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(54) **Closable container**

Verschliessbarer Behälter

Réipient fermable

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Description

[0001] The invention relates to a closable container, for example a box with a lid with a flap, or an envelope or pouch with a flap. The container has a lock unit with which the flap registers, the flap being temporarily locked in its closed position by means of a disposable locking member.

[0002] An envelope with a zipped opening is described in GB-A-1424680. As described in this document, the disposable locking member (generally referred to as a "seal") has a head part, a stem part and a plug part. The plug part goes through an aperture in the pull tab of the zipper and engages in an aperture in the lock unit. The envelope is opened by removal of the head part of the locking member, which causes rupture of the stem part with the plug part being left behind in the lock unit or envelope. Because the envelope can only be opened by breaking the locking member, a tamper evident seal to the envelope is provided. This same reference also discloses an envelope with a lock unit over which the puller tab of the zipper fits, a seal being fitted into the lock unit from the side, on top of the puller tab. The seal is a substantially flat element, having a body part and a head part substantially in the shape of an arrow-head with resilient barbs. A development of the tamper evident envelope of GB-A-1424680 is disclosed in WO-A-02/16215.

[0003] In GB-A-2330379 a locking device is disclosed which is in the form of a keyless padlock. A locking bar is inserted into the locking device and is locked in place by means of a disposable locking element. The locking element has a locking post and a plug part and incorporates a tear line by means of which the locking element can be split into two parts for removal and thus unlocking of the padlock. In WO-A-01/53163 a similar disposable locking element is described for use in closing the opening of a bag or pouch. A location plate on one side of the bag registers over a lock unit on the other side and a disposable locking element is pressed through the location plate and into the lock unit to temporarily lock the two sides of the opening of the bag together.

[0004] In GB-A-2364688 there is described a reusable envelope with a tamper evident closure. The top of the envelope has two apertures which register with each other when the top is folded over, and which register with a seal receiving assembly on the front of the envelope when the envelope is closed. A breakable seal is then plugged into the front of the envelope, to lock the envelope. WO-A-02/04306 describes another reusable and lockable envelope, with a complex fold-over top. After the top is folded closed, apertures in the top register with a lock unit on the envelope and a seal is plugged into the front.

[0005] A similar plug-in seal to that shown in GB-A-2364688 is disclosed in US-A-5651652, for use in closing a reusable box-like container with overlapping flaps.

[0006] The present applicant in the 1990s made and sold a reusable envelope with a two part lock unit, one

part being on the flap of the envelope and one part being on the front of the envelope. When the flap was closed, the two parts formed a lock unit into which a breakable seal was inserted at the side, along the surface of the flap. The lock unit part on the flap formed the outer surface or roof of the lock unit, i.e. the flap did not have an aperture through which the lock unit part on the envelope passed.

[0007] The invention aims to provide an anew and improved closable container with a tamper-evident locking mechanism.

[0008] According to the invention, there is provided a closable container having an opening which is closed by a flap of the container, the flap having an aperture there-through which in use registers with a lock unit formed on a wall or side of the container with the lock unit extending through the aperture, the lock unit having an opening for receiving the head of a breakable seal which locks into the opening in such a manner that it cannot be removed without breaking, the seal in its inserted position locking the flap over the lock unit in a tamper evident fashion, wherein the opening of the lock unit is arranged on one side of the lock unit, whereby in use the seal is inserted substantially parallel to the plane of the flap.

[0009] The lock unit has a closed roof and preferably on the inside of the roof there is formed a rib or groove for registration with a corresponding groove or rib on the head part of the seal.

[0010] The aperture is preferably formed in a first plate fitted to the flap and which locates over the lock unit, and the lock unit can be formed on a second plate.

