(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 063 733 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
02.11.2011 Bulletin 2011/44

(21) Application number: **07719165.8**

(22) Date of filing: **04.07.2007**

(51) Int Cl.:
A44B 19/26 *(2006.01)*

(86) International application number:
PCT/AU2007/000929

(87) International publication number:
WO 2008/025052 (06.03.2008 Gazette 2008/10)

(54) **TAMPER EVIDENT DEVICE**

ORIGINALITÄTSSICHERUNGSVORRICHTUNG

DISPOSITIF D'INVIOLABILITÉ

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

(30) Priority: **01.09.2006 AU 2006904773 P**

(43) Date of publication of application:
03.06.2009 Bulletin 2009/23

(60) Divisional application:
11182644.2

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EP 2 063 733 B1

Printed by Jouve, 75001 PARIS (FR)

Description

Technical Field

[0001] This invention relates to tamper evident devices. In particular, this invention is concerned with a tamper evident device suitable for use with a slide fastener.

Background of the Invention

[0002] It is well known to provide bags or envelopes having slide fasteners as closures. When such bags or envelopes are used to contain items which need to be secured, it is known to provide some type of security device which restricts access to the slide fastener and which has means for indicating tampering.

[0003] As an example of a prior art security device, reference is made to US patent 6,533,335. This prior art security device is designed to cover the slider of the slide fastener to prevent access to it. The security device also includes a frangible locking element or seal to indicate tampering.

[0004] In US 6,533,335, the security device has a two part housing. The housing has a lower part which is permanently affixed to the bag or envelope by rivets or similar fasteners. The top part of the housing is pivotable between open and closed positions. When the top part of the housing is closed to the bottom part of the housing, access to the slider of the slide fastener is prevented. The parts of the housing are locked together by a frangible seal. It is intended that tampering with the security device - such as by an attempt to access the slide - will be indicated by breach of the frangible seal.

[0005] Problems have been encountered with prior art security devices, such as that in US 6,533,335. In some cases, it has been possible to remove the security device from the bag or envelope by levering the housing so as to "pop" the rivets with which the lower part of the housing is attached to the bag or envelope. It is then possible to freely slide the slider and open the bag or envelope without affecting the tamper-evident seal. The housing can even be re-attached, using the same rivets. As a result, the contents of the bag or envelope can be tampered with, with no evidence that this has occurred.

Disclosure of the Invention

[0006] The present invention has as an object the avoidance or alleviation of such problems found with prior art security devices.

[0007] Accordingly, in a first aspect, the present invention provides a security device for a container closeable by a slide fastener having a slider, the security device including:

a lower part adapted for attachment to the container;

means for attaching the security device to the slider, directly or indirectly;

an upper part for retaining the attaching means;

receiving means for receiving a frangible seal and preventing retraction of the frangible seal except by fracture thereof; and

means to limit access to the attaching means and the receiving means;

wherein the security device includes an area of weakness adapted to fracture if the security device is prised from the container.

[0008] The slide fastener suitable for use with the security device of the invention may be any suitable slide fastener, as is known in the art. Commonly, such a slide fastener has a pair of tapes on which teeth are mounted, the slider serving to mesh or unmesh the teeth during closing and opening, in known manner.

[0009] The slider preferably includes a loop or aperture to which the attaching means may be attached. It is not necessary that the attaching means attaches directly to the slider. It may attach indirectly through one or more intermediate means. For example, the slider may have a zip pull, to which the attaching means may be attached.

[0010] The lower part of the security device, adapted for attachment to the container, may be in a single part or may have more than one part. Preferably, the lower part takes the form of a rivet plate to which the upper part is attachable

[0011] The upper part preferably forms a chamber base in which is located the receiving means for receiving the frangible seal. The upper part also is adapted to retain the attaching means, although retention may not be fully effective until the means to limit access to the attaching means is in place.

[0012] The receiving means for receiving the frangible seal may take any suitable form. In the case where the frangible seal is of the type described in Australian patent No. 738059 (see especially Figures 8 and 9), the receiving means is preferably a passageway adapted to receive legs of the frangible seal and to retain the legs when barbs on the frangible seal extend through the passageway to hook outside it. Other constructions are possible.

[0013] Preferably, the receiving means is constructed as to allow entry of a selected group of frangible seals only, such as those described in Australian Patent No. 738059 (see especially Figures 8 and 9). The receiving means preferably includes a pin or other suitable barrier so that only frangible seals having suitably separated legs may be received.

[0014] As is known in the art, a frangible seal of this type has a weakened area where the legs join a main body, so that any attempt to forcibly retract the frangible seal from the receiving means, while the barbs are hooked around the end of the passageway, causes the

legs to break from the main body, so as to indicate tampering.

[0015] The lower part is preferably adapted for attachment to the container by including one or more holes through which suitable fastening means may be inserted. Preferably, such holes are also formed in the upper part of the security device. Preferred fastening means are rivets.

