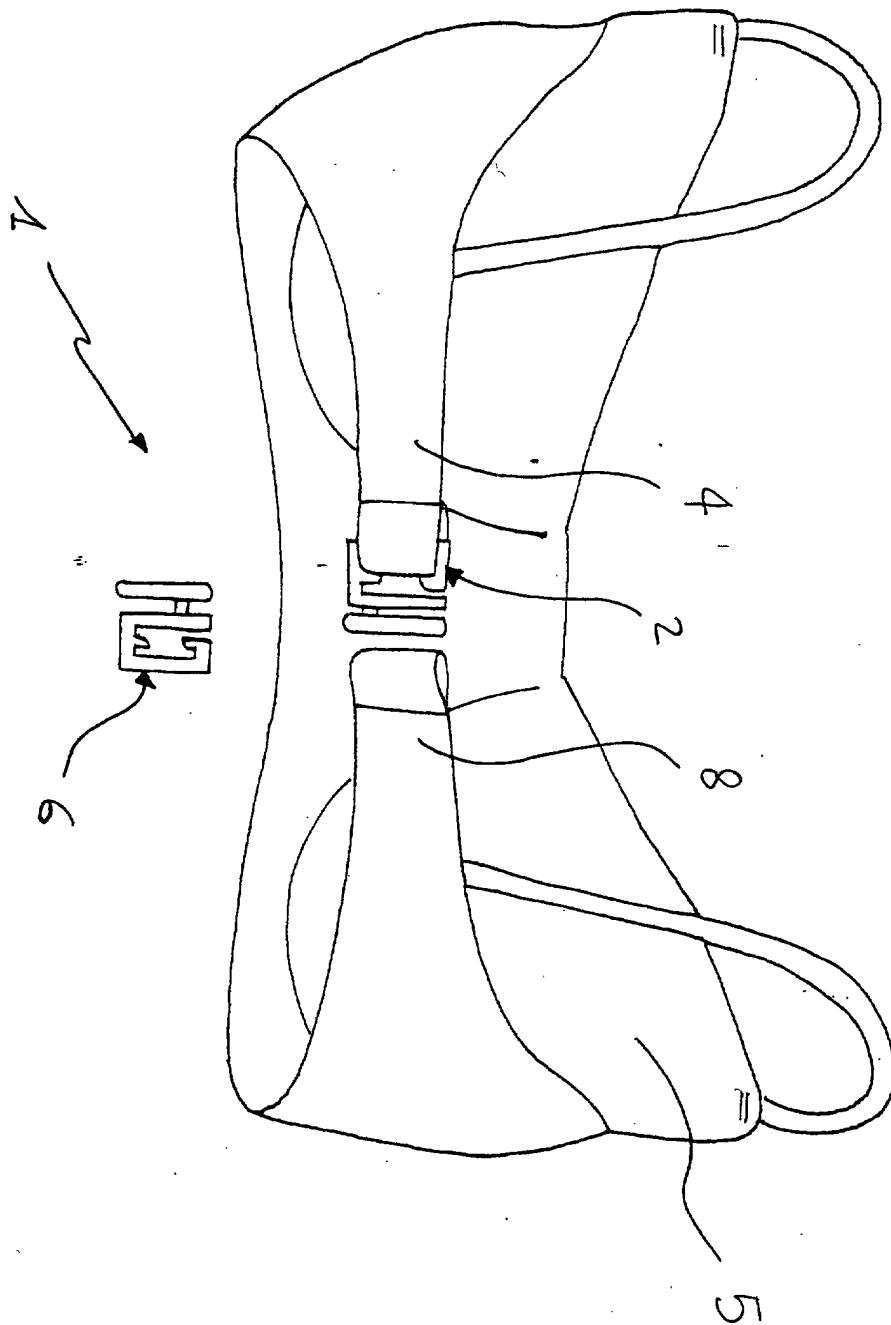
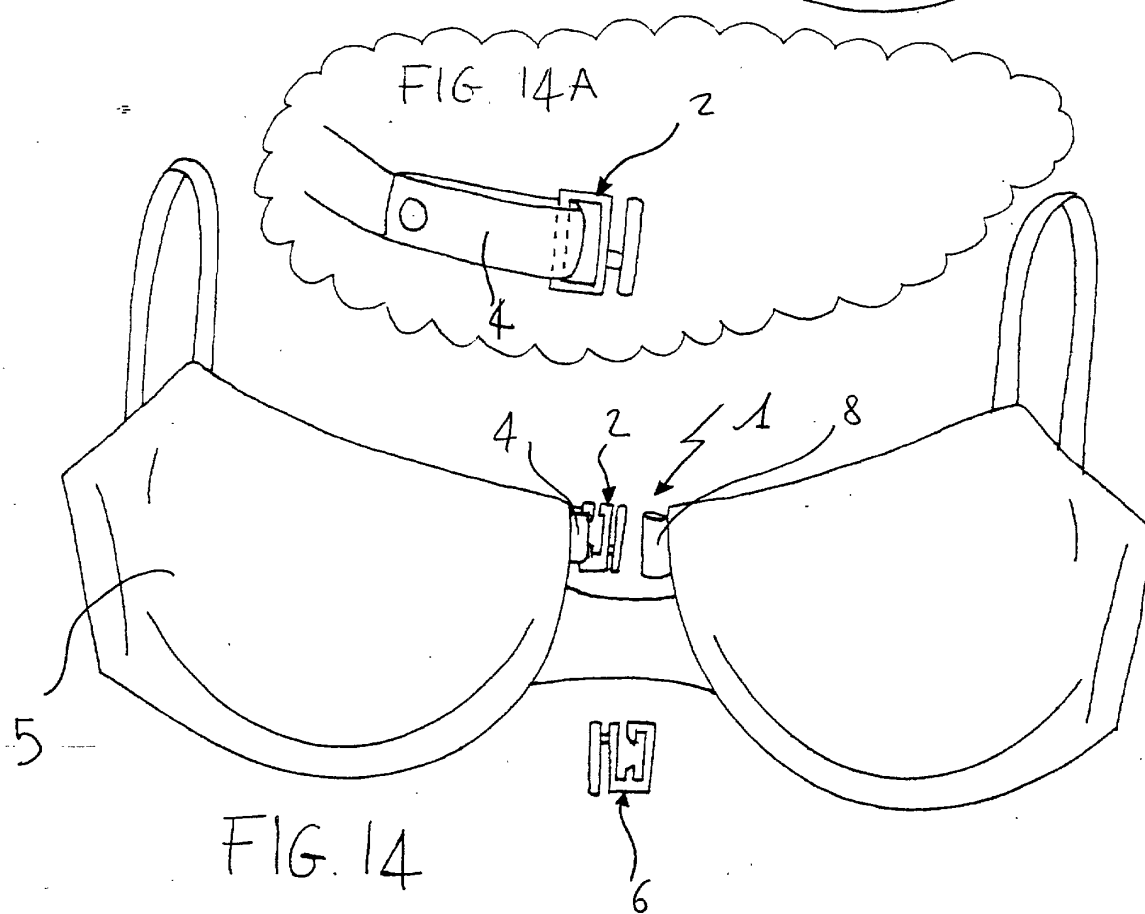