[0011] The container may be in the form of an envelope, bag or pouch with a folding flap, or a box with a lid with a flap

[0012] A preferred embodiment of the invention is described in more detail below, by example only, with reference to the accompanying drawings, wherein:

Figs. 1a, 1b and 1c are perspective views illustrating the closing of a container according to one embodiment of the invention;

Figs. 2a and 2b are perspective views of respectively the first and second plates of the locking mechanism of the container of Figs. 1a, 1b and 1c;

Fig. 3 is a plan view of a disposable locking member or seal for use in locking the container of Figs. 1a, 1b and 1c;

Figs. 4a and 4b are explanatory sectional views of the seal of Fig. 3 locating in the lock unit of the container of the invention; and

Fig. 5 is a perspective view of another container embodying the invention.

[0013] Fig. 1a shows a container which in this embodiment is in the form of an envelope. The envelope 1 is closed by means of a flap 2. When the envelope is closed, the flap 2 folds over the front of the envelope in a conventional fashion.

[0014] The flap 2 has an aperture 5 at a central posi-

tion. The aperture 5 extends through the material of the flap and is also defined by a first plate 6 which is glued to the outside of the flap (see Fig. 1b). On the front of the envelope a second plate 7 is provided in a middle portion of which is formed a lock unit 8. The second plate 7 is fitted on the inside of the envelope, with the lock unit extending through a hole in the front of the envelope (although it could be fitted on the outside if desired). The second plate can be glued to the material of the envelope.

[0015] Fig. 1b shows the flap 2 of the envelope 1 in its closed position, with the flap 2 folded onto the front of the envelope. The first and second plates 6,7 are positioned such that the aperture 5 on the flap 2 fits over the lock unit 8 on the front of the envelope.

[0016] The closed position of the flap 2, with the first plate 6 lying over the second plate 7, and the lock unit 8 extending through the aperture 5, is shown in Fig. 1c. This Figure also shows a disposable locking member or seal 10 which is inserted in the lock unit 8 and fits on top of the first plate 6. The seal 10 thus provides a locking of the envelope, which envelope can then only be opened by breaking the seal. The seal 10 is pushed into the lock unit 8 from below, in a direction parallel to the plane of the envelope and to the plane of the first plate (and along the surface of the flap), rather being pushed or plugged into the lock unit from the front of the envelope.

[0017] The lock unit 8 and the first and second plates 6,7 are now described in more detail with reference to Figs. 2a and 2b. Fig. 2a shows the first plate 6 which in plan view is substantially barrel shaped. The central aperture 5 is clearly visible. The plate also has a series of interconnecting ribs 13, which provide rigidity to the plate.

[0018] Fig. 2b shows the second plate 7, which is of a similar shape to the first plate 6. Located centrally of the second plate 7 is the lock unit 8. The lock unit 8 is in the form of a raised enclosure or housing which on one side (the lower side as seen in Fig. 1c) has an opening 15. The lock unit or chamber 8 has a closed roof 16 which prevents access to the head of the seal 10 from above. On the inside of the roof 16 of the chamber 8 there is a rib or ridge 20, the purpose of which is described below.

[0019] In use, with the first plate 6 fitted to the flap of the envelope and the second plate 7 fitted to the front of the envelope, the first plate locates over the second plate, with the aperture 5 registering with the housing 8. In this position, the opening 15 is partly blocked by the first plate 6 (as viewed looking directly into the housing through the opening) but has still defines an open mouth which has height substantially the same as the thickness of the seal 10. The seal is then pushed into the mouth of the housing (from the lower right hand corner as seen in Fig. 2b), the seal 10 fitting over the border of the first plate 6 to lock the flap 2 in place.

[0020] Fig. 3 shows the disposable and frangible seal 10 which in this embodiment has a head part 21 and a body part 22. The head part 21 has arrow-head configuration with barbs 23, in a known fashion. The body part 22 is substantially square with rounded corners, but it

could be of any other desired shape. Between the body part 22 and the head part 21 is an elongate recess 24 which provides a reduced thickness and thus a weakened and breakable connection between the head and body parts. The seal also has a central recessed portion 26 which reduces the use of material in the seal. An important and preferred feature of the seal is that the head part has a groove 27 running along its length, for registration with the rib 20 on the roof of the housing 8. The head of the seal may have an indent 28 at its end for locating on a lug inside the housing 8.