[0016] The area of weakness is adapted to fracture if the security device is prised from the container. In one embodiment, the area of weakness is located in close proximity to an area intended for attachment of the security seal to the container. For example, if the upper part has a pair of spaced rivet holes, the area of weakness is preferably located between them, so that force on the security seal in the area of the rivets will be likely to cause fracture of the area of weakness.

[0017] Obviously, fracture of the area of weakness will indicate that there has been an attempt to prise the security seal from the container and thus will indicate tampering. It is preferred that, when the security device is assembled with the frangible seal in place, the area of weakness and the frangible seal can both be inspected so as to note if either has fractured. This may require that the area of weakness is not hidden beneath the main body of the frangible seal, for example. In a preferred embodiment, the area of weakness extends beyond the main body of the frangible seal in the assembled security device, to facilitate inspection.

[0018] The area of weakness is preferably on the upper part of the security device, but other locations are possible.

[0019] For example, in another preferred embodiment, there is more than one area of weakness, located around each of the rivet holes. The purpose of this is so that, if an attempt is made to prise the security device from the container, the area around each rivet hole fractures, so that it is not possible to reattach the security device to the container without detection.

[0020] It is also within the scope of this invention that an area of weakness is located around one or some, but not all, of the rivet holes.

[0021] Mention was made above of problems encountered with prior art security devices, such as that in US 6,533,335. While the present invention in the first aspect, described above, can avoid or alleviate such problems, an alternate solution is possible. Part of the problem with the prior art devices, such US 6,553,335, lies in the fact that there is virtually no "play" between the security device and the container, once assembled. The security device is rigidly held to the container by the rivets or other securing means. This can make it relatively simple to prise the security device from the container by levering the housing so as to "pop" the rivets.

[0022] In an alternate solution, the present invention provides a security device for a container closeable by a slide fastener having a slider, the security device including:

a lower part adapted for attachment to the container,

means for attaching the security device to the slider, directly or indirectly;

an upper part for retaining the attaching means; and

means to limit access to the attaching means;

wherein the security device is adapted for attachment to the container by fastening means in such a way that the security device is moveable, relative to the fastening means, after assembly while still being secured to the container.

[0023] The lower part, the attaching means and the upper part of the security device in this alternate aspect may be as described above in relation to the first aspect of the invention.

[0024] The security device, when assembled to the container in the alternate aspect to the invention is intended to have a chosen amount of "play" in relation to the fastening means, such as rivets. There are various ways which this can be achieved, as will be apparent to one skilled in the art now that the concept of the invention has been disclosed.

[0025] By way of example, the security device may be designed so that the lower part, adapted for attachment to the container, incorporates anchor points for the fastening means. These may be shaped so as to allow the desired degree of "play".

[0026] As another example, the length of the rivets may be chosen to co-ordinate with the distance between the lower part and the access limiting means. For example, the access limiting means may be spaced somewhat further away from the rivets than disclosed in the examples in US 6,553,335.

[0027] The access limiting means for the invention in both the first and second aspects preferably forms a lid to the security device, particularly when the upper part forms a chamber base. In this embodiment, the access limiting means can serve to close off the chamber and to prevent both unauthorised access to the receiving means and unauthorised attempt to manipulate the attaching means. An example is given in connection with the drawings below.

[0028] In the first and second aspects of the invention, the security device may be made of any suitable material. By way of example, the lower part, the upper part, the receiving means and the access limiting means are preferably made from ABS plastic. The attaching means is preferably metal, such as stainless steel.

[0029] The first and second aspects of the invention may be combined in a single security device.

Brief Description of the Drawings

[0030] The invention will now be described in connec-

tion with a certain non limiting embodiment thereof in connection with the following drawings, in which:

Figure 1 is a perspective view of an embodiment of a security seal of the first aspect of the invention;

Figure 2 is a front elevation of the embodiment of Figure 1;

Figure 3 is a plan view of the embodiment;

Figure 4 is a sectional view taken along the lines A - A in Figure 3;

Figure 5 is an exploded view of the security device;

Figure 6 is a perspective view from below of the security device in the previous Figures;

Figure 7 is an exploded view of a second embodiment of the security seal;

Figure 8 is an exploded view from below of the chamber cover of Figure 7; and

Figure 9 shows the chamber cover of Figure 8 after insertion of the pin.

Detailed Description of the Drawings

[0031] It will be appreciated that Figures 1 to 5 and 7 to 9 are drawn on one scale, while Figure 6 is on a much larger scale.

[0032] With reference to all Figures 1 to 6, but in particular to Figure 5, it can be seen that security device 10 has a lower part 12 and attaching means 14 for attachment to slider 16 through aperture 18. (The container to which security device 10 is to be attached is not shown in the Figures).