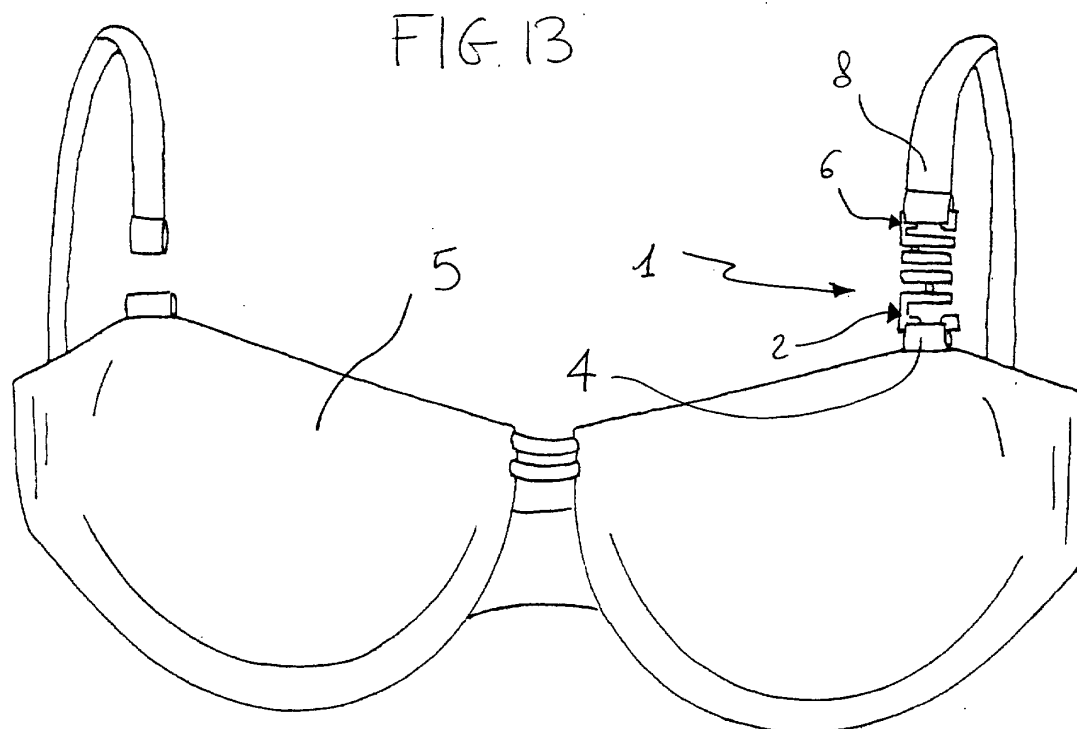