[0021] As already discussed, to close the envelope, the first plate locates over the second plate and the seal 10 is locked in the housing 8, over part of the flap (or the plate on the flap). In particular, the seal is pushed into the housing 8 with, the resilient barbs 23 locating behind the edges of the mouth 15 of the housing. Thus, the seal cannot be removed without the breaking the body part 22 from the head part 21.

[0022] The sectional views of Fig. 4a and 4b show the seal 10 approaching the housing (Fig. 4a) and then the seal located within the housing (Fig. 4b). It can be noted that the opening 15 of the housing is tapered, that is the edge of the roof of the housing above the opening is inclined with respect to the plane of the base of the housing, which allows a close tolerance to be achieved between the thickness of the seal and the top of the opening, while at the same time the tapered shape provides no hindrance to the seal being inserted. It is also important to note that the opening or mouth 15 of the housing has a height (when the first plate is not on the second plate) which is substantially greater than the thickness of the head 21 of the seal 10 (for example at least twice the thickness of the seal head). This means that after the seal is broken and the flap lifted, the head of the seal can easily fall into the bottom of the housing and out of the housing, through the opening.

[0023] The lock unit may be formed of a suitable material, such as hardened steel, but is preferably formed of plastics such as nylon, polypropylene, ABS, styrene or engineering plastics. The disposable seals, which will generally be supplied in bulk, are formed of a suitable resilient but frangible plastics material, such as styrene, ABS, nylon or polypropylene.

[0024] Typical dimensions for the seal are 25mm long, by 11mm wide, the seal having the thickness of from 2-3mm. However, it will be appreciated that it is the thickness of the head part of the seal which is critical, in that it needs to be consistent with the internal dimensions of the chamber when the plates are overlapping, and the body part of the seal could be of a greater thickness if desired.

[0025] Although the invention has been described with reference to a container in the form of an envelope, it is equally relevant to other types of containers. For example, the container may be a bag or pouch which is closed by means of a flap. Alternatively, the container could be in the form of a box 1, for example as shown in Fig.5.

[0026] As shown, the box is closed by means of a lid 3 which has a flap 2 equivalent to the flap of the envelope of Fig. 1. When the lid of the box is closed, the flap 2 fits over the front 4 of the box in a conventional fashion. The aperture 5 extends through the material of the flap of the lid and is, as in Fig. 1, defined by a first plate 6 which in this embodiment is riveted to the flap (although it could be glued). On the front 4 of the box the second plate 7 is provided. The second plate 7 is also riveted to the material of the box. The first and second plates 6, 7 are positioned such that the aperture 5 on the flap 3 fits over the lock unit 8 on the front of the box. In the closed position of the flap 3, with the first plate 6 lying over the second plate 7, and the lock unit 8 extending through the aperture 5, the box can be locked by a disposable locking member or seal which is inserted in the lock unit 8 and fits on top of the first plate 6, in the same way as with the envelope described earlier. The seal thus provides a locking of the box, which box can then only be opened by breaking the seal. The seal is pushed into the lock unit 8 from below, in a direction parallel to the plane of the front 4 of the box and to the plane of the first plate.

[0027] The skilled person will understand that other containers using the invention are possible and that variations to the locking mechanism described above are conceivable without departing from the scope of the invention as defined in the claims.

Claims

1. A closable container (1) having an opening which is closed by a flap (2) of the container, the flap having an aperture (5) therethrough which in use registers with a lock unit (8) formed on a wall or side of the container with the lock unit extending through the aperture, the lock unit having an opening (15) for receiving the head of a breakable seal (10) which locks into the opening in such a manner that it cannot be removed without breaking, the seal in its inserted position locking the flap (2) over the lock unit in a tamper evident fashion, wherein the opening (15) of the lock unit is arranged on one side of the lock unit, whereby in use the seal is inserted substantially parallel to the plane of the flap.
2. A container according to claim 1, wherein the aperture (5) is formed in a first plate (6) fitted to the flap and which locates over the lock unit (8), and the lock unit is preferably formed on a second plate (7).
3. A container according to claim, 1 or 2, wherein the lock unit (8) has a roof on the inside of which is formed a rib (20) or groove for registration with a corresponding groove (27) or rib on the head part of the seal.
4. A container according to claim 1, 2 or 3, which is in the form of a box with a lid with a flap.