[0033] Security device 10 also includes upper part or chamber base 20 including a chamber 22, in which is located receiving means or passageway 24 for receiving frangible seal 26.

[0034] Chamber 22 is adapted to be covered by access limiting means or chamber cover 28.

[0035] Upper part 20 also includes area of weakness 30. In the embodiment shown, this is made of substantially thinner ABS material than the remainder of upper part 20 and is further weakened by peripheral notch or cutout 62.

[0036] Lower part 12 represents a rivet plate, having a pair or rivet holes 32 at one end and a pair of apertures 34. Forward of rivet holes 32 is notch 36.

[0037] Chamber base 20 includes a pair of anchor legs 38. These are designed to pass into the wide part of apertures 34 and to clip into rivet plate 12 when chamber base 20 is pushed aft of rivet holes 32, so that the narrow part of apertures 34 snugly holds anchor legs 38.

[0038] Rivets or other suitable fasteners are then inserted through rivet holes 32 and 33 into the container (not shown).

[0039] Use of anchor legs 38 projecting into apertures 34 in rivet plate 12 allows "play" between the rivets and the security device 10. Whereas prior art devices may use four rivets, this embodiment of the present invention uses only two rivets.

[0040] Chamber base 20 also includes protrusion 40. When anchor legs 38 are being clipped into apertures 34 as described above, protrusion 40 clips into notch 36 and helps in alignment and securement of rivet plate 12 with lower chamber 20..

[0041] As can be seen from Figure 5, frangible seal 26 has a main body 42 and a pair of legs 44. Each leg 44 includes an outer barb 46 and an inclined (out of plane) barb 48. Main body 42 includes notch 50 to help in alignment for printing purposes, so that an appropriate trade mark or serial number, for example, may be printed on main body 42.

[0042] Seal 26 is also shown as having shallow cutouts 68, designed to receive tabs 70 on chamber cover 28, to assist in alignment. (There are two cutouts 68 and two tabs 70 in Figure 5, but only one of each is labelled to reduce congestion.)

[0043] Frangible seal 46 is dimensioned so that, when legs 44 are inserted in passageway 24 in lower chamber 20, legs 44 are slightly compressed towards one another and inclined barbs 48 are slightly pressed towards the main plane of main body 42. When outer barbs 46 clear passageway 24, legs 44 spring outwardly to their original position, so that outer barbs 46 hook around the far end of passageway 24. At the same time, inclined barbs 48, once they pass ledge 52, spring back to their original position.

[0044] Withdrawal of frangible seal 26 from passageway 24 is prevented both by the hooking of outer barbs around the outside of passageway 24 and interference of inclined barbs 48 against ledge 52. Any attempt to forcibly withdraw frangible seal 26 will cause legs 44 to break from main body 42 because of an area of weakness (not visible) where legs 44 join main body 42.

[0045] Attaching means 14 has a pivot aperture 54 which is designed to fit into Fear 56 of chamber cover 28 and to be pivotable therein.

[0046] Chamber cover 28 clips to chamber base 20 via ledges 64. Chamber cover 28, when fitted to chamber base 20, prevents unauthorised manipulation of attaching means 14 and covers chamber 22 and passageway 24. Chamber cover 28 is retained on chamber base 20 when frangible seal 26 is inserted through slot 58 in chamber cover 28 and passage way 24 in chamber base 20.

[0047] As can be seen from Figure 1, when security device 10 is fully assembled, frangible seal 26 can readily be inspected as securely in place. Area of weakness 30 in chamber base 20 is visible underneath apron 60 of chamber cover 28. In normal circumstances, apron 60

prevents area of weakness 30 from unintended damage through rough handling, etcetera, of a container to which security device 10 is attached.

[0048] However, if an attempt is made to "pop" rivets inserted through rivet holes 32 in rivet plate 12, area of weakness 30 will tear, by reason of it being of thinner construction than the rest of chamber base 20 and because of cut out 62, which borders the enclosed perimeter of area of weakness 30. This will be apparent by visual inspection of security device 10, evidencing tampering.

[0049] Consequently, security device 10 can indicate tampering if either frangible seal 26 or area of weakness 30 have been removed or damaged.

[0050] In Figure 7 another embodiment of the security device 10 is shown, which is limited to receipt of frangible seal 26 with split legs, the type of the frangible seal described in Australian Patent No. 738059 or an equivalent seal.

[0051] Chamber cover 128 is similar to chamber cover 28 in the previous embodiment. However, chamber cover 128 includes boss 82 having aperture 84 for receipt of pin 80. Pin 80 effectively divides entry into slot 58, so that only a frangible seal 26 or a similar seal with split legs 44 may enter. A frangible seal with a one piece leg will be blocked by pin 80 from entering slot 58.