FIG. 12



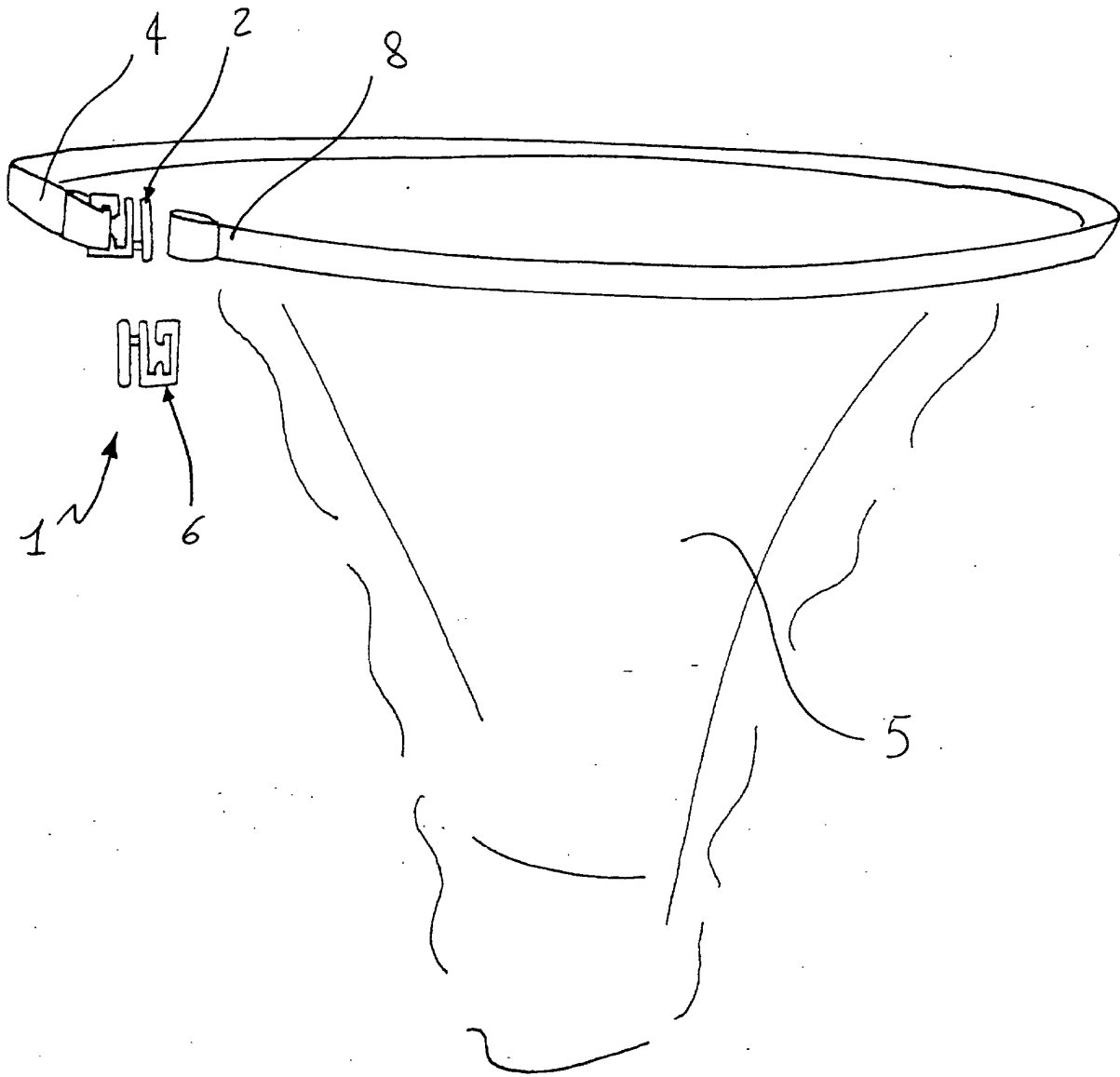


FIG. 15