5. A container according to claims 1, 2 or 3, wherein the container is a bag, pouch or envelope with a folding flap.

Patentansprüche

1. Verschließbarer Behälter (1) mit einer Öffnung, die durch eine Klappe (2) des Behälters geschlossen wird, wobei die Klappe eine Mündung (5) **dadurch** aufweist, die im Gebrauch mit einer an einer Wand oder Seite des Behälters ausgebildeten Schlosseinheit (8) zur Deckung kommt, wobei sich die Schlosseinheit durch die Mündung erstreckt, wobei die Schlosseinheit eine Öffnung (15) zur Aufnahme des Kopfs eines zerbrechbaren Verschlusses (10) aufweist, der so in der Öffnung verriegelt wird, dass er ohne Zerschneiden nicht entfernt werden kann, wobei der Verschluss in seiner eingesetzten Position die Klappe (2) auf originalitätssichernde Weise auf der Schlosseinheit verriegelt, wobei die Öffnung (15) der Schlosseinheit auf einer Seite der Schlosseinheit angeordnet ist, wodurch der Verschluss im Gebrauch im Wesentlichen parallel zur Ebene der Klappe eingeführt wird.
2. Behälter nach Anspruch 1, wobei die Mündung (5) in einer an der Klappe angeordneten ersten Platte (6) ausgebildet ist, die auf der Schlosseinheit (8) angeordnet wird, und die Schlosseinheit vorzugsweise an einer zweiten Platte (7) ausgebildet ist.
3. Behälter nach Anspruch 1 oder 2, wobei die Schlosseinheit (8) ein Dach aufweist, auf dessen Innenseite eine Rippe (20) oder eine Nut zum Indeckungbringen mit einer entsprechenden Nut (27) oder Rippe am Kopfteil des Verschlusses ausgebildet ist.
4. Behälter nach Anspruch 1, 2 oder 3, der in Form eines Kastens mit einem Deckel mit einer Klappe vorliegt.
5. Behälter nach Anspruch 1, 2 oder 3, wobei der Behälter ein Beutel, eine Tasche oder ein Umschlag mit einer Faltklappe ist.

Revendications

1. Récipient fermable (1) comportant une ouverture qui est fermée par un rabat (2) du récipient, le rabat comportant en lui une ouverture (5) qui lors de l'utilisation coïncide avec une unité de fermoir (8) aménagée sur une paroi ou une face du récipient avec l'unité de fermoir s'étendant à travers l'ouverture, l'unité de fermoir comportant elle-même une ouverture (15) pour accueillir la tête d'un sceau cassable (10) qui se verrouille dans l'ouverture de telle manière qu'il

ne peut pas en être retiré sans se rompre, le sceau dans sa position insérée verrouillant le rabat (2) sur l'unité de fermoir d'une façon inviolable, dans lequel l'ouverture (15) de l'unité de fermoir est aménagée sur une face de l'unité de fermoir, en vertu de quoi lors de l'utilisation le sceau est inséré de façon sensiblement parallèle au plan du rabat. 5

2. Récipient selon la revendication 1, dans lequel l'ouverture (5) est aménagée dans une première plaque (6) montée sur le rabat et qui se situe au-dessus de l'unité de fermoir (8), et l'unité de fermoir est préférentiellement aménagée dans une deuxième plaque (7). 10

3. Récipient selon la revendication 1 ou 2, dans lequel l'unité de fermoir (8) comporte un toit sur la face intérieure duquel est aménagée une nervure (20) ou gorge destinée à coïncider avec une gorge (27) ou nervure correspondante aménagée sur la partie tête du sceau. 15 20

4. Récipient selon la revendication 1, 2 ou 3, qui est sous la forme d'une boîte comportant un couvercle doté d'un rabat. 25