Industrial Applicability

[0052] As will be readily appreciated by those skilled in the various arts, the invention disclosed herein are not limited to the examples set out and have wide applications in many areas, representing significant advances in the relevant art. Changes, modifications and variations may be made without departing from the scope of the present invention which is defined by the claims.

Claims

1. A security device (10) for a container closeable by a slide fastener having a slider (16), the security device (10) including:

   a lower part (12) adapted for attachment to the container;
   means (14) for attaching the security device (10) to the slider (16),
   directly or indirectly;
   an upper part (20) for retaining the attaching means (14);
   receiving means (24) for receiving a frangible seal (26) and preventing retraction of the frangible seal (26) except by fracture thereof; and
   means (28) to limit access to the attaching means (14) and the receiving means (24);
   characterised in that the security device (10) includes an area of weakness (30) adapted to fracture if the security device (10) is prised from the container, the area of weakness (30) being located in close proximity to an area intended for attachment of the security device (10) to the container.

2. The security device (10) of claim 1, wherein the security device (10) is adapted for attachment to the container by fastening means in such a way that the security device (10) is moveable, relative to the fastening means after assembly while still being secured to the container.

3. The security device (10) of claim 1, wherein the attaching means (14) is attached to a zip pull for the slider (16).

4. The security device (10) of claim 1, wherein the lower part (12) is a rivet plate.

5. The security device (10) of claim 4, wherein the upper part (20) forms a chamber base in which is located the receiving means (24).

6. The security device (10) of claim 5, wherein the means to limit access to the attaching means (14) and the receiving means (24) forms a cover for the chamber.

7. The security device (10) of claim 1, wherein the upper part (20) includes a pair of spaced rivet holes (33).

8. The security device (10) of claim 7, wherein the area of weakness (30) is located between the spaced rivet holes (33).

9. The security device (10) of claim 1, wherein the area of weakness (30) is visible when the frangible seal (26) is received in the receiving means (24).

10. The security device (10) of claim 1, wherein the area of weakness (30) is located around a rivet hole (33) in the upper part (20).

11. The security device (10) of claim 2, wherein the means (28) to limit access to the attaching means (14) and the receiving means (24) is adapted to be spaced apart from the fastening means.

12. The security device (10) of claim 1, wherein the receiving means (24) includes a barrier adapted to exclude entry of a frangible seal (26) without separate legs (44).

13. The security device (10) of claim 12, wherein the barrier is a pin (80) dividing the receiving means (24).

Patentansprüche

1. Sicherungsvorrichtung (10) für einen Behälter, die mit einem Reißverschluss mit einem Schieber (16) verschlossen werden kann, wobei die Sicherungsvorrichtung (10) Folgendes beinhaltet:

   einen unteren Teil (12), der zum Anbringen an dem Behälter ausgelegt ist;
   Mittel (14) zum direkten oder indirekten Anbringen der Sicherungsvorrichtung (10) an dem Schieber (16);
   einen oberen Teil (20) zum Halten des Anbringmittels (14);
   Aufnahmemittel (24) zum Aufnehmen einer zerbrechlichen Plombe (26), die ein Abziehen der zerbrechliche Plombe (26) ohne sie zu zerbrechen verhindert; und
   Mittel (28) zum Begrenzen des Zugangs zu dem Anbringmittel (14) und dem Aufnahmemittel (24);
   dadurch gekennzeichnet, das die Sicherungsvorrichtung (10) einen Sollbruchbereich (30) aufweist, der so gestaltet ist, dass er bricht, wenn die Sicherungsvorrichtung (10) vom Behälter abgehebelt wird, wobei sich der Sollbruchbereich (30) in unmittelbarer Nähe zu einem Bereich befindet, der zum Anbringen der Sicherungsvorrichtung (10) an dem Behälter gedacht ist.

2. Sicherungsvorrichtung (10) nach Anspruch 1, wobei die Sicherungsvorrichtung (10) zum Anbringen an dem Behälter mit Befestigungsmitteln auf eine solche Weise ausgelegt ist, dass die Sicherungsvorrichtung (10) nach der Montage relativ zu dem Befestigungsmittel beweglich ist, während sie noch an dem Behälter befestigt ist.

3. Sicherungsvorrichtung (10) nach Anspruch 1, wobei das Anbringmittel (14) an einem Reißverschlusszugelement für den Schieber (16) angebracht ist.

4. Sicherungsvorrichtung (10) nach Anspruch 1, wobei der untere Teil (12) eine Nietplatte ist.

5. Sicherungsvorrichtung (10) nach Anspruch 4, wobei der obere Teil (20) einen Kammerboden bildet, in dem sich das Aufnahmemittel (24) befindet.

6. Sicherungsvorrichtung (10) nach Anspruch 5, wobei das Mittel zum Begrenzen des Zugangs zu dem Anbringmittel (14) und dem Aufnahmemittel (24) einen Deckel für die Kammer bildet.

7. Sicherungsvorrichtung (10) nach Anspruch 1, wobei der obere Teil (20) ein Paar beabstandete Nietlöcher (33) aufweist.

8. Sicherungsvorrichtung (10) nach Anspruch 7, wobei sich der Sollbruchbereich (30) zwischen den beabstandeten Nietlöchern (33) befindet.

9. Sicherungsvorrichtung (10) nach Anspruch 1, wobei der Sollbruchbereich (30) sichtbar ist, wenn die zerbrechliche Plombe (26) in dem Aufnahmemittel (24) aufgenommen wird.

10. Sicherungsvorrichtung (10) nach Anspruch 1, wobei sich der Sollbruchbereich (30) um ein Nietloch (33) im oberen Teil (20) befindet.

11. Sicherungsvorrichtung (10) nach Anspruch 2, wobei das Mittel (28) zum Begrenzen des Zugangs zu dem Anbringmittel (14) und dem Aufnahmemittel (24) so gestaltet ist, das es von dem Befestigungsmittel beabstandet ist.

12. Sicherungsvorrichtung (10) nach Anspruch 1, wobei das Aufnahmemittel (24) eine Barriere aufweist, die so gestaltet ist, dass sie das Einführen einer zerbrechlichen Plombe (26) ohne separate Schenkel (44) ausschließt.

13. Sicherungsvorrichtung (10) nach Anspruch 12, wobei die Barriere ein Stift (80) ist, der die Aufnahmemittel (24) unterteilt.

Revendications

1. Dispositif de sécurité (10) pour un contenant apte à être fermé par une fixation coulissante munie d'une coulisse (16), le dispositif de sécurité (10) comprenant :

   une partie inférieure (12) conçue pour être attachée au contenant ;
   des moyens (14) pour attacher le dispositif de sécurité (10) à la coulisse (16), directement ou indirectement ;
   une partie supérieure (20) pour retenir les moyens d'attache (14) ;
   des moyens de réception (24) pour recevoir un joint frangible (26) et empêcher la rétraction du joint frangible (26) sauf par rupture de ce dernier ; et
   des moyens (28) pour limiter l'accès aux moyens d'attache (14) et aux moyens de réception (24) ;
   caractérisé en ce que le dispositif de sécurité (10) comporte une zone de faiblesse (30) conçue pour se rompre si le dispositif de sécurité (10) est enlevé par force du contenant, la zone de faiblesse (30) étant positionnée à proximité immédiate d'une zone au niveau de laquelle il est envisagé d'attacher le dispositif de sécurité

(10) au contenant.

2. Dispositif de sécurité (10) selon la revendication 1, le dispositif de sécurité (10) étant conçu de façon à être attaché au contenant par le biais des moyens de fixation de telle sorte que le dispositif de sécurité (10) soit apte à se déplacer, par rapport aux moyens de fixation après assemblage, tout en étant encore assujetti au contenant.

3. Dispositif de sécurité (10) selon la revendication 1, les moyens d'attache (14) étant attachés à une tirette de type fermeture éclair pour la coulisse (16).

4. Dispositif de sécurité (10) selon la revendication 1, la partie inférieure (12) étant une plaque de rivets.

5. Dispositif de sécurité (10) selon la revendication 4, la partie supérieure (20) formant une base de chambre dans laquelle sont positionnés les moyens de réception (24).

6. Dispositif de sécurité (10) selon la revendication 5, les moyens servant à limiter l'accès aux moyens d'attache (14) et aux moyens de réception (24) constituant un capot pour la chambre.

7. Dispositif de sécurité (10) selon la revendication 1, la partie supérieure (20) englobant une paire de trous de rivet espacés (33).

8. Dispositif de sécurité (10) selon la revendication 7, la zone de faiblesse (30 étant positionnée entre les trous de rivet espacés (33).

9. Dispositif de sécurité (10) selon la revendication 1, la zone de faiblesse (30) étant visible lorsque le joint frangible (26) est reçu dans les moyens de réception (24).

10. Dispositif de sécurité (10) selon la revendication 1, la zone de faiblesse (30) étant positionnée autour d'un trou de rivet (33) ménagé dans la partie supérieure (20).

11. Dispositif de sécurité (10) selon la revendication 2, les moyens (28) pour limiter l'accès aux moyens d'attache (14) et aux moyens de réception (24) étant conçus pour être éloignés d'une certaine distance des moyens de fixation.

12. Dispositif de sécurité (10) selon la revendication 1, les moyens de réception (24) englobant une barrière laquelle est conçue pour exclure l'entrée d'un joint frangible (26) sans languettes séparées (44).

13. Dispositif de sécurité (10) selon la revendication 12, la barrière étant une broche (80) laquelle divise les moyens de réception (24).