5. Récipient selon les revendications 1, 2 ou 3, dans lequel le récipient est un sac, une bourse ou une enveloppe doté(e) d'un rabat pliable. 30

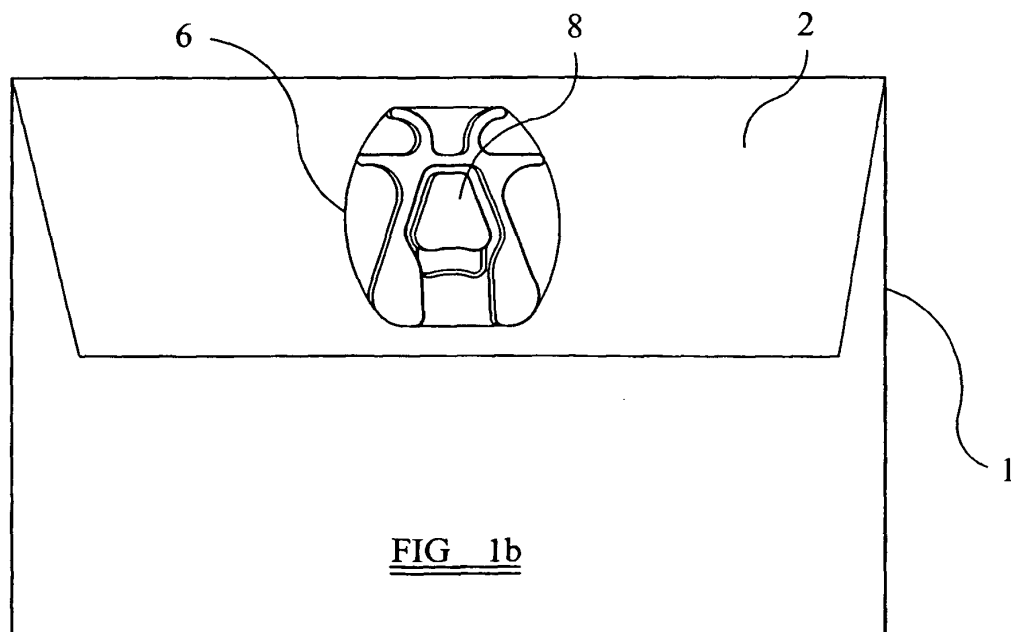
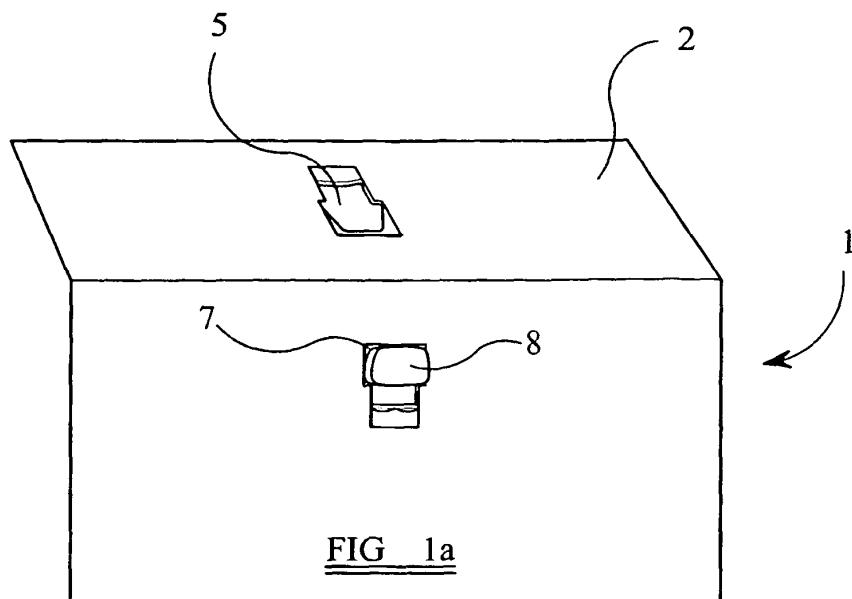
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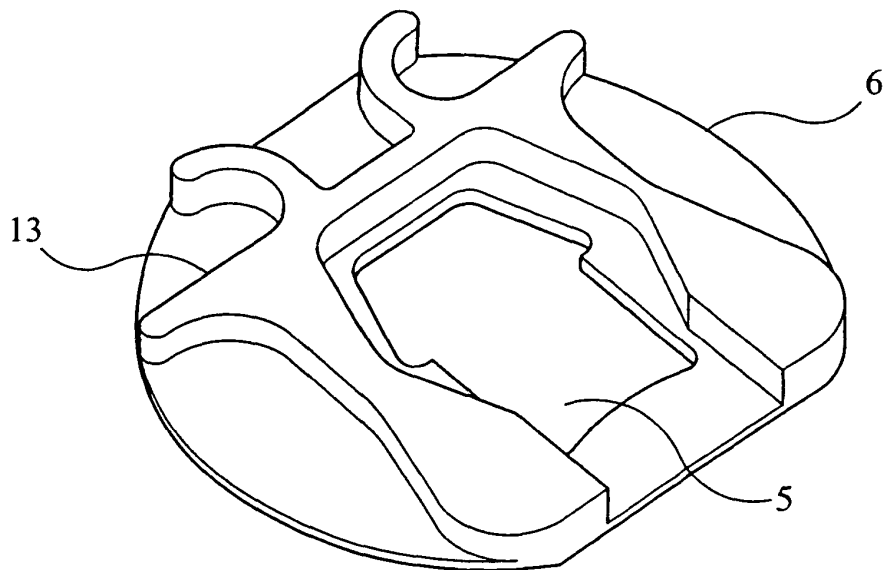
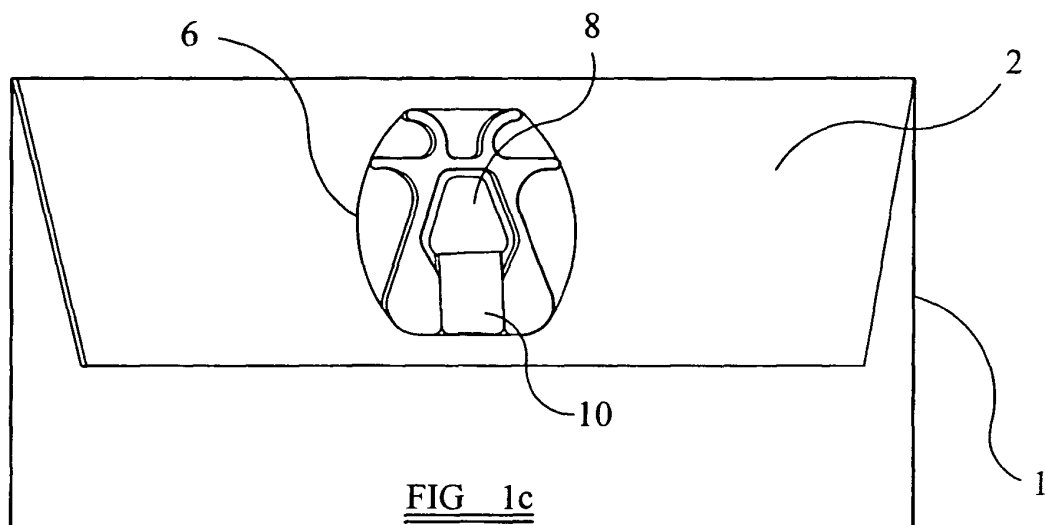
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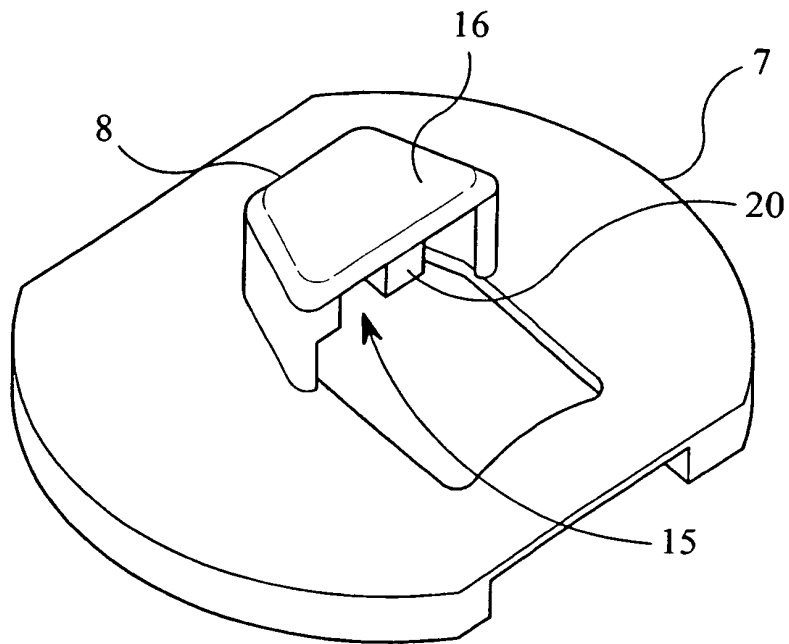