FIGURE 1

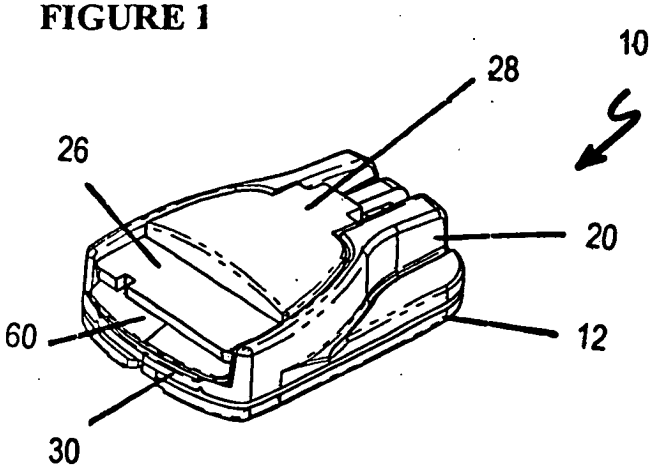
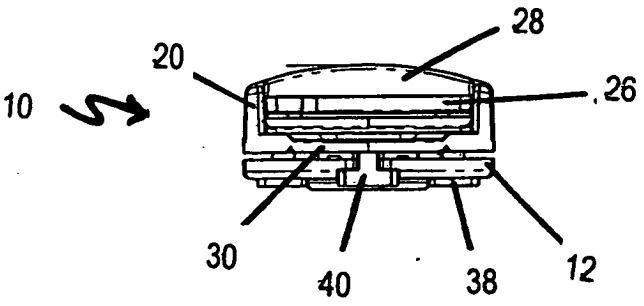