FIG 2b

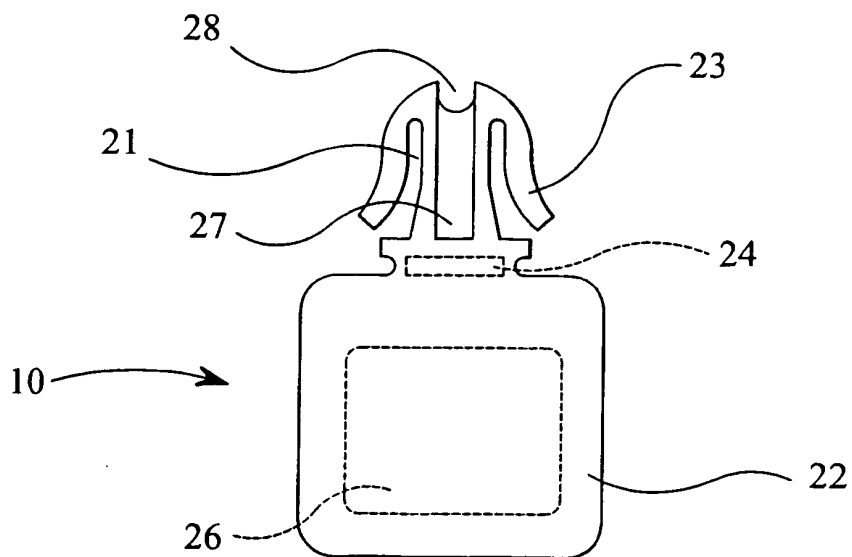


FIG 3

FIG 4a

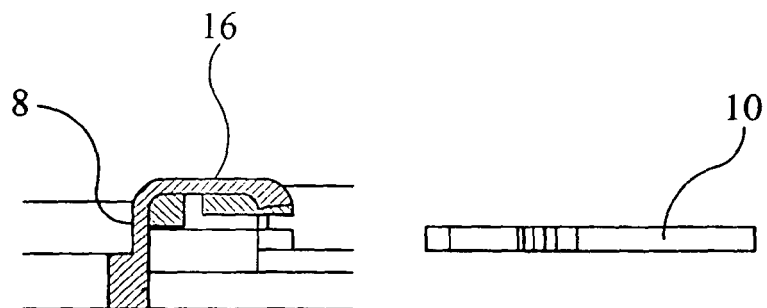


FIG 4b

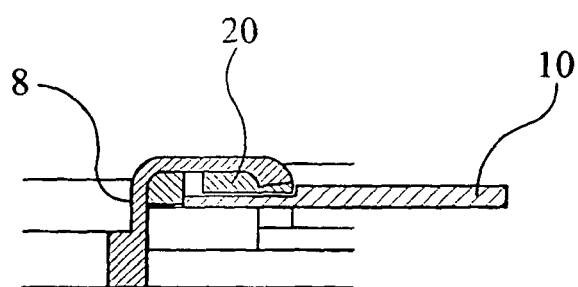
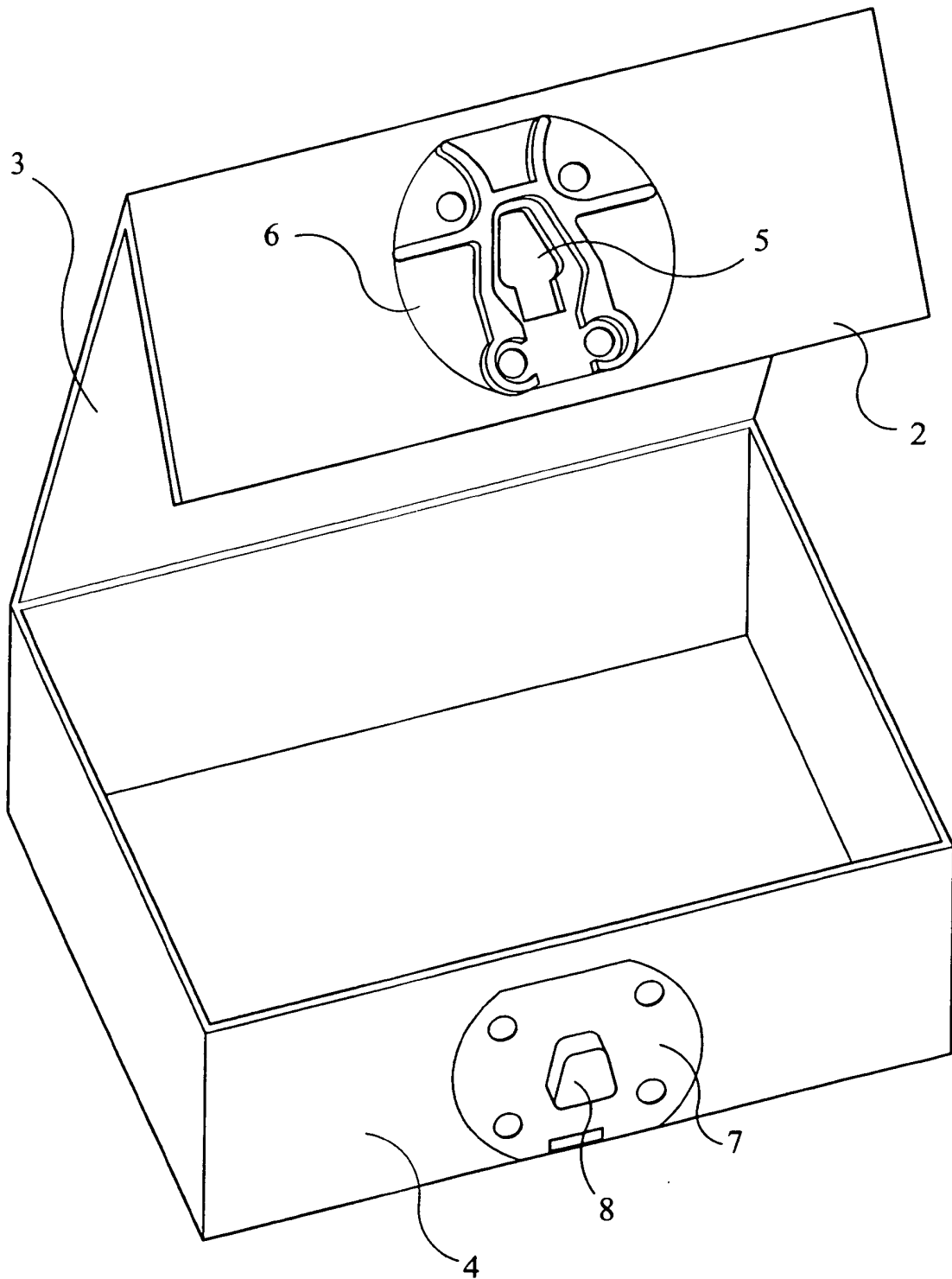


FIG 5



REFERENCES CITED IN THE DESCRIPTION

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