FIGURE 2



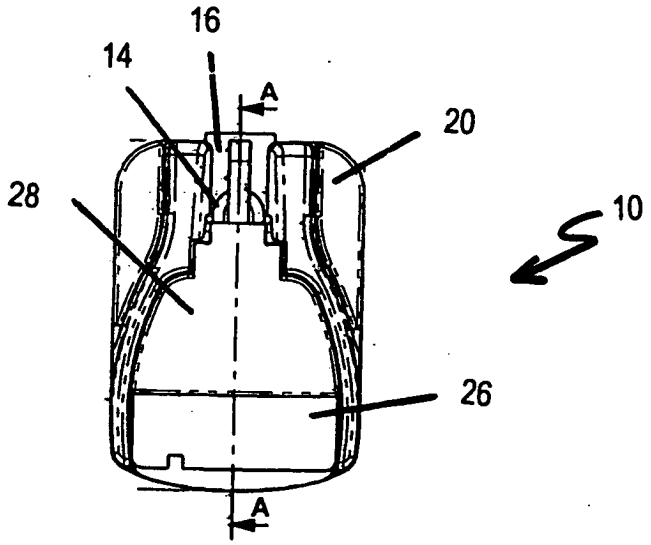


FIGURE 3

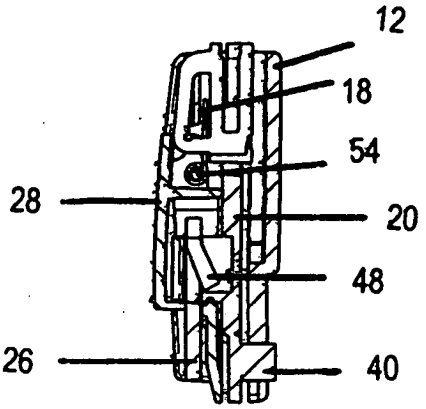


FIGURE 4

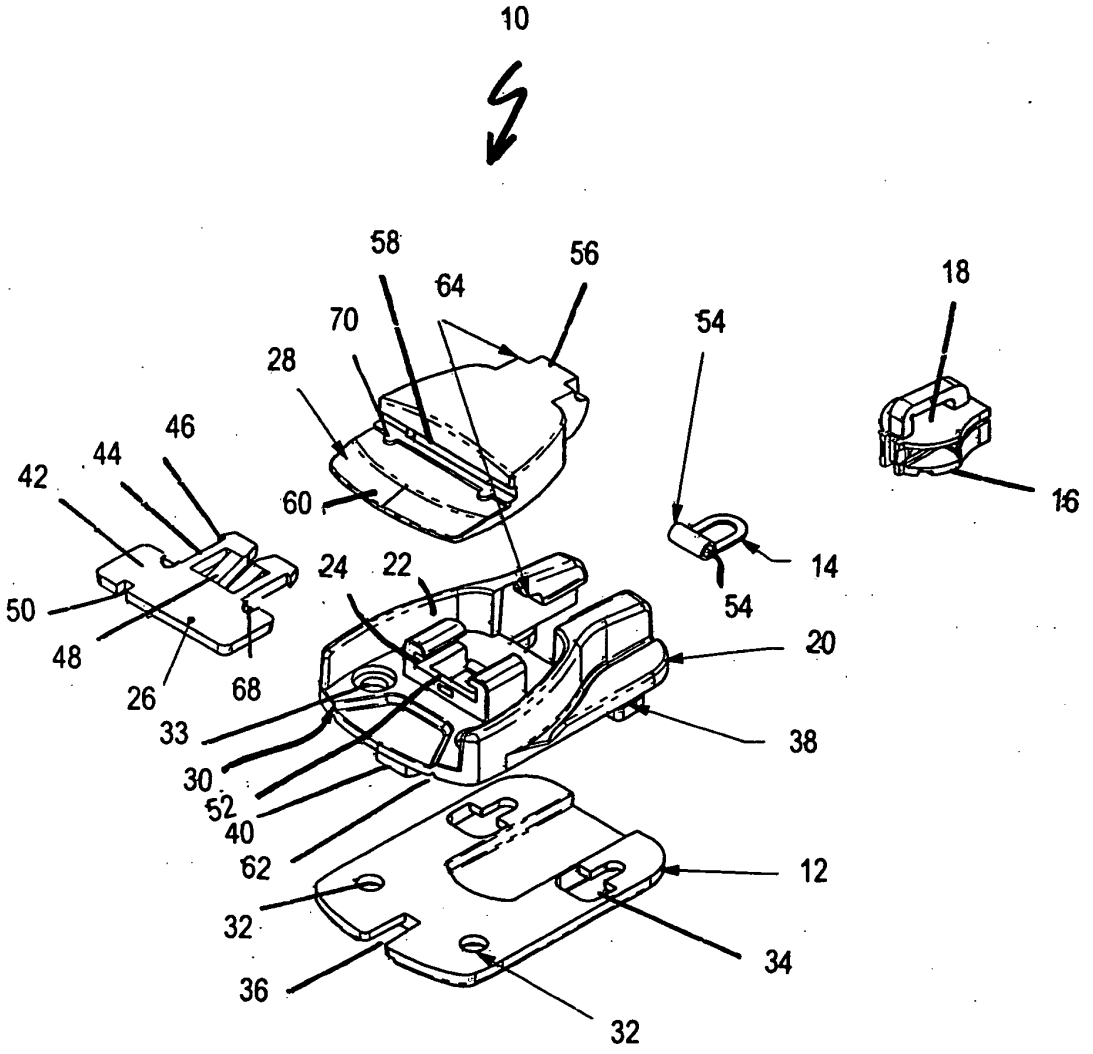

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FIGURE 5

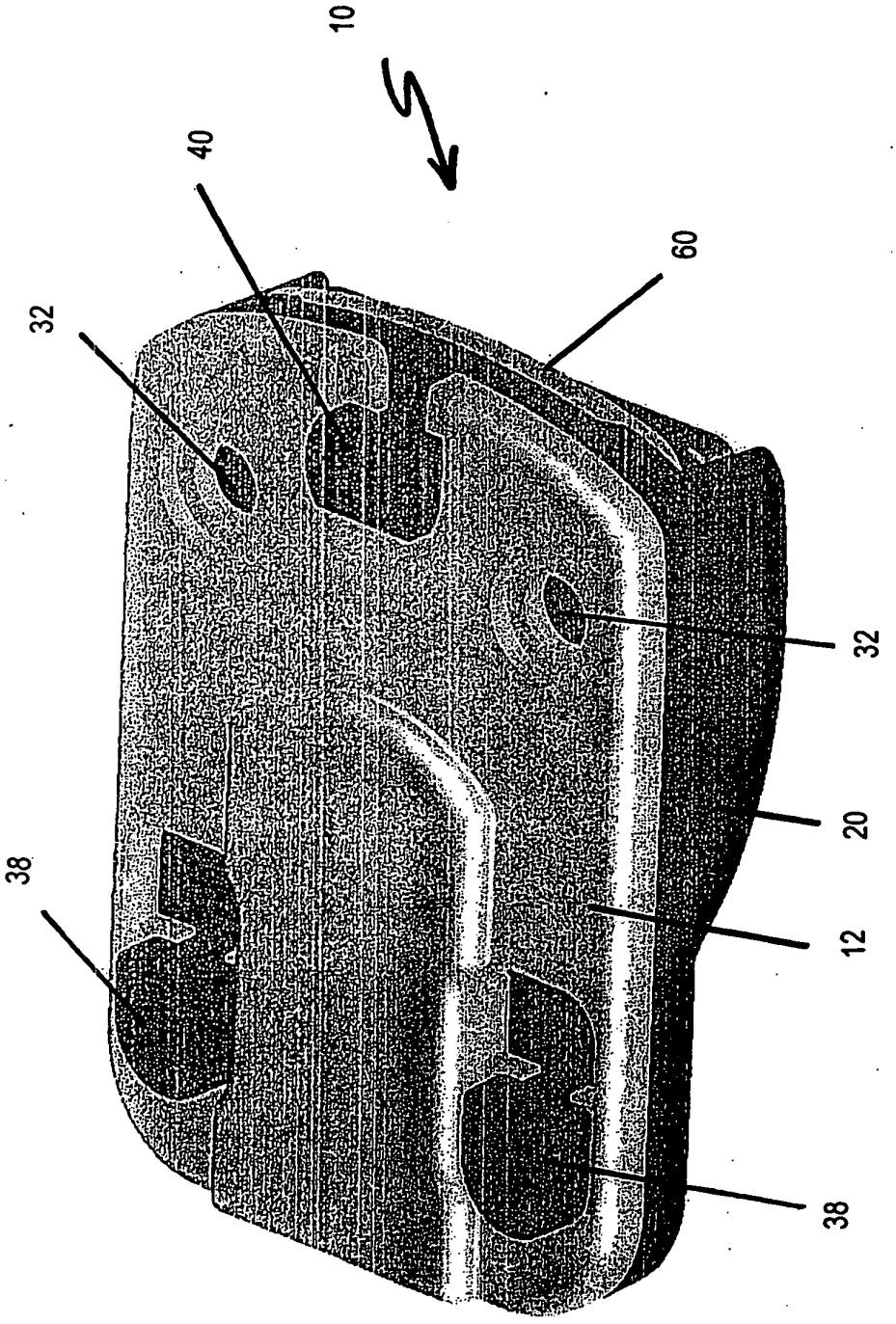

FIGURE 6

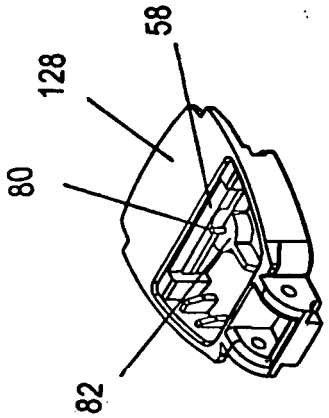

FIGURE 9

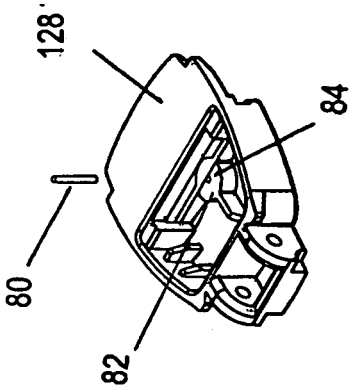

FIGURE 8

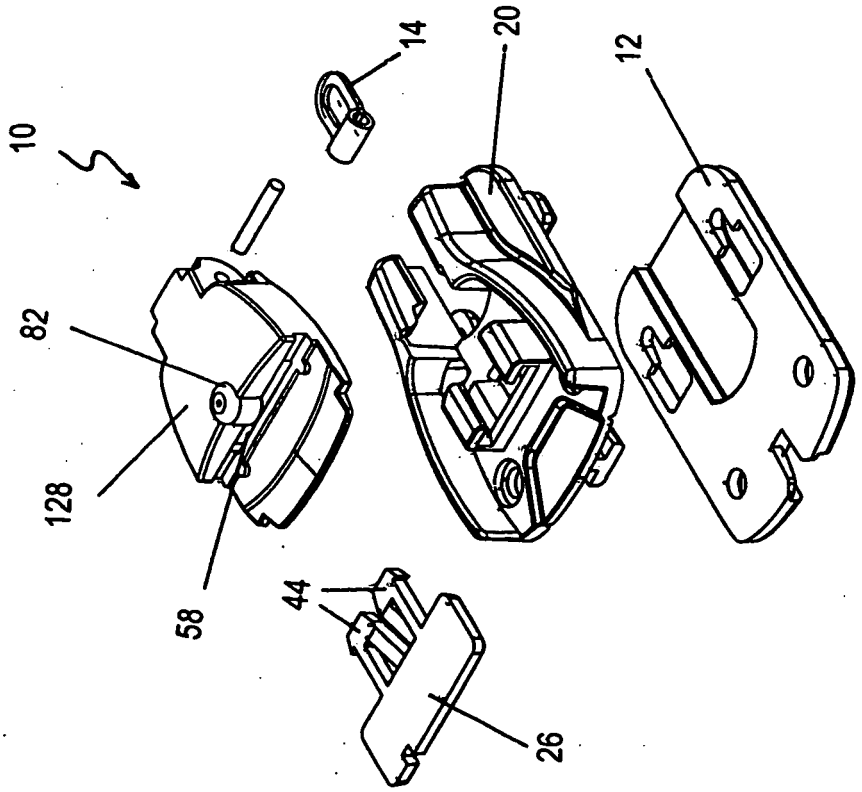

FIGURE 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- AU 738059 **[0012] [0013] [0050]**
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